Surface Water Suppl of the United States 1948

Part 14. Pacific Slope Basins in Oregon a Lower Columbia River Basin

Prepared under the direction of C. G. PAULSEN, *Chief Hydraulic Engi*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1

Prepared in cooperation with the States of Oregon and Washington and other agencies

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON :

UNITED STATES DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, *Secretary*

GEOLOGICAL SURVEY

W. E. Wrather, *Director*

For sale by the Superintendent of Documents, U. S. Government Printing Office

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Oregon and Washington and other agencies, by personnel of the Water Resources Division under the direction of:

C. G. Paulsen---------- Chief Hydraulic Engineer
J. V. B. Wells---------- Chief, Surface Water Branch
B. J Peterson---------- Chief, Annual Reports Section

District Engineers (Surface Water)

G. H. Canfield (succeeded by K. N. Phillips)---------- Portland, Oreg.
F. M. Veatch---------- Tacoma, Wash.

CONTENTS

ILLUSTRATION

SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN, 1948

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, 1948. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of the flow of streams and of the stage and contents of lakes and reservoirs have been made at about 11,370 gaging stations in the 48 States and also at many in the Territories of Alaska and Hawaii. In July 1948, 5,960 gaging stations, including those in Hawaii, were being maintained by the Geological Survey and cooperating organizations. Miscellaneous discharge measurements were made during the water year at many 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. Cooperation of the first kind is acknowledged in connection with the description of each station affected; cooperation of the second kind is acknowledged, under the heading "Cooperation," in the introductory matter that precedes the gaging-station records in each volume. In the present volume, the section on cooperation of the second kind appears on page 13.

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 a stream whose channel is 1 square foot in cross-sectional area and whose 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 runoff is distributed uniformly both as regards time and area.

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

An "acre-foot" is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. 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 runoff of 0.0372 inch from 1 square mile.

"Stage-discharge relation" is an abbreviation for the term "relation between gage height and discharge."

"Control" is a term used to designate a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural section, a reach of the channel, or an artificial structure.

"Contents" is a term applied to the volume of water in a reservoir. It is computed on the basis of a level pool and does not include bank storage unless otherwise indicated.

EXPLANATION OF DATA

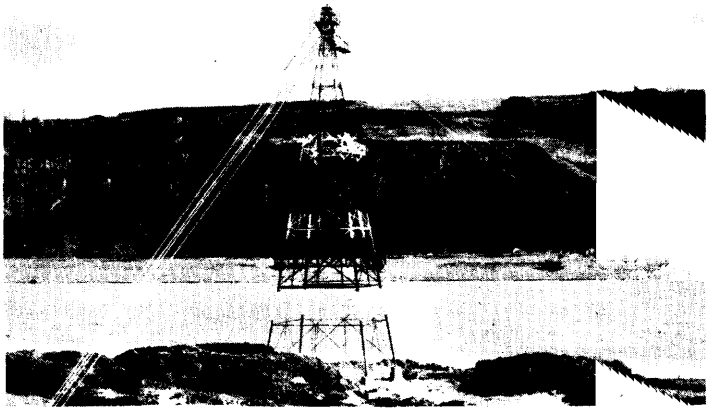
The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the records of stage and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording 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 structures in use at gaging stations are shown in figure 1.

Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the "shifting-control method," in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. At times the stage-discharge relation for a station may be temporarily changed by the presence of aquatic growth or debris on the control. For such times the daily mean discharge is computed by what is essentially the "shifting-control" method, described above.

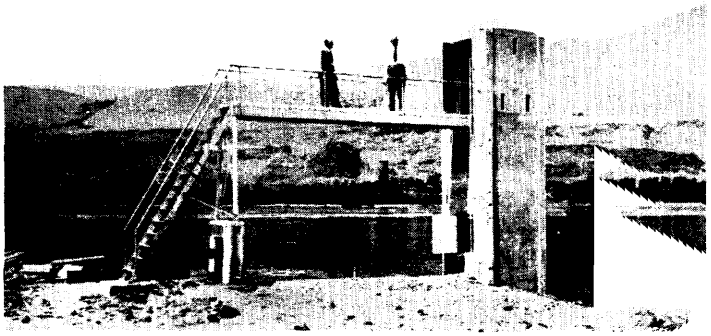
At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources, which necessitates the use of the "slope method," in which the slope or fall in a reach of the stream is a factor in the determination of discharge. Information requisite for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage, and for them the rate of change of stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during the winter, which makes it impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for stations in the same or nearby basins. For those stations at which the stage-discharge relation is affected by ice, the days included in the periods of ice effect either are indicated in the table by symbols referring to a footnote that states this fact or are given in a general note following the table. The days on which discharge measurements were made during or between periods of ice effect, shortly before the first period, or shortly after the last period are similarly indicated by a footnote.

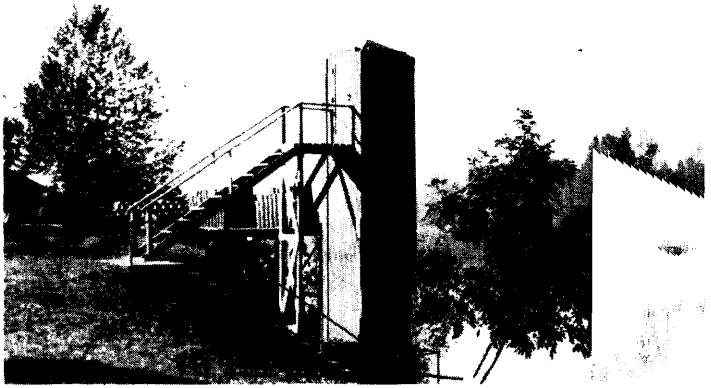
For most of the gaging stations on streams in the area covered by this report the data presented comprise a description of the station, a table showing the daily discharge of



A. COLUMBIA RIVER NEAR THE DALLES, OREG.
Measuring cable.



B. COLUMBIA RIVER NEAR THE DALLES, OREG.
Gage shelter and stilling well.



C. WILLAMETTE RIVER AT ALBANY, OREG.

FIGURE 1.—GAGING-STATION STRUCTURES.

the stream, and a table of monthly and yearly discharge and runoff. Skeleton rating tables are published for all stations except those at which the 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, location, drainage area, records available, average discharge, extremes of discharge, general remarks, and notations of revisions of previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having less than 10 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given 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 (also the minimum discharge if useful); and the minimum gage height (unless 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. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

For some stations previously published records have been found to be in error on the basis of data or information obtained subsequently. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" has been added to the station description of all stations for which revised records have been published. Listed therein are all the reports in which revisions appear, each followed by the water years for which figures are revised in that report. In listing the report number, W. means Water-Supply Paper. In listing the years, water years are indicated by only 1 year, for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If there were no daily, monthly, or annual figures of discharge involved in the revision, that fact is brought out by notations after the year dates as follows: (M) means that only the instantaneous maximum discharge was revised; (m) that only the instantaneous minimum was revised; and (P) that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which second-feet per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of second-feet per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing as an essential element a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge

corresponding to either once-daily readings of the gage, the mean of twice-daily readings, or the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of monthly discharge the column headed "Second-foot-days" gives the sum for each month of the figures given in the table of daily discharge. The column headed "Maximum" gives the maximum daily discharge, not the momentary discharge when the water surface was at crest stage. Likewise, in the column headed "Minimum" the quantity given is the minimum daily discharge. The column headed "Mean" gives the average flow in cubic feet per second during the month.

Peak discharges with the times of their occurrence are listed below the table of monthly discharge for most stations. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is usually given in the first report in which data for a station are published but is omitted from succeeding reports.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily on (1) the permanency of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements and (2) the accuracy of observations 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 error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more accurate than the daily records.

Yield at some stations as indicated by monthly means may vary widely from natural yield owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or other factors. For such stations figures of "second-feet per square mile" and "runoff in inches" are not published unless storage or diversion records are included indicating the extent of the regulation or diversion or unless satisfactory adjustments can be made for changes in contents or reservoirs or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless its inclusion is indicated. Even at those stations where adjustments are made, in some instances large errors in computed yields may occur when relatively large negative adjustments are applied or when evaporation is large in comparison with the observed discharge. Figures of second-feet per square mile and runoff in inches are also omitted if the drainage area includes large noncontributing areas or if the average annual rainfall over the drainage area 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, and therefore 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 presents in summary the distribution of the flow past the station. The table of daily discharge affords opportunity for more detailed studies of the variation in flow. As further observations in each succeeding year may be expected to throw new light on data previously published, it should be borne in mind that such data are subject to revision in succeeding water-supply papers.

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 papers and other publications of the Geological Survey containing data on 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 offices of the water resources division of the Geological Survey as follows:

East of the Mississippi River:
Albany, N. Y., 526 Federal Building.
Asheville, N. C., 220 Post Office Building.
Atlanta, Ga., 411 Grand Theater Building.
Augusta, Maine, 420 Statehouse.
Baton Rouge, La., 538 Florida Street.
Boston, Mass., 939 Post Office Building.
Champaign, Ill., 605 South Neil Street.
Charleston, W. Va., 408 Union Building.
Charlottesville, Va., Cabell Hall, University of Virginia.
Chattanooga, Tenn., 442 Post Office Building.
College Park, Md., 106 Engineering Building, University of Maryland.
Columbia, S. C., 207 Creason Building.
Columbus, Ohio, 25[illegible] West Hardin Street, Ohio State University.
Harrisburg, Pa., 490 Education Building.
Hartford, Conn., 203 Federal Building.
Indianapolis, Ind., 311 West Washington Street.
Jackson, Miss., 208 Millsaps Building.
Knoxville, Tenn., 337 Post Office Building.
Louisville, Ky., 531 Federal Building.
Madison, Wis., 666 State Office Building.
Montgomery, Ala., 507 Post Office Building.
New Philadelphia, Ohio, Muskingum Watershed Conservancy District Building.
Ocala, Fla., 302 Post Office Building.
Pittsburgh, Pa., 515 Plaza Building.
Raleigh, N. C., 908 Capitol Club Building.
St. Paul, Minn., 1427 New Post Office Building.
Trenton, N. J., 228 Federal Building.
Washington, D. C., General Services Administration Building.

West of the Mississippi River:
Austin, Tex., 302 West Fifteenth Street.
Bismarck, N. Dak., 7 Eltinge Building.
Boise, Idaho, 429 Federal Building.
Denver, Colo., 126 New Customhouse.
Fort Smith, Ark., 6 Post Office Building.
Helena, Mont., 408 Federal Building.
Honolulu, Hawaii, 225 Federal Building.
Idaho Falls, Idaho, 204 Federal Building.
Iowa City, Iowa, 508 Hydraulic Laboratory, University of Iowa.
Lincoln, Nebr., 510 Rudge-Guenzel Building.
Los Angeles, Calif., 429-F United States Post Office and Courthouse.
Oklahoma City, Okla., 203 Council Building.
Pierre, S. Dak., 207 Federal Building.
Portland, Oreg., 606 Post Office Building.
Rolla, Mo., 211 Ramsey Building.
St. Louis, Mo., 1004 New Federal Building.
Salt Lake City, Utah, 303 Federal Building.
San Francisco, Calif., 702 Appraisers Building.
Santa Fe, N. Mex., 204 United States Courthouse.
Tacoma, Wash., 207 Federal Building.
Topeka, Kans., 305 Federal Building.
Tucson, Ariz., 210 Post Office Building.

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

Prior to publication, records of discharge in provisional form for individual stations may usually be obtained from the district offices listed above.

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

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

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information.....	1884 to September 189
12th A, pt. 2	....do.....	1884 to June 30, 1891
13th A, pt. 3	....do.....	1884-92.
14th A, pt. 2	Monthly discharge.....	1888-93.
B 131.....	Descriptions, measurements, gage heights, and ratings.....	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
W 11.....	Gage heights.....	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge...	1895-96.
W 15.....	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights of stream west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1897.
W 27.....	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
W 28.....	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge.....	1898.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.....	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.....	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
W 65, 66.....	Descriptions, measurements, gage heights, and ratings.....	1901.
W 75.....	Monthly discharge.....	1901.

Papers on surface water supply containing records from 1899 to date, grouped by years and drainage basins, are listed by number on page 8. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data for 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 283, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899-1948 (for basins included see p. 61).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a	35	b35, 36	36	36	36	c36, 37	37	37	d37, 38	38, e39	38, f39	38	38	38
1900 g	47, h48	48	48, 149	49	49	49, j50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	k65, 66, 75	66, 75	k65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	b82, 83	83	m82, 83	k83, 85	84	k83, 84	84	85	85	85	85	85	85
1903	97	b97, 98	98	97	k98, 99, n100	99	k98, 99	99	100	100	100	100	100	100
1904	o124, p125, q126	q126, 127	128	129	k128, 130	130, r131	k128, 131	132	133	133, s134	134	135	135	135
1905	o165, p166, q167	q167, 168	169	170	171	172	k169, 173	174	175, t177	176, s177	177	178	178	u177, 178
1906	o201, p202, q203	q203, 204	205	206	207	208	k205, 209	210	211, t213	212, s213	213	214	214	214
1907-8	241	242	243	244	245	246	247	248	249	250, s251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, s271	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
1939	871	872	873	874	875	876	877	878	879	880	881	882	883	884
1940	891	892	893	894	895	896	897	898	899	900	901	902	903	904
1941	921	922	923	924	925	926	927	928	929	930	931	932	933	934
1942	951	952	953	954	955	956	957	958	959	960	961	962	963	964
1943	971	972	973	974	975	976	977	978	979	980	981	982	983	984
1944	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014
1945	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044
1946	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064
1947	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094
1948	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124

s Rating tables and index to WSP 35-39 contained in WSP 39. Monthly discharge for 1899 in 21st Annual Report, pert 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.
g Rating tables and index to WSP 47-52 contained in WSP 52. Monthly discharge for 1900 in 22d Annual Report, part 4.
h Schuylkill River 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.
q Susquehanna River to Yadkin River.
r Platte and Kansas Rivers.
s The Great Basin in California, except Truckee and Carson River Basins.
t Below mouth of Gila River.
u Rogue, Umpqua, and Siletz Rivers only.

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.

Each of the reports on surface water supply for the year 1939, issued as Water-Supply Papers 871 to 884 (see table on p. 8), contains, for the area covered by that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record have been collected. These summaries are available also as separate reprints.

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 alphabetically, some by States and some by drainage basins.

Reports containing compilations of records of discharge by States and drainage basins

Report	Period	Water-Supply Paper
STATE		
Alabama, Water powers of, with an appendix on stream measurements in Mississippi	1895-1903	107
California, Water resources of, part 1, Stream measurements in Sacramento River Basin.	1887-1912	298
California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.	1878-1912	299
California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific Coast river basins.	1891-1912	300
California, southern, Surface water supply of Pacific slope of	1890-1918	447
California, Surface water supply of Sacramento River Basin	1895-1927	597-E
California, Surface water supply of San Joaquin River Basin	1895-1927	636-D
California, southern, Surface water supply of Pacific slope basins in	1894-1927	636-E
California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.	1895-1927	637-A
Colorado, Water resources of	1884-1900	74
Georgia, Water resources of	1895-1905	197
Massachusetts, Surface waters of	1848-1915	415
Massachusetts, Hydrology of, Part 1, Summary of stream-flow and precipitation records.	1863-1945	1105
Nebraska, Surface water supply of	1894-1906	230
Oregon, Surface water supply of	1878-1910	370
Texas, Summary of records of surface waters of	1898-1937	850
Vermont, Surface waters of	1875-1916	424
Washington, Summary of hydrometric data in	1878-1919	492
Washington, Summary of records of surface waters of	1919-35	870
Wisconsin, northern, Water power of	1895-1905	156
Wyoming, Surface waters of, and their utilization	1894-1921	489
DRAINAGE BASIN		
Colorado River (Ariz., Colo., N. Mex., Utah, Wyo.) and its utilization	1888-1914	395
Colorado River, upper (Colo., Utah), and its utilization	1897-1927	617
Colorado River Basin (Ariz., Calif., Colo., Utah, Wyo.), Surface waters at base stations in.	1891-1938	918
Colorado River Basin (Ariz., Calif., Nev., N. Mex., Utah), Surface waters at stations on tributaries in lower.	1888-1938	1049
Columbia River Basin, upper (Mont., Idaho), Surface waters of	1898-1938	916
Great Salt Lake Basin, Water powers of	1889-1920	517
Green River (Colo., Utah, Wyo.) and its utilization	1894-1926	618
Kennebec River Basin (Maine), Water resources of	1890-1906	198
Milk River. See St. Mary and Milk Rivers		
Missouri and St. Mary River Basins (Mont.), Surface waters of	1881-1938	917
New-Kanawha River Basin (N. C., Va., W. Va.), Surface water supply of	1895-1920	536
Penobscot River Basin (Maine), Water resources of	1904-9	279
Potomac River Basin (D. C., Md., W. Va.)	1895-1906	192
Rio Grande Basin (Colo., N. Mex., Tex.), Water resources of	1888-1913	358
St. Mary and Milk Rivers (Mont., Canada), Water supply of	1898-1917	491
St. Mary River. See St. Mary and Milk Rivers; Missouri and St. Mary River Basin.		
Sevier Lake Basin (Utah), Utilization of surface water resources of	1889-1937	920
Susquehanna River Basin (Pa., Md.) Hydrography of	1890-1904	109

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

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Alabama.....	1895-1915	Bull. 17, Water powers of Alabama.....	Geological Survey of Alaba
Do.....	1904-47	Special Report 20, Water Resources and Hydrology of southeastern Alabama.	Do
Arkansas.....	1857-1928	Stream-gaging Rept. 1.....	Arkansas Geological Survey
Colorado.....	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado.[1]	State Planning Commission, Water Conservation Board State engineer.
Do.....	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Connecticut...	1900-1927	Bull. 44, Water resources of Connecticut...	State Geological and Natur History Survey.
Do.....	1912-33	5th biennial report.....	State Water Commission.
Florida.....	1898-1946	Bull. 31, Springs of Florida.....	Florida Geological Survey.
Georgia.....	1895-1906	Bull. 16, Water powers of Georgia.....	Geological Survey of Georg
Do.....	1907-19	Bull. 38, Water powers of Georgia.....	Do.
Illinois.....	1908-11	Water resources of Illinois.....	Rivers and Lakes Commissio
Do.....	1900-1934	Stream-flow data of Illinois.....	Division of Waterways.
Indiana.....	1923-27	Pub. 72, Surface water supply of Indiana...	Department of Conservation
Do.....	1927-30	Pub. 112, Surface water supply of Indiana..	Do.
Iowa.....	1873-1932	Stream-flow records of Iowa.....	State Planning Board.
Do.....	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa streams..	Iowa Geological Survey.
Do.....	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.
Kansas.....	1895-1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	1919-24	....do.....	Do.
Do.....	1924-28	Report of Division of Water Resources.....	State Board of Agriculture
Do.....	1928-35	Stream-flow data of Kansas.....	Do.
Do.....	1935-39	....do.....	Do.
Kentucky.....	1910-20	Surface waters of Kentucky.....	Kentucky Geological Survey
Louisiana.....	1903-38	Geol. Bull. 16, Surface water supply of Louisiana.	Department of Conservation
Maine.....	1887-1920	1st annual report.....	Maine Water Power Commissi
Maryland.....	1929-37	Flow data and draft storage curves for major streams in Maryland.	State Planning Commission Water Resources Commissi
Do.....	1892-1943	Bull. 1, Summary of records of surface waters of Maryland and the Potomac River Basin.	Department of Geology, Min and Water Resources.
Minnesota.....	1909-12	Water-resources investigation of Minnesota.	State Drainage Commission.
Missouri.....	1857-1926	Vol. 20, 2d series, Water resources of Missouri.	Missouri Bureau of Geology and Mines.
Do.....	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Montana.....	1889-1911	5th biennial report.....	Office of the State Engine
Do.....	1881-1938	Special Rept. 10, vols. 1-4, Water resources of Montana.	Montana Agricultural Exper ment Station.
Nebraska.....	1894-1914	1st hydrographic report.....	Bureau of Water Power, Irr gation, and Drainage.
Do.....	1914-28	2d hydrographic report.....	Do.
New Hampshire.	1889-1922	Annual and statistical report, vol. 12.....	Public Service Commission.
New Jersey....	1892-1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do.....	1928-34	Special Rept. 5, Surface water supply of New Jersey.	State Water Policy Commissi
Do.....	1934-40	Special Rept. 9, Surface water supply of New Jersey.	Do.
New Mexico....	1888-1925	Surface water supply of New Mexico.....	Office of the State Engine
North Carolina	1889-1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do.....	1889-1936	Bull. 39, Discharge records of North Carolina streams.[2]	Do.
Do.....	1866-1945	Hydrologic Data on the Neuse River Basin.	Do.
Do.....	1820-1945	Hydrologic Data on the Cape Fear River Basin.	Do.
Do.....	1866-1945	Hydrologic Data on the Yadkin-Pee Dee River Basin.	Do.
Do.....	1872-1945	Hydrologic Data on the Catawba and Broad River Basins	Do.
North Dakota..	1919-21	Report to Governor of North Dakota on flood control.	State chief engineer.
Do.....	1882-1938	Surface water in North Dakota.....	State Planning Board.
Do.....	1882-1944	Supplement B, 4th biennial report.....	State Water Conservation Commission.
Ohio.....	1898-1921	Bull. 73, Ohio stream flow, Part 1.....	Engineering Experiment Stati Ohio State University.
Do.....	1898-1944	Bull. 127, Ohio stream flow, Part 2.....	Do.
Do.....	1902-39	Bull. 200, Compilation of stream-flow records of Ohio.	Department of Agriculture, Division of Conservation and Natural Resources.
Do.....	1898-1939	Bull. 111, Ohio stream-drainage areas and flow-duration tables.	Engineering Experiment Stat Ohio State University.
Oregon.....	1878-1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engine
Do.....	1914-24	Bull. 7, Water resources of the State of Oregon.	Do.
Do.....	1924-30	Bull. 8, Water resources of the State of Oregon.	Do.
Do.....	1930-36	Bull. 9, Water resources of the State of Oregon.	Do.
Do.....	1936-41	Bull. 10, Water resources of the State of Oregon.	Do.

1 Contains records of yearly discharge only.
2 Contains records of maximum and minimum daily, weekly, and monthly discharge and yearly mean discharge.

State reports containing compilations of records of discharge--Continued

State	Period	Report	Issued by
Pennsylvania..	1890-1911	Report of the Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do.....	1928-32	Stream-flow records of Pennsylvania.....	Department of Forests and Waters.
Rhode Island..	1929-41	7th annual report.....	Department of Public Works.
South Carolina	1884-1946	Bull. 17, Summary of records of surface water supply of South Carolina.	South Carolina Research, Planning and Development Board.
Tennessee.....	1874-1924	Bull. 34, Water resources of Tennessee[3]....	Department of Education.
Do.....	1920-30	Bull. 40, Surface waters of Tennessee.....	Do.
Utah.....	1889-1905	5th biennial report.....	Office of the State Engineer.
Do.....	1906-10	7th biennial report.....	Do.
Do.....	1911-16	10th biennial report.....	Do.
Virginia.....	1895-1927	Bull. 31, Water resources of Virginia.....	Virginia Geological Survey.
Do.....	1927-42	Bull. 4, Surface water supply of Virginia (Potomac, Rappahannock, and York River Basins).	Virginia Conservation Commission.
Do.....	1927-42	Bull. 5, Surface water supply of Virginia (James River Basin).	Do.
Do.....	1927-42	Bull. 6, Surface water supply of Virginia (Roanoke and Chowan River Basins).	Do.
Do.....	1927-42	Bull. 7, Surface water supply of Virginia (New, Tennessee, and Big Sandy River Basins).	Do.
Washington....	1878-1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin.....	1888-1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	1914-23	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

3 Includes records of discharge for all stations in North Carolina in the Tennessee River Basin.

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, Connecticut, Idaho, Indiana, Kansas, Maine, Missouri, Montana, Nebraska, Nevada, New Mexico, New York (also New York City Board of Water Supply and city of Rochester), North Dakota, Oregon, Pennsylvania, Rhode Island, Washington, and Wyoming.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier noteworthy floods. The following list gives the numbers and titles of these reports:

Water-Supply Paper	Title
88	The Passaic flood of 1902.
92	The Passaic flood of 1903.
96	Destructive floods in the United States in 1903.
147	Destructive floods in the United States in 1904.
162	Destructive floods in the United States in 1905.
334	The Ohio Valley flood of March-April 1913.
426	Southern California floods of January 1916.
487	The Arkansas River flood of June 3-5, 1921.
488	The floods in central Texas in September 1921.
520-G	Some floods in the Rocky Mountain region.
636-C	The New England flood of November 1927.
771	Floods in the United States, magnitude and frequency.
773-E	The New York State flood of July 1935.
796-B	Flood on Republican and Kansas Rivers, May and June 1935.
796-C	Flood in La Canada Valley, Calif., January 1, 1934.
796-G	Major Texas floods of 1935.
798	The floods of March 1936, part 1, New England rivers.
799	The floods of March 1936, part 2, Hudson River to Susquehanna River region.
800	The floods of March 1936, part 3, Potomac, James, and upper Ohio Rivers.
816	Major Texas floods of 1936.
836-A	Stages and flood discharges of the Connecticut River at Hartford, Conn.
838	Floods of Ohio and Mississippi Rivers, January-February, 1937.
842	Floods in Canadian and Pecos River Basins of New Mexico, May and June 1937.
843	Floods of December 1937 in northern California.
844	Floods of March 1938 in southern California.
847	Maximum discharges at stream-measurement stations through September 1938.
867	Hurricane floods of September 1938.
869	Flood of August 1935 in Muskingum River Basin, Ohio.
914	Texas floods of 1938 and 1939.
966	Minor floods of 1938 in North Atlantic States.
967-A	Floods of September 1939 in Colorado River Basin below Boulder (Hoover) Dam.
967-B	Flood of July 5, 1939, in eastern Kentucky.
967-C	Flood of August 21, 1939, in town of Baldwin, Maine.
994	Cloudburst floods in Utah, 1850 to 1938.
997	Floods in Colorado.
1046	Texas floods of 1940.
1066	Floods of August 1940 in the southeastern States.
1080	Floods of May-June 1948 in Columbia River Basin.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table contains a list of gaging stations for the area covered by this report at which records of daily discharge were collected during the water year October 1947 to September 1948 by agencies other than the Geological Survey. The records for these stations are not contained in the publications of the Geological Survey. Records of many canals, not here listed, have been collected by the Oregon State engineer and the Bureau of Reclamation in connection with the water supply for irrigation projects.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by
Big Butte Creek, North Fork..	SW¼ sec. 2, T. 35 S., R. 2 E., 1 mile north of Butte Falls, Oreg.	1928-48	Oregon State engineer
Big Butte Springs.....	Sec. 17, T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1930-48	Do.
Big Marsh Creek.....	NE¼ sec. 20, T. 24 S., R. 7 E., at Hoey Ranch, near Crescent, Oreg.	1924, 1928-48*	Do.
Brown Creek.....	NE¼ sec. 30, T. 21 S., R. 8 E., 15 miles northwest of Lapine, Oreg.	1938-45, 1946-48*	Do.
Butter Creek.....	SE¼ sec. 22, T. 2 N., R. 27 E., at Foley Bridge, 14 miles southwest of Echo, Oreg.	1933-48	Do.
Charlton Creek.....	Sec. 1, T. 21 S., R. 7 E., above Crane Prairie Reservoir near Lapine, Oreg.	1927-24, 1937-48	Do.
Columbia River.....	Bonneville, Oreg.†	1879-1948	Corps of Engineers.
Cultus Creek.....	Sec. 19, T. 20 S., R. 8 E., above Crane Prairie Reservoir, near Lapine, Oreg.	1937-48*	Oregon State engineer
Deer Creek.....	NW¼ sec. 36, T. 20 S., R 7 E., above Crane Prairie Reservoir near Lapine, Oreg.	1938-48*	Do.
Deschutes River.....	NW¼NW¼ sec. 28, T. 21 S., R. 8 E., below Sheep Springs, near Lapine, Oreg.	1938-48	Do.
Do.....	N½ sec. 7, T. 20 S., R. 11 E., ½ mile below Little Deschutes River, at Peters Ranch, near Lapine, Oreg.	1944-48	Do.
Do.....	On line between sec. 31, T. 19 S., R. 11 E. and sec. 6, T. 20 S., R. 11 E., ½ mile below Spring River, near Lapine, Oreg.	1944-48	Do.
Do.....	SW¼ sec. 9, T. 19 S., R. 11 E., below Benham Falls, near Bend, Oreg.	1943-48	Do.
Do.....	SW¼ sec. 27, T. 18 S., R. 11 E., above Lava Island, near Bend, Oreg.	1943-48	Do.
Do.....	SW¼ sec. 4, T. 19 S., R. 11 E., ½ mile above Dillon Falls, at Ryan Ranch, near Bend, Oreg.	1943-48	Do.
Do.....	Near center sec. 7, T. 18 S., R. 12 E., ½ mile above head of mill pond, near Bend, Oreg.	1943-48	Do.
Evans Creek.....	Sec. 20, T. 34 S., R. 2 W., 3 miles above West Fork, 7½ miles north of Sams Valley, Oreg.	1942-48	Do.
Do.....	NE¼ sec. 34, T. 34 S., R. 3 W., at Bybee Springs, 7 miles northwest of Sams Valley, Oreg.	1940-48	Do.
Fish Lake Dam, tunnel at.....	SW¼ sec. 3, T. 37 S., R. 4 E., 14 miles east of Lake Creek, Oreg.	1923-48	Do.
Grave Creek.....	NW¼SW¼ sec. 7, T. 34 S., R. 5 W., 1½ miles west of Placer, Oreg.	1923-30, 1932-48*	Do.
Jumpoff Joe Creek.....	SW¼ sec. 32, T. 34 S., R. 5 W., 7 miles northwest of Merlin, Oreg.	1923-48*	Do.
Little Butte Creek, North Fork.	Sec. 21, T. 36 S., R. 2 E., above Rogue River Valley Canal intake, near Lake Creek, Oreg.	1932-48*	Do.
Little Butte Creek, South Fork.	NE¼ sec. 21, T. 37 S., R. 4 E., 1 mile south of Big Elk ranger station, near Lake Creek, Oreg.	1932-48*	Do.
Little Deschutes River.....	SE¼ sec. 30, T. 20 S., R. 11 E., 4 miles above mouth, at Johnson Ranch, near Bend, Oreg.	1943-48*	Do.
Little Walla Walla River.....	George St., in Milton, Oreg.	1932-48	Do.
Ochoco Creek.....	NE¼ sec. 6, T 15 S., R. 17 E., below Ochoco Reservoir, 6 miles east of Prineville, Oreg.	1919-48	Do.
Ochoco Reservoir.....	NW¼ sec. 5, T. 15 S., R. 17 E., 6 miles east of Prineville, Oreg.	1918-48	Do

* Records for some earlier years contained in water-supply papers published by the Geological Sur
† Prior to September 1937, station was at Cascade Locks, Oreg. (record equivalent).

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Collected by
Ochoco Springs.....	NE¼ sec. 6, T. 15 S., R. 17 E., 6 miles east of Prineville, Oreg.	1920-48	Oregon State engineer.
Rancheria Creek.....	SE¼ sec. 17, T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1935-48	Do.

Note.- Records through 1941 collected by the Oregon State engineer (some of them in cooperation with the Bureau of Reclamation of the U. S. Department of Interior) are contained in the bulletins published by that officer. (See p. 9 "State reports containing compilation of records of discharge.") The other records listed in this table have not been published.

COOPERATION

In Oregon the work was done under cooperative agreements with the State of Oregon, C. E. Stricklin, State engineer, and the cities of Corvallis, Eugene, McMinnville, and Portland. In Washington the work was done under cooperative agreements with the State Department of Conservation and Development, Art Garton, succeeded by F. A. Stewart as director, and C. J. Bartholet, consulting engineer for the department; State Department of Fisheries, Milo Moore, director; Columbia County; and Walla Walla County.

Financial assistance was furnished by the Corps of Engineers for the operation of 39 gaging stations in Oregon and 15 in Washington.

Financial assistance was also furnished by the Bureau of Reclamation of the United States Department of Interior.

Assistance in collecting records was rendered by the following organizations:

Oregon: Counties of Crook, Deschutes, Jackson, Jefferson, Josephine, Klamath, and Umatilla; city of Grants Pass; The California Oregon Power Co., California Public Utilities, Pacific Power & Light Co., and Portland General Electric Co.

Washington: Northwestern Electric Co. and Pacific Power & Light Co.

DIVISION OF WORK

The stream-gaging work was conducted by the water resources division of the Geological Survey--Carl G. Paulsen, chief hydraulic engineer and Joseph V. B. Wells, chief of the surface water branch. The data for the gaging stations were collected and prepared for publication under supervision of district engineers as follows: In Oregon, G. H. Canfield until Aug. 31, 1948, succeeded by K. N. Philips on Oct. 22, 1948, the work being done in collaboration with C. E. Stricklin, State engineer; in Washington, F. F. Veatch.

The records were reviewed and the manuscript prepared for publication under the direction of B. J. Peterson, chief, annual reports section.

COLUMBIA RIVER MAIN STEM

Columbia River near The Dalles, Oreg.

Location.- Water-stage recorder, lat. 45°39', long. 120°58', in NE¼ sec. 20, T. 2 N., R 15 E., just upstream from Celilo Falls, 3 miles downstream from Deschutes River, and 11 miles east of The Dalles. Datum of gage is at mean sea level, datum of 1929.
Drainage area.- 237,000 square miles.
Records available.- June 1878 to September 1948. Prior to October 1931, records based staff gage at The Dalles, supplemented for a few short periods by gage-height record at Umatilla and Cascade Locks. Maximum stage for each year in period 1858 to 1877 f readings of gage at Lower Cascades Landing.
Average discharge.- 70 years, 194,600 second-feet.
Extremes.- Maximum discharge during year, 1,010,000 second-feet May 31 (elevation, 154. feet); minimum, 90,400 second-feet Oct. 1 (elevation, 129.63 feet).
1858-1948: Maximum discharge, 1,240,000 second-feet June 6, 1894 (elevation, 106 feet on gage at The Dalles, 160.1 feet at present site); minimum observed, 35,000 se ond-feet Jan. 12, 1937 (elevation, 126.0 feet).
Remarks.- Records excellent except those for July 1 to Sept. 15, which are good. Stora and diversions for irrigation are only a small part of tatal runoff. Some regulatio by Franklin D. Roosevelt Lake above Grand Coulee Dam during year, the total increase contents during the year ending Sept. 30, 1948, being 182,200 acre-feet.
Cooperation.- Recorder inspected and gages read by Corps of Engineers.
Revisions (water years).- W 534: 1920(m). W 554: 1879-1920 (low-water rating curve). W 1094: 1894.

Rating table, water year 1947-48 (gage height in feet, and discharge, in second-feet)

129.6	89,700	145	622,000
132	151,000	150	819,000
135	247,000	155	1,024,000
140	431,000		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	91,100	150,000	123,000	101,000	98,300	140,000	129,000	261,000	980,000	541,000	216,000	157,(
2	91,300	145,000	125,000	99,500	104,000	127,000	122,000	270,000	949,000	518,000	214,000	157,(
3	91,100	147,000	131,000	99,000	111,000	118,000	121,000	272,000	934,000	498,000	209,000	157,(
4	92,000	144,000	138,000	98,000	112,000	112,000	127,000	273,000	937,000	473,000	206,000	154,(
5	92,500	143,000	131,000	104,000	113,000	106,000	138,000	276,000	960,000	456,000	203,000	147,(
6	97,600	143,000	125,000	106,000	110,000	102,000	135,000	278,000	953,000	432,000	200,000	142,(
7	99,500	140,000	121,000	123,000	107,000	102,000	131,000	280,000	947,000	411,000	198,000	141,(
8	97,600	136,000	119,000	141,000	104,000	104,000	128,000	291,000	948,000	396,000	197,000	138,(
9	98,500	138,000	116,000	190,000	108,000	104,000	127,000	320,000	949,000	376,000	197,000	136,(
10	99,700	139,000	114,000	193,000	113,000	105,000	129,000	352,000	953,000	360,000	198,000	134,(
11	102,000	143,000	110,000	170,000	114,000	104,000	130,000	375,000	963,000	347,000	197,000	131,(
12	105,000	138,000	105,000	158,000	111,000	103,000	134,000	364,000	969,000	333,000	191,000	128,(
13	110,000	138,000	102,000	149,000	107,000	99,500	134,000	358,000	964,000	317,000	188,000	125,(
14	117,000	138,000	104,000	141,000	103,000	98,800	133,000	353,000	942,000	303,000	186,000	120,(
15	117,000	132,000	103,000	135,000	103,000	99,200	130,000	385,000	915,000	292,000	182,000	117,(
16	115,000	129,000	104,000	123,000	114,000	104,000	132,000	388,000	877,000	281,000	179,000	114,(
17	113,000	129,000	105,000	111,000	114,000	105,000	142,000	385,000	846,000	272,000	177,000	112,(
18	117,000	128,000	105,000	108,000	112,000	106,000	166,000	394,000	831,000	264,000	170,000	110,(
19	129,000	130,000	106,000	111,000	111,000	105,000	199,000	418,000	812,000	260,000	167,000	114,(
20	145,000	134,000	112,000	112,000	105,000	102,000	216,000	448,000	791,000	253,000	165,000	113,(
21	160,000	128,000	114,000	111,000	103,000	101,000	213,000	488,000	768,000	251,000	161,000	112,(
22	157,000	120,000	115,000	110,000	105,000	102,000	217,000	535,000	744,000	246,000	161,000	109,(
23	162,000	116,000	120,000	112,000	111,000	105,000	226,000	584,000	727,000	241,000	162,000	106,(
24	178,000	115,000	115,000	110,000	132,000	106,000	249,000	668,000	709,000	235,000	161,000	105,(
25	171,000	111,000	112,000	110,000	130,000	111,000	257,000	675,000	673,000	229,000	161,000	105,(
26	164,000	110,000	109,000	116,000	124,000	112,000	267,000	698,000	645,000	223,000	161,000	107,(
27	163,000	114,000	104,000	117,000	135,000	114,000	275,000	746,000	623,000	215,000	160,000	112,(
28	160,000	116,000	101,000	112,000	174,000	120,000	267,000	806,000	600,000	215,000	160,000	112,(
29	159,000	131,000	101,000	107,000	161,000	119,000	255,000	876,000	573,000	215,000	158,000	109,(
30	157,000	126,000	99,500	103,000	-	121,000	249,000	944,000	562,000	217,000	157,000	107,(
31	154,000	-	100,000	99,700	-	125,000	-	999,000	-	216,000	156,000	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fe
October	3,905,900	178,000	91,100	126,000	0.532	0.61	7,747,00
November	3,951,000	150,000	110,000	131,700	.556	.62	7,837,00
December	3,489,500	138,000	99,500	112,600	.475	.55	6,921,00
Calendar year 1947	71,889,800	536,000	87,400	197,000	.831	11.29	143,000,00
January	3,780,200	193,000	98,000	121,900	.514	.59	7,498,00
February	3,349,300	174,000	98,300	115,500	.487	.53	6,643,00
March	3,382,500	140,000	98,800	109,100	.460	.53	6,709,00
April	5,278,000	275,000	121,000	175,900	.742	.83	10,470,00
May	14,760,000	999,000	261,000	476,100	2.01	2.32	29,280,00
June	25,070,000	980,000	562,000	835,700	3.53	3.93	49,730,00
July	9,886,000	541,000	215,000	318,900	1.35	1.55	19,610,00
August	5,598,000	216,000	156,000	180,600	.762	.88	11,100,00
September	3,731,000	157,000	105,000	124,400	.525	.59	7,400,00
Water year 1947-48	86,181,400	999,000	91,100	235,500	.994	13.53	171,000,00

Note.- Inlets sluggish July 1 to Sept. 15; discharge computed from recorder graph adjusted on basis of once-daily readings of outside gage.

WALLA WALLA RIVER BASIN

South Fork Walla Walla River near Milton, Oreg.

Location.- Water-stage recorder, lat. 45°50', long. 118°10', in NE¼ sec. 15, T. 4 N., R. 37 E., 1 mile upstream from Pacific Power & Light Co.'s penstock intake and 13 miles southeast of Milton. Altitude of gage, about 2,050 feet (from river-profile map).
Drainage area.- 63 square miles.
Records available.- February to October 1903 (gage heights only), August 1906 to November 1917 (incomplete), May 1931 to September 1948.
Average discharge.- 24 years (1908-15, 1931-48), 169 second-feet.
Extremes.- Maximum discharge during year, 1,180 second-feet May 22 (gage height, 3.20 feet), from rating table extended above 580 second-feet; minimum, 113 second-feet Oct. 1, 2.

1906-17, 1931-48: Maximum discharge recorded, 2,430 second-feet Dec. 12, 1946 (gage height, 4.20 feet), from rating curve extended above 240 second-feet; minimum, 72 second-feet Feb. 14, 1932.

Maximum stage known, about 6 feet Mar. 31, 1931, present site and datum.

Remarks.- Records good except those for period of backwater from debris, which are fair, and those for periods of no gage-height record, which are poor. No diversion or regulation above station.

Rating tables, water year 1947-48, except period at backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 22				May 23 to Sept. 30			
1.3	103	2.4	480	1.5	120	2.4	440
1.5	138	2.8	770	1.7	157	2.7	630
1.8	208	3.1	1,070	1.9	215	3.1	1,000
2.1	315			2.1	290		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	a175	287	a160	c154	250	234	268	a500	205	140	128
2	138	a170	295	a170	c152	234	279	261	568	196	140	128
3	152	a165	272	a190	c142	214	335	315	552	189	136	126
4	123	a160	244	a200	c142	203	307	420	494	183	136	126
5	119	a155	221	a200	c140	200	268	355	a470	189	136	128
6	121	a150	208	a300	c140	198	247	370	a460	175	136	128
7	119	a450	200	a800	c138	198	224	409	a485	186	134	128
8	127	a600	187	a500	c140	192	214	498	a510	170	134	131
9	121	a450	182	c315	c140	192	237	706	a510	165	133	134
10	128	a350	175	c283	c138	185	258	528	a490	160	133	138
11	125	283	172	c247	c134	185	250	498	a460	162	133	140
12	119	261	168	c218	c134	180	234	450	a420	157	131	142
13	119	250	175	c203	c134	177	218	634	a380	153	131	144
14	117	240	180	c200	c136	177	224	534	a350	153	131	146
15	119	230	180	c192	c144	175	307	492	a310	151	131	149
16	123	218	177	a180	c140	172	414	528	330	151	131	151
17	121	221	268	a170	c156	170	432	542	309	149	128	153
18	125	268	287	a160	c180	172	398	490	295	149	128	153
19	123	261	272	a160	c182	168	382	569	296	146	128	a140
20	a200	234	240	a160	c175	165	432	625	302	146	126	a130
21	a300	208	221	a165	c221	165	444	665	480	144	126	125
22	a250	182	211	a170	432	175	444	996	429	142	128	125
23	a200	a170	200	a175	350	177	409	909	370	140	128	125
24	a180	a160	190	a175	283	182	350	805	322	138	128	125
25	a160	a150	180	a170	261	195	315	738	290	138	128	a125
26	a150	a200	177	a165	658	190	283	788	266	136	128	a125
27	a140	a270	177	c160	480	200	268	863	243	142	126	a125
28	h136	250	182	c160	345	224	268	788	232	178	126	a130
29	a150	230	187	c160	279	258	303	600	226	149	126	a130
30	a170	234	180	c158	-	268	283	518	218	142	126	a130
31	a180	-	a170	c154	-	244	-	a480	-	140	128	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	4,568	300	113	147	2.33	2.70	9,060
November	7,345	600	150	245	3.89	4.34	14,570
December	6,465	295	168	209	3.32	3.82	12,820
Calendar year 1947	69,020	600	109	189	3.00	40.77	136,900
January	6,820	800	154	220	3.49	4.03	13,530
February	6,250	658	134	216	3.43	3.69	12,400
March	6,085	268	165	196	3.11	3.59	12,070
April	9,261	444	214	309	4.90	5.47	18,370
May	17,642	996	261	569	9.03	10.41	34,990
June	11,567	568	218	386	6.13	6.83	22,940
July	4,924	205	136	159	2.52	2.91	9,770
August	4,054	140	126	131	2.08	2.39	8,040
September	4,008	153	125	134	2.13	2.37	7,950
Water year 1947-48	88,989	996	113	243	3.86	52.55	176,500

Peak discharge (base, 500 sec.-ft.).- Jan. 7 (time unknown) 1,090 sec.-ft.; Feb. 26 (12 m.) 880 sec.-ft.; May 9 (1 a.m.) 860 sec.-ft.; May 13 (7 a.m.) 674 sec.-ft.; May 22 (4 p.m.) 1,180 sec.-ft.; May 27 (10 p.m.) 1,060 sec.-ft.; June 21 (8 a.m.) 567 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Fork Walla Walla River near Milton and recorded range in stage when available.
c Backwater from debris.
h Computed from staff-gage reading.

Walla Walla River below Freewater, Oreg.

Location.- Water-stage recorder, lat. 45°59', long. 118°23', in NW¼NE¼ sec. 25, T. 6 N., R. 35 E., at McCoy Bridge, 2 miles upstream from Birch Creek and Oregon-Washington State line, and 2.5 miles north of Freewater. Datum of gage is 845.28 feet above mean sea level, datum of 1929. Auxiliary wire-weight gage at bridge 80 feet downstream at datum 11.94 feet lower.

Records available.- April 1941 to February 1948 (discontinued).

Extremes.- Maximum discharge during period October to February, 1,480 second-feet Nov. 20 (gage height, 16.83 feet, wire-weight gage datum), from rating curve extended above 1,000 second-feet; no flow Oct. 1-20.

1941-48: Maximum discharge, 2,400 second-feet Dec. 12, 1946 (gage height, 7.17 feet), from rating curve extended above 680 second-feet; no flow at times each year.

Remarks.- Records poor. Many diversions above station for irrigation. Little Walla Walla River, a natural distributary, diverts 3 miles above station. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	0	162	360	130	66							
2	0	162	459	150	63							
3	0	153	472	165	64							
4	0	150	382	207	68							
5	0	147	284	210	64							
6	0	156	242	501	56							
7	0	590	210	1,130	54							
8	0	935	201	915	56							
9	0	504	186	570	54							
10	0	400	180	436	48							
11	0	308	192	364	42							
12	0	259	204	292	38							
13	0	256	217	234	40							
14	0	288	245	210	48							
15	0	292	224	192	70							
16	0	238	183	162	59							
17	0	210	308	147	73							
18	0	336	360	139	103							
19	0	340	352	133	108							
20	0	266	273	120	98							
21	214	214	242	115	117							
22	300	168	248	115	-							
23	245	171	214	133	-							
24	201	195	198	139	-							
25	183	144	162	150	-							
26	192	198	162	122	-							
27	189	300	150	110	-							
28	150	259	156	92	-							
29	153	210	165	83	-							
30	177	210	147	77	-							
31	174	-	133	70	-							

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	2,178	300	0	70.3	4,3
November	8,221	935	144	274	16,3
December	7,511	472	133	242	14,9
Calendar year 1947	50,129	1,240	0	137	99,4
January	7,613	1,130	70	246	15,1
February 1-21	1,389	117	38	66.1	2,7
March	-	-	-	-	-
April	-	-	-	-	-
May	-	-	-	-	-
June	-	-	-	-	-
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
The period	-	-	-	-	53,3

North Fork Walla Walla River near Milton, Oreg.

Location.- Water-stage recorder, lat. 45°54', long. 118°18', in NW¼NE¼ sec. 22, T. 5 N., R. 36 E., at bridge half a mile upstream from confluence with South Fork Walla Walla River and 4.5 miles southeast of Milton. Datum of gage is 1,405.69 feet above mean sea level, datum of 1929.

Drainage area.- 47 square miles.

Records available.- October 1940 to September 1948 in reports of Geological Survey; December 1929 to September 1936 in reports of State engineer; October 1936 to September 1940 (unpublished) in files of State engineer.

Average discharge.- 18 years, 46.6 second-feet.

Extremes.- Maximum discharge during year, 932 second-feet Feb. 26, from rating curve extended above 310 second-feet; maximum gage height, 5.92 feet May 22; minimum discharge, 4 second-feet Sept. 6, 7, 13-16.

1929-48: Maximum discharge observed, 1,980 second-feet Dec. 12, 1946 (gage height, 6.97 feet), from rating curve extended above 230 second-feet; minimum, 1 second-foot Aug. 8-19, 1936, Aug. 7-11, 1940.

Remarks.- Records poor. Diversions above station for irrigation of about 220 acres; no regulation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 8 to May 21)

Oct. 1 to May 8						May 9 to Sept. 30					
3.4	6.2	3.9	71	4.8	350	3.8	4	4.3	42	5.0	200
3.5	12	4.0	94	5.0	430	3.9	6	4.4	59	5.3	300
3.6	22	4.1	122	5.3	570	4.0	10	4.5	77	5.8	515
3.7	36	4.3	182			4.1	16	4.6	97		
3.8	52	4.6	280			4.2	27	4.8	145		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7	46	108	46	32	a175	e70	100	272	54	19	5
2	8	46	128	50	30	a150	e90	94	276	47	15	5
3	26	42	119	58	35	128	116	100	274	42	14	5
4	18	41	100	63	36	108	131	137	244	39	11	6
5	13	39	82	60	33	94	116	140	218	44	12	5
6	12	47	73	100	29	a80	97	140	214	42	12	5
7	11	283	65	555	23	a70	92	176	225	47	10	5
8	15	450	58	502	25	60	92	252	229	40	8	5
9	16	225	54	256	21	56	94	267	219	38	7	5
10	17	161	52	179	21	50	111	165	196	36	5	5
11	17	143	49	122	16	49	108	148	107	36	5	5
12	14	116	44	92	18	47	105	185	148	34	5	5
13	13	111	52	78	18	44	100	300	142	28	6	4
14	11	97	67	69	18	42	105	254	128	22	6	4
15	10	100	58	56	20	41	119	200	122	18	7	4
16	15	94	56	47	18	41	146	221	126	19	7	5
17	16	92	63	39	21	39	238	199	108	16	6	5
18	15	131	80	36	32	41	308	167	100	16	6	5
19	15	131	78	30	36	41	262	184	100	13	6	6
20	44	97	73	30	33	39	256	168	102	15	5	8
21	152	82	65	32	50	38	259	231	298	15	5	7
22	116	73	63	32	194	41	242	470	268	15	5	7
23	78	62	60	38	167	42	197	431	209	15	6	7
24	60	54	54	39	116	47	170	416	160	15	6	7
25	47	50	44	39	105	e60	152	337	130	15	8	7
26	38	71	42	32	509	e55	131	338	111	14	7	7
27	33	97	41	29	235	e60	116	366	95	14	7	8
28	30	82	50	32	252	e70	102	500	77	47	7	7
29	35	69	56	30	a200	e80	111	428	64	38	6	6
30	47	65	52	32	-	e90	100	328	61	23	6	7
31	49	-	49	30	-	e80	-	288	-	18	6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	998	152	7	32.2	1,980
November	3,197	450	39	107	6,340
December	2,035	128	41	65.6	4,040
Calendar year 1947	19,856.2	697	1.3	54.4	39,390
January	2,833	555	29	91.4	5,620
February	2,343	509	16	80.8	4,650
March	2,058	175	38	66.4	4,080
April	4,336	308	70	145	8,600
May	7,730	500	94	249	15,330
June	5,086	298	61	170	10,090
July	875	54	13	28.2	1,740
August	241	19	5	7.8	478
September	172	8	4	5.7	341
Water year 1947-48	31,904	555	4	87.2	63,290

Peak discharge (base, 300 sec.-ft.).- Nov. 7 (12 p.m.) 655 sec.-ft.; Jan. 7 (12:30 p.m.) 846 sec.-ft.; Feb. 26 (4 p.m.) 932 sec.-ft.; Apr. 18 (7 p.m.) 366 sec.-ft.; May 9 (12:30 a.m.) 474 sec.-ft.; May 13 (4 p.m.) 416 sec.-ft.; May 22 (5 p.m.) 570 sec.-ft.; May 28 (6 a.m.) 546 sec.-ft.; June 21 (6 a.m.) 384 sec.-ft.

a No gage-height record; discharge computed on basis of records for South Fork Walla Walla River near Milton.

e Stage-discharge relation indefinite; discharge computed as explained in footnote a.

Mill Creek near Walla Walla, Wash.

Location.- Water-stage recorder, lat. 46°00', long. 118°07', in SE¼SE¼ sec. 12, T. 6 N., R. 37 E., 4 miles downstream from city of Walla Walla diversion dam, 4½ miles upstream from Blue Creek, and 11½ miles southeast of Walla Walla. Datum of gage is 2,000 feet above mean sea level, unadjusted.

Drainage area.- 54 square miles.

Records available.- August 1913 to September 1917, April to September 1938, October 1938 to September 1948.

Average discharge.- 13 years (1913-17, 1939-48), 92.3 second-feet.

Extremes.- Maximum discharge during year, 1,470 second-feet Feb. 26 (gage height, 17.15 feet), from rating curve extended above 680 second-feet; minimum, 33 second-feet Oct. 1913-17, 1938, 1939-48: Maximum discharge, 1,880 second-feet Dec. 28, 1945 (gage height, 17.85 feet), from rating curve extended above 920 second-feet; minimum observed 16 second-feet Oct. 11-15, 1939.

Remarks.- Records fair except those for periods of no gage-height record or shifting control, which are poor. City of Walla Walla diverts about 22 second-feet 4 miles above station for municipal use.

Rating table, water year 1947-48, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

14.5	30	15.5	335
14.7	55	15.7	455
14.9	92	16.0	645
15.1	143	16.3	845
15.3	222	16.8	1,200

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	34	78	174	106	62	200	146	146	193	a70	42	
2	47	70	204	121	60	154	168	135	194	67	44	
3	55	67	204	123	57	123	222	143	193	67	42	
4	41	64	178	143	57	113	213	171	163	64	45	
5	40	62	154	143	57	110	171	168	146	69	45	
6	40	64	135	350	54	108	154	178	146	64	45	
7	39	311	121	1,020	52	104	137	213	147	65	45	
8	44	541	106	600	52	99	135	398	154	62	45	
9	42	329	101	293	54	94	140	574	145	a58	44	
10	49	222	90	191	51	86	160	377	134	a53	a43	
11	47	187	88	150	47	84	164	323	125	49	a43	
12	45	168	84	132	48	80	150	287	112	48	a44	
13	42	171	99	123	48	80	137	437	112	48	a41	
14	40	176	129	110	49	80	132	359	103	48	a39	
15	41	171	135	104	60	76	168	299	104	49	a39	
16	49	160	126	92	58	74	281	293	101	49	39	
17	47	171	191	88	74	72	359	281	93	49	40	
18	52	238	281	82	101	74	359	229	90	47	40	
19	52	233	287	78	106	72	305	298	89	47	40	
20	70	178	222	74	92	70	311	356	90	47	40	
21	182	143	174	72	172	70	329	369	132	44	41	
22	123	118	157	72	704	88	335	466	115	44	41	
23	94	101	140	76	503	97	270	464	106	45	42	
24	78	94	126	76	329	104	218	397	97	44	42	
25	67	90	118	72	259	123	191	400	90	44	42	
26	60	132	113	69	1,140	123	164	394	86	42	41	
27	58	187	113	67	652	135	160	388	80	48	40	
28	55	157	126	67	395	160	146	343	78	70	40	
29	57	135	129	65	259	196	157	254	a75	67	40	
30	104	129	118	64	-	196	154	212	a72	60	40	
31	88	-	108	62	-	160	-	204	-	42	40	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff (acre-fe
October	1,882	182	34	60.7	3,73
November	4,949	541	62	165	9,82
December	4,531	287	84	146	8,99
Calendar year 1947	36,700	671	29	101	72,80
January	4,885	1,020	62	158	9,69
February	5,652	1,140	47	195	11,21
March	3,405	200	70	110	6,75
April	6,136	359	132	205	12,17
May	9,556	574	135	308	18,95
June	3,565	194	72	119	7,07
July	1,670	70	42	53.9	3,31
August	1,294	45	39	41.7	2,57
September	1,234	45	39	41.1	2,45
Water year 1947-48	48,759	1,140	34	133	96,71

a No gage-height record; discharge computed on basis of records for Blue Creek near Walla Walla.

Note.- Shifting-control method used Jan. 11 to Feb. 21, May 9 to Sept. 5. Figures of daily discharge May 1-9 supersede those published in Water-Supply Paper 1080, floods of May-June 1948 in Columbia River Basin.

Mill Creek at Walla Walla, Wash.

Location.- Water-stage recorder, lat. 46°04'40", long. 118°17'00", in NE¼ sec. 22, T. 7 N., R. 36 E., at bridge 0.9 mile downstream from diversion dam and 1.0 mile east of Walla Walla.

Drainage area.- 90 square miles.

Records available.- April 1941 to September 1948.

Extremes.- Maximum discharge during year, 1,480 second-feet Jan. 7 (gage height, 3.17 feet); minimum not determined, probably occurred sometime during period of faulty gage-height record.

1941-48: Maximum discharge, 2,760 second-feet Dec. 28, 1945 (gage height, 4.0 feet); minimum, 0.5 second-foot May 10, 1947 (gage height, 1.18 feet.

Remarks.- Records poor. Some regulation at diversion dam, 0.9 mile above station where water is diverted into Yellowhawk Creek and Garrison Creek for stock and irrigation. Possible diversions at high stages into flood-control reservoir. City of Walla Walla diverts water for municipal supply. Other small diversions above station for irrigation. Monthly discharge adjusted for Yellowhawk Creek and Garrison Creek diversions.

Revisions.- W 1014: Drainage area.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.8	5.0	120	57	15	198	140	175	140	13	12	1.0
2	7.8	5.0	137	59	13	209	175	170	145	10	10	1.0
3	9.4	5.0	161	72	12	175	232	175	160	14	8.6	2.9
4	9.4	5.0	166	110	10	150	215	204	160	12	8.6	3.9
5	9.4	12	124	120	10	111	204	209	175	7	10	3.9
6	9.4	30	95	216	b9.5	79	198	215	160	4	8.6	3.9
7	8.6	330	69	1,280	b9.0	79	192	221	165	3	10	5.0
8	7.0	610	26	880	b8.0	75	221	389	170	7	8.6	1.9
9	6.3	480	25	475	7.3	75	221	900	165	6	7.3	1.9
10	7.0	250	16	346	7.3	67	264	610	135	5	8.6	1.0
11	7.8	180	14	245	7.3	64	251	492	103	5	8.6	1.9
12	7.8	150	12	155	b7.0	64	232	428	87	4	8.6	1.9
13	7.8	160	80	99	b6.5	71	226	593	87	4	7.3	2.9
14	7.0	160	140	52	6.1	83	232	484	95	3	6.1	2.9
15	7.8	140	h95	34	7.3	87	245	390	75	2	8.6	1.9
16	8.5	150	91	*26	7.3	87	324	353	71	4	3.9	2.9
17	9.0	151	170	22	7.3	87	435	324	46	3	3.9	3.9
18	10	218	270	19	15	87	390	277	36	3	5.0	5.0
19	11	212	300	19	15	87	303	353	46	2.5	3.9	6.1
20	12	190	270	19	15	91	270	375	59	1.9	5.0	5.0
21	130	156	h240	17	40	95	290	375	75	2.9	2.9	1.9
22	75	124	180	17	511	103	290	550	60	2.9	5.0	1.9
23	60	112	140	17	307	91	348	484	45	2.9	3.9	7.3
24	40	95	110	17	192	99	303	382	35	1.0	3.9	7.3
25	20	66	79	15	175	140	283	332	27	1.9	3.9	7.3
26	5.0	66	60	15	757	130	232	290	28	3.9	1.9	8.6
27	5.0	99	55	15	*682	155	192	277	25	2.9	1.9	10
28	5.0	91	h60	15	367	181	170	221	23	13	1.0	7.3
29	5.5	75	61	15	238	198	181	150	19	13	2.9	6.1
30	6.0	73	60	15	-	192	165	140	16	10	1.0	5.0
31	5.5	-	53	15	-	170	-	140	-	10	1.0	-

Month	Observed: Discharge in second-feet: Maximum	Minimum	Mean	Observed: Runoff in acre-feet	Yellowhawk Creek and Garrison Creek diversions (acre-feet)	Adjusted for diversion: Runoff in acre-feet	Mean discharge in second-feet
October	130	5.0	17.0	1,050	3,400	4,450	72.3
November	610	5.0	147	8,730	4,800	13,530	227
December	300	12	112	6,900	6,180	13,080	213
Calendar year 1947	610	1.8	39.4	28,550	57,150	85,710	118
January	1,280	15	144	8,880	5,800	14,680	239
February	757	6.1	119	6,870	5,520	12,390	215
March	209	64	115	7,100	6,080	13,180	214
April	435	140	247	14,720	4,400	19,120	321
May	900	140	344	21,180	6,320	27,500	447
June	175	16	87.8	5,220	5,140	10,360	174
July	14	1.0	5.74	353	3,130	3,480	56.6
August	12	1.0	5.89	362	1,970	2,330	37.9
September	10	1.0	4.12	245	1,940	2,180	36.6
Water year 1947-48	1,280	1.0	112	81,610	54,680	136,300	188

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
h Computed from staff-gage readings.

Note.- No gage-height record Nov. 7-16, June 28 to July 19; intake action faulty Oct. 16 to Nov. 6, Dec. 13-14, Dec. 16-20, 22-27, Dec. 29 to Jan. 5, Jan. 9-16, June 18-27, July 24, Aug. 31 to Sept. 2; discharge computed on basis of records for nearby stations. Figures of daily discharge May 1 to June 20, July 18-31 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

Blue Creek near Walla Walla, Wash.

Location.- Water-stage recorder, lat. 46°03'40", long. 118°07'50", in SE¼NW¼ sec. 25, T 7 N., R. 37 E., 1 mile upstream from mouth and 10 miles east of Walla Walla. Datum gage is at mean sea level, unadjusted.

Drainage area.- 17.0 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge recorded during year, 670 second-feet Jan. 7 (elevation, 1,743.01 feet), but may have been higher Feb. 26 during period of doubtful gage-heig record; minimum, 0.8 second-foot Sept. 13, 14.

1939-48: Maximum discharge, 725 second-feet Dec. 28, 1945 (elevation, 1,743.35 feet), from rating curve extended above 400 second-feet; minimum observed, 0.1 secon foot Oct. 14, 1939, but may have been less during period of no gage-height record Oc 1-11, 1939.

Remarks.- Records good except those below 5 second-feet and those for periods of ice effect or doubtful or no gage-height record, which are fair. No known diversion or regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sep
1	1.0	18	34	21	3.1	d52	44	35	24	6	1.4	1
2	1.3	13	43	26	2.9	51	42	33	22	6	1.4	1
3	1.5	12	54	30	b2.7	45	47	32	21	5	1.3	1
4	1.4	12	44	33	2.6	39	47	31	17	5	1.3	1
5	1.5	11	38	34	2.5	37	44	29	15	6	1.3	1
6	1.6	13	31	109	b2.4	34	39	26	15	5	1.3	1
7	1.4	75	28	494	b2.3	33	35	26	17	5	1.3	1
8	1.8	90	24	207	2.4	31	32	40	18	4	1.2	1
9	1.6	47	22	116	2.2	30	30	156	15	3	1.2	1
10	2.0	37	20	72	2.0	27	30	172	12	2	1.3	1
11	1.9	33	18	52	b1.9	26	30	105	9	1	1.3	1
12	1.7	29	18	40	b1.8	24	29	81	8	1	1.2	1
13	1.6	39	29	34	1.8	22	26	91	8	1	1.2	
14	1.5	41	41	29	2.5	21	23	83	7	1	1.1	
15	1.6	38	40	24	8.2	20	23	56	7	1	1.2	1
16	3.3	34	35	20	8.2	18	26	44	6	1	1.2	1
17	2.2	32	39	*17	17	17	37	34	f4.9	1.0	1.1	1
18	2.5	41	49	14	22	17	51	31	4	1.0	1.1	1
19	3.5	42	47	12	19	15	50	53	5	1.1	1.1	1
20	6.9	34	41	9.7	11	15	46	60	6	1.2	1.0	1
21	36	29	38	8.6	31	14	42	67	9	1.2	1.0	1
22	20	24	34	8.2	132	16	38	266	26	1.1	1.1	1
23	13	20	31	8.2	63	20	45	218	22	1.4	1.2	1
24	11	17	29	7.8	37	25	47	146	16	1.6	1.2	1
25	9	15	26	6.5	33	31	44	95	13	1.2	1.2	1
26	8	18	24	4.9	d248	34	39	72	11	1.2	1.1	1
27	7	24	23	4.1	*d193	39	35	57	9	1.5	1.1	1
28	7	22	24	3.9	d122	44	33	46	8	2.8	1.1	1
29	9	19	24	3.7	d67	48	32	37	7	1.8	1.0	1
30	18	19	22	3.5	-	52	34	32	7	1.5	1.0	1
31	19	-	21	3.1	-	49	-	29	-	1.4	1.0	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	198.8	36	1.0	6.41	0.377	0.43	3
November	898	90	11	29.9	1.76	1.96	1,7
December	991	54	18	32.0	1.88	2.17	1,9
Calendar year 1947	7,300.1	185	.6	20.0	1.18	15.96	14,4
January	1,456.2	494	3.1	47.0	2.76	3.19	2,8
February	1,044.5	248	1.8	36.0	2.12	2.28	2,0
March	946	52	14	30.5	1.79	2.07	1,8
April	1,120	51	23	37.3	2.19	2.45	2,2
May	2,283	266	26	73.6	4.33	4.99	4,5
June	368.9	26	4	12.3	.724	.81	7
July	73.8	6	1.0	2.38	.140	.16	1
August	36.5	1.4	1.0	1.18	.069	.08	
September	36.5	1.7	.8	1.22	.072	.08	
Water year 1947-48	9,453.2	494	.8	25.8	1.52	20.67	18,7

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record June 3-16, June 18 to July 16; discharge computed on basis of wea records and records for Mill Creek near Walla Walla.

Yellowhawk Creek at Walla Walla, Wash.

Location.- Water-stage recorder, lat. 46°04'20", long. 118°16'55", in NW¼SW¼ sec. 23, T. 7 N., R. 36 E., 1 mile downstream from point of diversion from Mill Creek and 1 mile east of Walla Walla.

Records available.- April 1941 to September 1948.

Extremes.- Maximum discharge during year, 294 second-feet Feb. 26 (gage height, 2.48 feet); minimum, 6.1 second-feet Dec. 13 (gage height, 0.53 foot).
1941-48: Maximum discharge not determined, occurred June 7, 1941 (gage height, 4.00 feet); minimum, 2.4 second-feet Sept. 16, 1941 (gage height, 0.50 foot), but may have been less during period of ice effect Jan. 1-24, 1942.

Remarks.- Records good except those for periods of shifting control, which are fair. Regulation at Mill Creek diversion dam, 1 mile above station. Yellowhawk and Garrison Creeks divert water from Mill Creek for stock and irrigation. Many small diversions above station for irrigation.

Revisions (water years).- W 1094: 1946.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 15-21, July 22 to Sept. 30)

0.5	5.5	1.4	70
.6	8.1	1.6	102
.8	16	1.8	138
1.0	27	2.0	179
1.2	45	2.2	224

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	92	81	81	56	54	112	40	79	62	33	24
2	24	84	95	95	53	65	123	33	86	61	31	24
3	39	78	98	100	51	75	127	38	92	58	31	23
4	27	70	82	89	51	70	125	45	81	57	31	23
5	27	68	82	86	51	75	114	46	72	69	29	23
6	27	70	78	94	48	90	105	51	72	64	29	23
7	26	98	81	183	51	86	70	60	105	64	29	22
8	32	75	94	119	50	79	16	109	112	58	30	21
9	30	35	92	64	50	76	8.4	192	125	54	29	21
10	36	53	81	47	46	69	14	109	110	51	31	21
11	35	70	79	52	43	66	29	76	100	56	29	20
12	32	61	75	76	44	64	30	70	69	53	27	20
13	31	70	58	97	43	62	22	123	76	51	27	20
14	30	66	35	107	46	61	21	104	53	48	27	20
15	29	76	92	f100	69	60	44	79	66	47	29	21
16	41	50	86	f87	66	57	69	73	86	46	27	24
17	38	62	104	82	82	57	98	69	70	46	24	26
18	40	79	109	76	100	58	95	58	70	44	25	25
19	45	87	92	70	104	56	75	82	54	48	27	24
20	57	79	79	66	98	53	73	94	53	50	27	24
21	76	64	70	65	119	53	79	97	62	f50	28	24
22	61	50	65	65	194	65	79	154	77	f43	32	27
23	43	43	65	69	125	72	11	138	78	37	32	28
24	45	37	78	68	90	79	7.8	110	73	32	32	28
25	51	45	86	66	82	100	7.5	97	69	33	31	28
26	64	64	94	61	217	100	26	90	64	35	28	29
27	62	90	100	60	156	107	39	86	60	32	27	31
28	61	78	110	61	81	114	40	75	60	57	26	29
29	65	70	114	60	60	125	45	56	61	43	27	29
30	105	68	95	58	-	132	41	47	65	35	25	28
31	104	-	a88	56	-	125	-	63	-	33	25	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,403	105	20	45.3	2,780
November	2,032	98	35	67.7	4,030
December	2,638	114	35	85.1	5,230
Calendar year 1947	24,883	252	17	68.2	49,330
January	2,460	183	47	79.4	4,880
February	2,326	217	43	80.2	4,610
March	2,405	132	53	77.6	4,770
April	1,745.7	127	7.5	58.2	3,460
May	2,564	192	33	82.7	5,090
June	2,300	125	53	76.7	4,560
July	1,517	69	32	48.9	3,010
August	885	33	24	28.5	1,760
September	730	31	20	24.3	1,450
Water year 1947-48	23,005.7	217	7.5	62.9	45,630

a No gage-height record; discharge interpolated.
f Computed on basis of partly estimated gage-height record.
Note.- Figures of daily discharge for May 1-12 supersede those published in Water-Supply Paper 1080, floods of May-June 1948 in Columbia River Basin.

Garrison Creek at Walla Walla, Wash.

Location.- Water-stage recorder, lat. 46°04'25", long. 118°17'10", in NE¼ sec. 22, T. 7 N., R. 36 E., 30 feet downstream from county bridge, 1 mile downstream from point diversion from Mill Creek, and 0.9 mile east of Walla Walla.

Records available.- April 1941 to September 1948.

Extremes.- Maximum discharge during year, 60 second-feet May 9 (gage height, 3.28 feet) minimum, 0.1 second-foot June 12, 13; minimum gage height, 1.99 feet June 12.
1941-48: Maximum discharge, that of May 9, 1948; no flow May 10, 1941.

Remarks.- Records fair except those for period of no gage-height record, which are poor Regulation at Mill Creek diversion dam, 1 mile above station. Yellowhawk and Garris Creeks divert water from Mill Creek for stock and irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.0	0.07	2.5	10.4
2.1	.4	2.6	15
2.2	1.3	2.7	20
2.3	3.2	2.9	32
2.4	6.4	3.2	54

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	6.8	22	19	12	9.9	13	27	11	16	3.0	2.0	5.
2	6.0	20	23	16	9.5	18	26	9.1	18	2.2	2.0	5.
3	9.9	18	24	18	9.1	20	23	10	19	2.0	1.9	6.
4	7.9	17	20	16	9.1	20	23	12	15	1.6	1.9	8.
5	7.5	16	20	16	8.6	22	20	12	12	2.0	2.2	8.
6	7.1	17	20	18	8.6	26	20	13	13	2.0	2.2	8.
7	7.5	21	20	36	9.9	24	20	15	21	2.2	2.2	7.
8	8.2	14	23	23	8.6	23	12	30	16	2.5	2.0	7.
9	7.5	7.9	23	11	8.6	22	9.9	50	1.3	2.2	2.2	7.
10	7.1	12	20	7.9	7.9	20	15	29	.8	2.2	2.7	6.
11	7.1	16	20	9.1	7.5	18	11	22	.5	2.5	2.5	6.
12	6.8	14	19	14	7.5	18	7.9	20	.1	2.2	2.2	6.
13	6.4	14	13	19	7.5	17	7.9	32	.1	2.0	2.0	6.
14	6.0	14	6.8	22	7.9	16	9.9	26	4.1	1.9	2.2	6.
15	6.0	18	24	20	12	16	11	20	12	1.9	2.7	7.
16	7.9	14	23	18	12	16	18	17	16	1.4	3.8	8.
17	7.5	17	26	17	16	15	26	16	14	1.6	4.4	9.
18	7.5	19	26	16	20	16	25	12	14	2.0	5.4	9.
19	8.2	12	21	14	20	14	20	19	9.5	.9	3.2	8.
20	11	.9	18	13	20	14	20	22	8.2	1.9	3.2	6.
21	13	.5	16	12	23	14	21	22	9.1	2.2	3.2	8.
22	9.9	.4	15	12	37	18	21	36	12	2.7	3.8	9.
23	7.1	.3	15	14	26	20	12	32	12	2.2	4.1	10
24	7.5	.2	7.9	13	18	a24	7.5	25	10	1.6	3.8	9.
25	9.9	3.8	.4	12	16	a27	6.8	22	9.5	1.4	3.8	9.
26	17	13	.4	11	45	a26	8.6	20	7.9	1.3	4.7	10
27	16	20	.4	11	36	a29	10	18	7.5	1.4	5.7	11
28	16	18	.3	11	21	a33	11	16	5.0	2.7	5.7	10
29	17	15	.3	11	14	a36	12	11	4.4	2.5	6.0	9.
30	24	15	4.7	10	-	34	11	9.1	3.2	2.2	6.0	9.
31	24	-	12	9.9	-	30	-	12	-	2.2	5.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	311.3	24	6.0	10.0	61
November	390	22	.2	13.0	77
December	481.2	26	.3	15.5	95
Calendar year 1947	3,946.4	45	.2	10.8	7,83
January	462.9	36	7.9	14.9	91
February	456.2	45	7.5	15.7	90
March	659	36	13	21.3	1,31
April	473.5	27	6.8	15.8	93
May	620.2	50	9.1	20.0	1,23
June	291.2	21	.1	9.71	57
July	62.6	3.0	.9	2.02	12
August	105.4	6.0	1.9	3.40	20
September	246.9	11	5.0	8.23	49
Water year 1947-48	4,560.4	50	.1	12.5	9,04

a No gage-height record; discharge computed on basis of recorded range in stage and records for Mill Creek at Walla Walla.

East Fork Touchet River near Dayton, Wash.

Location.- Water-stage recorder, lat. 46°16'45", long. 117°54'05", in NW¼NW¼ sec. 11, T. 9 N., R. 39 E., 250 feet upstream from city of Dayton's water-supply headworks, 1,000 feet upstream from Hatley Creek, three-quarters of a mile downstream from Wolf Creek, 3 miles upstream from confluence with South Fork, and 4 miles southeast of Dayton. Datum of gage is 1,768.3 feet above mean sea level (river-profile survey).

Drainage area.- 102 square miles.

Records available.- April 1941 to September 1948.

Extremes.- Maximum discharge during year, 1,530 second-feet about Jan. 7 (gage height, 5.28 feet, from recorded range in stage); minimum, 43 second-feet Sept. 14, 15.
1941-48: Maximum discharge, that of Jan. 7, 1948; minimum, 29 second-feet Sept. 9, 12, 13, 14, 1944.

Remarks.- Records good except those for periods of ice effect, no gage-height record, or shifting control, which are poor. No regulation. Small diversions above station for irrigation during summer months.

Rating tables, water year 1947-48, except periods of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 7		Nov. 8 to Sept. 30			
1.9	39	1.9	42	3.0	330
2.1	67	2.1	73	3.3	450
2.3	103	2.3	114	3.6	590
2.5	147	2.5	164	4.0	790
		2.7	223	4.6	1,120

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	84	181	127	96	360	240	184	334	84	63	58
2	51	81	175	151	96	310	260	172	315	82	61	64
3	55	76	186	143	b92	*285	280	201	303	81	59	64
4	48	74	181	160	90	270	260	220	288	82	61	66
5	49	72	170	200	88	260	250	214	270	84	59	66
6	51	72	159	400	b86	240	220	243	249	84	59	66
7	49	119	148	800	b84	230	230	270	236	81	59	61
8	55	270	138	650	b82	220	230	407	223	77	56	55
9	51	201	131	450	81	220	230	484	217	73	55	55
10	56	170	121	380	79	210	240	459	208	73	59	52
11	55	154	114	300	b78	210	240	454	198	75	58	53
12	51	138	107	250	b78	200	230	477	186	71	56	52
13	49	141	133	220	b79	200	230	635	175	68	55	52
14	48	136	143	200	79	200	220	580	161	68	55	49
15	49	141	148	180	119	200	270	482	159	66	55	45
16	70	138	146	170	105	200	320	442	154	66	56	46
17	67	148	189	150	136	190	380	446	143	64	55	50
18	79	178	223	140	146	190	370	414	136	64	55	50
19	74	178	236	128	141	190	370	482	128	70	55	49
20	89	161	208	*124	133	190	370	495	128	68	52	48
21	129	146	186	121	176	200	380	513	131	66	52	48
22	99	131	170	121	581	210	380	490	121	63	52	49
23	88	119	156	126	605	220	230	472	112	66	53	53
24	79	114	143	124	472	230	243	464	107	61	53	52
25	72	114	133	116	353	240	243	454	101	56	52	52
26	70	159	131	105	1,110	240	217	522	99	56	55	53
27	70	189	128	114	700	250	189	518	92	70	53	50
28	70	175	133	105	480	260	175	486	88	110	52	48
29	76	159	131	105	400	270	208	486	86	77	52	48
30	97	154	124	101	-	260	195	394	84	68	50	46
31	90	-	119	96	-	250	-	362	-	63	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,082	129	46	67.2	0.659	0.76	4,130
November	4,192	270	72	140	1.37	1.53	8,310
December	4,791	236	107	155	1.52	1.75	9,500
Calendar year 1947	39,381	516	32	108	1.06	14.38	78,110
January	6,557	800	96	212	2.08	2.39	13,010
February	6,845	1,110	78	236	2.31	2.50	13,580
March	7,205	360	190	232	2.27	2.63	14,290
April	7,900	380	175	263	2.58	2.88	15,670
May	12,922	635	172	417	4.09	4.71	25,630
June	5,232	334	84	174	1.71	1.91	10,380
July	2,237	110	56	72.2	.708	.82	4,440
August	1,717	63	50	55.4	.543	.63	3,410
September	1,600	66	45	53.3	.523	.58	3,170
Water year 1947-48	63,280	1,110	45	173	1.70	23.09	125,500

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.- No gage-height record Jan. 4-18, Feb. 27 to Apr. 22, July 24; discharge computed on basis of recorded range in stage, weather records, and records for nearby streams. Shifting-control method used Jan. 19 to Feb. 20, Apr. 23 to May 9, Sept. 21-30.

Touchet River near Touchet, Wash.

Location.- Water-stage recorder, lat. 46°05'25", long. 118°39'40", in NE¼ sec. 15, T N., R. 33 E., 100 feet downstream from county road bridge, 3½ miles north of Touc and 4½ miles upstream from mouth.

Drainage area.- 736 square miles (revised).

Records available.- April 1941 to September 1948.

Extremes.- Maximum discharge during year, 4,850 second-feet Feb. 26 (gage height, 10. feet); minimum, 29 second-feet Sept. 14.
1941-48: Maximum discharge, that of Feb. 26, 1948; minimum, 6.4 second-feet Sept. 13, 14, 1944 (gage height, 1.45 feet).

Remarks.- Records fair except those for periods of ice effect, faulty gage-height rec or shifting control, which are poor. Many large diversions above station for irri tion. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	S
1	43	120	311	220	150	960	476	540	540	98	61	
2	42	120	362	260	150	860	648	500	500	89	59	
3	40	120	355	240	150	715	760	492	468	86	56	
4	51	110	348	270	150	625	738	669	439	84	54	
5	46	110	330	350	140	560	670	580	411	89	50	
6	44	150	300	1,300	140	540	625	560	380	108	*50	
7	47	500	270	3,500	140	496	602	648	355	90	*47	
8	47	1,000	250	h2,630	140	476	560	781	337	95	47	
9	53	600	230	1,500	150	450	540	1,870	328	90	47	
10	55	h369	220	800	140	404	540	1,870	319	84	45	
11	59	300	h210	600	130	349	540	1,470	313	77	45	
12	64	250	200	450	130	355	560	1,240	301	76	47	
13	62	260	230	350	130	362	540	1,510	286	76	43	
14	59	260	250	300	140	366	520	1,470	272	71	41	
15	60	250	260	260	150	366	496	1,180	263	67	40	
16	70	250	250	220	140	358	540	985	337	63	40	
17	101	h274	450	200	300	349	715	885	261	60	41	
18	115	400	700	180	310	346	910	835	224	59	38	
19	159	350	h785	160	262	340	810	1,200	283	67	37	
20	187	250	500	140	203	337	785	1,110	212	92	35	
21	350	230	400	h129	900	328	760	960	209	74	37	
22	240	210	340	*h215	2,500	328	785	1,060	216	63	39	
23	h170	200	300	265	1,800	331	738	1,010	195	58	42	
24	130	200	280	268	1,400	337	715	910	177	55	40	
25	120	190	250	240	1,000	343	692	835	158	55	40	
26	110	250	240	205	*h4,350	355	648	810	148	54	42	
27	110	370	230	174	2,590	358	580	785	139	51	39	
28	110	h329	240	170	h1,560	366	540	1,010	130	61	39	
29	130	297	250	160	1,160	383	540	760	120	113	36	
30	150	268	240	160	-	394	580	648	111	85	36	
31	130	-	230	160	-	411	-	580	-	68	34	

Month	Second-foot-days	Maximum	Minimum	Mean	Runo acre-
October	3,154	350	40	102	6
November	8,587	1,000	110	286	17
December	9,811	785	200	316	19
Calendar year 1947	84,004	1,610	15	230	166
January	16,076	3,500	129	519	31
February	20,605	4,350	130	711	40
March	13,548	960	328	437	26
April	19,153	910	476	638	37
May	29,763	1,870	492	960	59
June	8,432	540	111	281	16
July	2,358	113	51	76.1	4
August	1,347	61	34	43.5	2
September	1,220	59	31	40.7	2
Water year 1947-48	134,054	4,350	31	366	265

* Winter discharge measurement made on this day.
h Computed from staff-gage readings.

Note.- No gage-height record Oct. 21, 22, Oct. 24 to Nov. 9, Nov. 11-16, 18-27, Dec. 5-10, 1 Dec. 20 to Jan. 7, Jan. 9-20, Feb. 21-25; discharge computed on basis of weather records, occa observer's staff-gage readings, and records for East Fork Touchet River near Dayton and Mill C near Walla Walla. Stage-discharge relation affected by ice Jan. 28 to Feb. 17. Shifting-cont method used Oct. 1 to Jan. 8.

Umatilla River above Meacham Creek, near Gibbon, Oreg.

Location.- Water-stage recorder, lat. 45°43', long. 118°20', in SW¼ sec. 21, T. 3 N., R. 36 E., 0.8 mile downstream from Ryan Creek, 2½ miles upstream from Meacham Creek, and 2½ miles northeast of Gibbon. Datum of gage is 1,855.25 feet above mean sea level, datum of 1929.

Drainage area.- 125 square miles.

Records available.- June 1939 to September 1948. April 1933 to June 1939 at site 1 mile downstream.

Average discharge.- 15 years, 214 second-feet.

Extremes.- Maximum discharge during year, 3,380 second-feet May 22 (gage height, 6.88 feet); minimum, 43 second-feet Aug. 20.

1933-48: Maximum discharge, 6,660 second-feet Dec. 12, 1946 (gage height, 8.84 feet), from rating curve extended above 2,000 second-feet by logarithmic plotting; minimum, 28 second-feet Sept. 27, 1935, Jan. 9, 1937.

Remarks.- Records good except those above 2,000 second-feet and those for periods of ice effect, which are fair. No diversion or regulation above station.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 27 to Apr. 4)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30					
2.0	43	2.8	161	4.3	810	1.9	41	2.7	153	4.4	900
2.2	60	3.1	250	4.8	1,170	2.1	56	3.0	240	5.0	1,340
2.4	83	3.5	390	5.6	1,880	2.3	78	3.4	380	5.7	1,980
2.6	115	3.9	560			2.5	108	3.9	600	6.4	2,770

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	121	608	205	150	440	396	468	685	219	67	49
2	56	113	722	250	140	380	480	432	694	198	66	48
3	63	108	590	271	136	330	625	516	698	180	64	48
4	54	106	*482	287	b130	294	580	752	629	166	61	48
5	52	112	398	280	124	284	484	680	574	172	61	48
6	55	146	346	486	b120	270	424	758	568	153	61	47
7	52	1,040	312	1,840	b115	261	376	935	577	156	60	46
8	59	1,280	274	1,230	133	246	356	1,240	588	133	60	46
9	56	680	259	704	122	240	448	1,720	570	124	59	46
10	63	486	235	510	114	213	565	1,210	509	114	59	45
11	69	425	226	416	b105	210	496	1,050	461	114	58	45
12	62	458	208	330	b100	204	412	1,000	413	108	55	44
13	59	426	223	284	b105	195	364	1,400	417	100	53	44
14	57	402	259	258	110	195	384	1,200	384	97	51	44
15	57	402	259	234	130	186	662	1,030	351	94	50	44
16	57	374	253	216	138	180	1,100	1,100	345	91	48	45
17	56	366	322	201	*177	180	1,230	1,110	314	88	47	49
18	57	566	410	192	267	186	1,010	922	293	89	45	50
19	56	506	454	183	277	183	872	1,130	306	88	44	48
20	63	394	394	180	234	175	991	1,210	311	86	44	47
21	190	318	358	164	424	175	1,130	1,220	796	81	44	47
22	161	268	346	*166	1,320	204	1,100	2,720	656	78	49	50
23	123	238	*318	210	812	219	963	2,140	520	76	51	54
24	108	220	280	240	*545	249	758	1,630	440	72	51	52
25	96	226	256	240	505	294	635	1,430	388	70	52	51
26	90	454	238	231	2,050	298	550	1,370	340	67	51	51
27	89	596	229	213	1,280	352	484	1,340	302	70	50	54
28	90	454	232	198	734	396	452	1,190	274	103	50	51
29	94	382	238	186	525	472	535	839	255	85	50	50
30	136	382	220	172	-	505	496	700	248	74	50	49
31	132	-	208	156	-	432	-	732	-	67	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,461	190	47	79.4	0.635	0.73	4,880
November	12,149	1,280	106	405	3.24	3.61	24,100
December	10,157	722	208	328	2.62	3.02	20,150
Calendar year 1947	80,478	1,290	42	220	1.76	23.94	159,600
January	10,733	1,840	156	346	2.77	3.19	21,290
February	11,122	2,050	100	384	3.07	3.31	22,060
March	8,448	505	175	273	2.18	2.51	16,760
April	19,358	1,230	356	645	5.16	5.76	38,400
May	35,174	2,720	432	1,135	9.08	10.46	69,770
June	13,904	796	246	463	3.70	4.14	27,580
July	3,413	219	67	110	.880	1.02	6,770
August	1,661	67	44	53.6	.429	.49	3,290
September	1,440	54	44	48.0	.384	.43	2,860
Water year 1947-48	130,020	2,720	44	355	2.84	38.67	257,900

Peak discharge (base, 1,400 sec.-ft.).- Nov. 7 (5 p.m.) 2,480 sec.-ft.; Jan. 7 (2 p.m.) 2,400 sec. ft.; Feb. 22 (7 a.m.) 1,620 sec.-ft.; Feb. 26 (11:30 a.m.) 2,720 sec.-ft.; May 9 (3 a.m.) 2,140 sec. ft.; May 13 (6 a.m.) 1,550 sec.-ft.; May 22 (1 p.m.) 3,380 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Umatilla River at Pendleton, Oreg.

Location.- Water-stage recorder, lat. 45°40', long. 118°48', in NE¼ sec. 10, T. 2 N., R. 32 E., at Pendleton, 2½ miles upstream from McKay Creek. Datum of gage is 1,062.54 feet above mean sea level, datum of 1929. Temporary water-stage recorder 600 feet up stream at different datum used in low water periods.

Drainage area.- 637 square miles.

Records available.- February 1891 to July 1892, May 1903 to June 1905, October 1934 to September 1948 May 1921 to September 1934 at site about 2¼ miles downstream.

Average discharge.- 25 years (1923-48), 466 second-feet.

Extremes.- Maximum discharge during year, 7,510 second-feet Feb. 26 (gage height, 5.79 feet); minimum, 40 second-feet Sept. 14.

1891-92, 1903-5, 1921-48: Maximum discharge, 13,700 second-feet Dec. 12, 1946 (gage height, 8.45 feet), from rating curve extended above 7,500 second-feet minimum, 7 second-feet Aug. 14, 1924.

Maximum flood known, 17,000 second-feet Dec. 14, 1882 (date and discharge from dat furnished by Corps of Engineers).

Flood of May 30-31, 1906, reached a stage of 11.0 feet, present site and datum (di charge, 15,500 second-feet, estimated by Corps of Engineers).

Remarks.- Records good except those above 5,000 second-feet which are fair. Records bas on auxiliary water-stage recorder 600 feet upstream from periods Oct. 1 to Nov. 6, Ju 8 to Sept. 30. Small diversions above station for irrigation. No regulation.

Revisions (water years).- W 934: 1931 (maximum gage height only).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	46	173	1,310	487	372	1,560	1,030	1,330	1,230	306	75	
2	47	166	1,690	538	344	1,260	1,080	1,240	1,180	266	73	
3	57	156	1,750	634	316	1,070	1,410	1,240	1,150	238	69	
4	59	156	1,430	579	309	944	1,420	1,860	1,080	221	84	4
5	55	159	1,150	697	281	854	1,220	1,860	984	338	69	4
6	55	170	970	940	260	792	1,120	1,790	935	263	65	4
7	57	518	832	3,380	a240	736	1,010	2,230	923	228	61	4
8	61	1,840	742	3,800	a500	696	971	2,530	903	211	59	4
9	63	1,410	679	2,120	a400	688	1,080	4,150	908	189	57	4
10	66	1,040	616	1,610	248	598	1,320	3,640	822	172	57	4
11	78	1,060	563	1,300	236	570	1,270	2,890	748	158	54	4
12	81	1,050	538	1,050	230	556	1,140	2,350	680	152	54	4
13	76	1,010	546	830	267	521	1,030	3,120	658	137	54	4
14	72	1,030	643	710	323	521	1,010	3,080	611	125	52	4
15	70	950	652	624	400	514	1,420	2,640	563	120	52	
16	70	980	625	552	337	500	2,660	2,520	748	112	54	
17	70	880	688	498	400	494	3,140	2,530	513	104	52	4
18	68	1,260	910	472	552	507	2,790	2,060	464	101	54	5
19	68	1,410	1,010	448	680	507	2,190	2,420	483	99	52	5
20	72	1,130	940	416	633	494	2,320	2,610	483	99	52	4
21	124	910	850	400	830	470	2,730	2,600	855	91	52	4
22	216	751	870	386	2,300	500	2,580	5,050	990	84	54	4
23	168	652	796	424	2,290	542	2,380	4,990	818	79	59	5
24	146	580	715	507	1,660	688	1,980	3,380	691	77	59	5
25	133	554	625	561	1,470	792	1,710	2,750	600	77	59	5
26	124	760	572	525	4,880	854	1,490	2,460	540	73	55	5
27	121	1,430	538	472	4,940	971	1,330	2,300	485	71	52	5
28	121	1,240	529	448	3,030	1,040	1,200	2,150	431	84	52	5
29	124	1,020	546	424	2,150	1,170	1,440	1,840	377	109	51	5
30	143	910	538	416	-	1,320	1,410	1,320	334	89	49	5
31	177	-	495	386	-	1,180	-	1,350	-	77	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-fe
October	2,886	216	46	93.1	5,720
November	25,355	1,840	156	845	50,290
December	25,358	1,750	495	818	50,300
Calendar year 1947	172,897	2,570	23	474	342,900
January	26,734	3,800	386	862	52,030
February	30,878	4,940	230	1,065	61,250
March	23,909	1,560	470	771	47,420
April	48,881	3,140	971	1,629	96,950
May	78,080	5,050	1,240	2,519	154,900
June	22,186	1,230	334	740	44,010
July	4,550	338	71	147	9,020
August	1,790	84	49	57.7	3,550
September	1,451	57	41	48.4	2,880
Water year 1947-48	292,058	5,050	41	798	579,300

Peak discharge (base, 3,200 sec.-ft.).- Jan. 7 (10 p.m.) 4,270 sec.-ft.; Feb. 26 (10 p.m.) 7,51 sec.-ft.; Apr. 17 (1 p.m.) 3,430 sec.-ft.; May 9 (9 a.m.) 4,800 sec.-ft.; May 22 (8 to 10 p.m.) 6,970 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations above Meacham Cree near Gibbon, and at Yoakum.

Umatilla River at Yoakum, Oreg.

Location.- Water-stage recorder, lat. 45°41', long. 119°02', in SW¼ sec. 2, T. 2 N., R. 30 E., at highway bridge half a mile northeast of Yoakum station and 2⅔ miles downstream from abondoned Furnish Reservoir. Datum of gage is 770.41 feet above mean sea level, datum of 1929.
Drainage area.- 1,280 square miles.
Records available.- May 1903 to August 1916 (flow slightly regulated by Furnish Reservoir, 1910-16), October 1934 to September 1948. June 1915 to September 1934 at site 5 miles upstream, above Furnish Reservoir.
Average discharge.- 45 years, 668 second-feet.
Extremes.- Maximum discharge during year, 6,880 second-feet Feb. 27 (gage height, 7.30 feet); minimum, 47 second-feet Oct. 1.
1903-48: Maximum discharge, 20,000 second-feet May 30, 1906 (gage height, about 15.0 feet, datum then in use, from floodmarks), from rating curve extended above 6,600 second-feet on basis of records for station near Umatilla; minimum, 12 second-feet Aug. 10-12, 1908.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation. Flow regulated to some extent by mills at Pendleton, and since 1927 by McKay Reservoir.
Revisions (water year).- W 794: 1906(M).

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 26						Feb. 27 to Sept. 30			
-0.1	45	0.6	177	2.7	1,230	0.4	195	2.8	1,400
0	55	.9	262	3.4	1,760	.7	280	3.6	2,080
.1	69	1.2	376	4.3	2,610	1.1	430	4.5	3,000
.2	87	1.6	565	5.0	3,410	1.6	650	5.5	4,220
.4	129	2.1	840	5.6	4,200	2.2	970	6.5	5,650

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	203	1,480	605	429	1,660	1,620	1,810	1,880	343	406	358
2	49	195	2,300	637	407	1,480	1,710	1,650	1,810	308	402	358
3	51	190	2,320	769	a370	1,230	2,220	1,640	1,640	326	402	354
4	61	185	1,930	810	355	1,060	2,340	2,420	1,520	430	406	350
5	124	185	1,480	846	347	970	2,060	2,460	1,350	603	350	346
6	157	185	1,240	991	330	934	1,860	2,430	1,260	502	346	343
7	162	240	1,110	3,150	330	886	1,690	2,980	1,220	462	346	329
8	154	2,040	965	4,200	674	840	1,620	3,270	1,030	462	343	223
9	89	1,630	870	2,570	555	815	1,700	4,800	1,010	446	336	218
10	80	1,130	792	1,860	389	815	2,090	4,420	931	422	329	218
11	95	1,080	725	1,470	279	775	2,090	4,390	855	402	326	215
12	95	1,130	686	1,220	237	770	1,890	3,970	797	414	332	212
13	89	1,100	686	991	272	765	1,690	4,560	780	362	362	210
14	83	1,130	798	864	300	760	1,630	4,910	710	340	366	208
15	82	1,020	828	780	515	780	2,100	3,970	630	336	366	208
16	82	1,080	786	681	429	845	3,420	3,640	975	350	370	210
17	83	965	804	620	456	868	4,410	3,670	638	354	366	212
18	82	1,270	1,050	575	585	916	4,260	3,350	571	350	362	318
19	82	1,660	1,200	530	708	904	3,600	3,600	562	350	362	340
20	93	1,310	1,140	495	676	868	3,590	3,810	552	366	362	343
21	120	a1,000	1,040	470	804	840	3,960	3,650	908	366	366	340
22	225	a850	1,080	456	2,800	862	3,900	4,920	1,180	362	366	340
23	198	a750	1,000	500	2,780	916	3,620	5,650	958	362	374	343
24	167	a650	900	580	2,000	964	3,130	4,400	790	382	354	343
25	157	a640	798	659	1,500	1,200	2,710	3,820	680	382	346	343
26	147	742	720	626	4,100	1,220	2,330	3,520	596	390	343	343
27	143	1,580	670	550	5,350	1,320	2,080	3,340	551	382	340	343
28	143	1,500	642	530	3,020	1,430	1,840	3,160	a490	386	340	340
29	152	1,240	664	500	2,120	1,590	1,920	2,500	a430	414	332	343
30	157	1,080	654	485	-	1,860	1,920	2,060	374	406	340	340
31	195	-	620	447	-	1,780	-	2,040	-	398	358	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,645	225	48	118	7,230
November	27,960	2,040	185	932	55,460
December	31,978	2,320	620	1,032	63,430
Calendar year 1947	236,313	3,350	42	647	468,700
January	30,467	4,200	447	983	60,430
February	33,117	5,350	237	1,142	65,690
March	32,923	1,860	760	1,062	65,300
April	75,000	4,410	1,620	2,500	148,800
May	106,810	5,650	1,640	3,445	211,900
June	27,678	1,880	374	923	54,900
July	12,158	603	308	392	24,120
August	11,099	406	326	358	22,010
September	8,991	358	208	300	17,830
Water year 1947-48	401,826	5,650	48	1,098	797,100

Peak discharge (base, 3,600 sec.-ft.).- Jan. 8 (5 a.m.) 5,170 sec.-ft.; Feb. 22 (6 p.m.) 3,610 sec.-ft.; Feb. 27 (1 a.m.) 6,880 sec.-ft.; Apr. 17 (4 p.m.) 4,830 sec.-ft.; May 9 (1 p.m.) 5,120 sec.-ft.; May 13 (7 p.m.) 5,320 sec.-ft.; May 22 (11 p.m.) 6,430 sec.-ft.
a No gage-height record; discharge computed on basis of records of combined flow for Umatilla River at Pendleton, McKay Creek near Pendleton, snd Birch Creek at Rieth.

Umatilla River near Umatilla, Oreg.

Location.- Water-stage recorder, lat. 45°54', long. 119°20', in NW¼ sec. 21, T. 5 N., R. 2 E., 1½ miles downstream from West Division main canal of Umatilla project and 2 miles u stream from Umatilla and mouth of river. Datum of gage is 330.57 feet above mean sea level, datum of 1929.

Drainage area.- 2,290 square miles.

Records available.- October 1903 to September 1948.

Average discharge.- 45 years, 501 second-feet.

Extremes.- Maximum discharge during year, 6,080 second-feet May 23 (gage height, 6.26 feet minimum, 8 second-feet Oct. 13 (gage height, 1.95 feet).
1903-48: Maximum discharge observed, 19,600 second-feet May 31, 1906 (gage height, 11.0 feet), from rating curve extended above 11,000 second-feet by logarithmic plotting no flow at times.

Remarks.- Records good except those for period of doubtful gage-height record, which are poor. Many diversions above station for irrigation; Brownell canal diverts below station. Flow regulated by McKay and Cold Springs Reservoirs.

Revisions.- W 794: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.9	6	2.5	67	3.6	680
2.0	10	2.6	90	4.0	1,120
2.1	16	2.7	119	4.3	1,540
2.2	24	2.9	194	4.8	2,480
2.3	34	3.1	300	5.5	4,100
2.4	48	3.3	430	6.1	5,650

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	224	1,150	526	416	1,930	1,730	1,440	1,510	11	33	69
2	11	182	2,260	518	395	1,570	1,590	1,330	1,280	12	40	81
3	11	178	2,420	599	374	1,320	1,660	1,250	1,120	12	47	83
4	11	178	2,420	662	454	1,100	1,890	1,800	1,000	11	50	81
5	11	178	1,760	750	462	923	2,020	2,300	890	14	90	144
6	10	182	1,400	760	446	857	2,000	2,160	760	186	56	289
7	10	174	1,200	2,170	388	780	1,890	2,560	690	130	31	239
8	10	1,010	1,070	4,430	402	730	1,710	3,050	558	110	30	116
9	20	1,780	923	3,300	972	700	1,570	3,950	454	107	35	88
10	26	1,200	835	2,200	462	710	1,520	4,840	662	102	33	76
11	16	856	730	1,610	330	653	1,620	4,450	671	69	52	65
12	9.2	1,060	662	1,260	278	662	1,710	4,560	526	85	48	56
13	21	1,010	626	1,000	261	720	1,400	4,280	574	61	47	56
14	58	1,110	671	824	289	700	1,300	5,080	518	26	58	63
15	29	1,020	770	740	354	730	1,200	4,660	416	14	52	65
16	37	1,020	740	662	518	868	1,700	3,900	603	13	67	74
17	26	1,000	700	574	423	868	3,500	3,850	478	11	67	76
18	21	1,020	890	534	462	835	3,900	3,710	330	11	58	85
19	19	1,640	1,100	494	590	835	3,500	3,540	278	11	61	102
20	121	1,450	1,150	446	635	813	3,300	3,950	278	11	72	102
21	204	1,160	1,020	416	590	780	3,500	3,730	318	11	85	93
22	190	856	1,020	402	1,660	750	3,400	3,780	657	25	83	102
23	250	791	978	423	3,020	835	2,900	5,650	710	17	88	96
24	219	680	879	438	2,040	890	2,600	4,690	478	15	81	122
25	194	608	770	518	1,480	978	2,300	4,050	306	18	72	150
26	190	617	690	542	1,870	1,160	2,000	3,540	174	14	67	178
27	190	1,130	626	478	5,000	1,160	1,690	3,210	72	14	58	170
28	186	1,610	582	454	4,300	1,250	1,500	3,050	35	23	48	147
29	178	1,320	574	478	2,540	1,350	1,380	2,360	15	25	48	116
30	178	1,110	582	454	-	1,510	1,610	1,850	13	65	56	128
31	186	-	558	438	-	1,760	-	1,660	-	44	59	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,653.2	250	9.2	85.6	5,260
November	26,354	1,780	174	878	52,270
December	31,756	2,420	558	1,024	62,990
Calendar year 1947	160,388.2	3,160	0	439	318,100
January	29,100	4,430	402	939	57,720
February	31,411	5,000	261	1,083	62,300
March	30,727	1,930	653	991	60,950
April	63,590	3,900	1,200	2,120	126,100
May	104,230	5,650	1,280	3,362	206,700
June	16,574	1,510	13	552	32,870
July	1,278	186	11	41.2	2,530
August	1,772	90	30	57.2	3,510
September	3,310	289	56	110	6,570
Water year 1947-48	342,755.2	5,650	9.2	936	679,800

Peak discharge (base, 2,800 sec.-ft.).- Jan. 8 (5 p.m.) 4,770 sec.-ft.; Feb. 23 (7 to 12 a.m.) 3,190 sec.-ft.; Feb. 27 (10 to 12 p.m.) 5,680 sec.-ft.; Apr. 17 or 18 (time unknown) about 4,000 sec.-ft.; May 14 (2 p.m.) 5,260 sec.-ft.; May 23 (8 p.m.) 6,080 sec.-ft.; May 27 (2 p.m.) 3,320 sec ft.

Note.- Doubtful gage-height record Feb. 28 to Apr. 26; discharge for Apr. 13-26 computed on basis of change in stage when inlets were cleared on Apr. 26, and records for station at Yoakum.

McKay Creek near Pilot Rock, Oreg.

Location.- Water-stage recorder, lat. 45°33', long. 118°46', in NE¼ sec. 23, T. 1 N., R. 32 E., 400 feet downstream from county road bridge, three-quarters of a mile upstream from maximum flow line (altitude, 1,322 feet) of McKay Reservoir, and 6 miles northeast of Pilot Rock. Datum of gage is 1,335 85 feet above mean sea level, datum of 1929 (Pacific Power & Light Co. bench mark).
Drainage area.- 178 square miles.
Records available.- May to August 1921, October 1926 to September 1948 (1927-29 incomplete).
Average discharge.- 20 years (1926-27, 1929-48), 93.2 second-feet.
Extremes.- Maximum discharge during year, 2,020 second-feet Feb. 26 (gage height, 5.20 feet); minimum, 0.5 second-foot Oct. 1, 2.
1921, 1926-48: Maximum discharge, 6,000 second-feet Apr. 1, 1931 (gage height, 10.4 feet, site and datum then in use); no flow at times.
Remarks.- Records good except those for period of backwater from moss and those below 2 second-feet, which are fair, and those for periods of ice effect or no gage-height record, which are poor. Many small diversions above station for irrigation; none between station and McKay Reservoir.

Rating tables, water year 1947-48, except periods of ice effect or backwater from moss (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 26

1.0	0.1	1.6	22	3.0	355
1.1	.6	1.8	43	3.4	540
1.2	2.2	2.0	74	3.8	750
1.3	5.7	2.2	112	4.2	1,020
1.4	9.8	2.4	159	4.7	1,480
1.5	15	2.7	243		

Feb. 27 to Sept. 30

0.9	0.2	1.4	14	2.1	101
1.0	1.0	1.5	20	2.4	162
1.1	2.5	1.6	28	2.7	243
1.2	5.0	1.7	38		
1.3	9.0	1.9	66		

Note.- Same as preceding table above 2.7 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	20	502	144	62	364	396	334	171	26	4.8	1.4
2	.6	20	605	*177	59	313	440	326	148	24	4.5	1.4
3	.6	20	792	204	46	263	463	326	129	24	4.2	1.3
4	.8	21	605	209	b45	223	418	373	119	24	4.0	1.3
5	.9	21	445	204	b44	200	347	342	107	29	3.8	1.3
6	.9	22	*364	234	b43	182	313	382	92	27	3.8	1.4
7	1.1	37	309	750	a42	167	298	500	80	18	3.8	1.6
8	1.6	123	266	*750	69	*158	317	580	69	17	3.5	1.4
9	1.6	149	246	530	50	160	414	891	60	15	3.5	1.4
10	1.9	185	221	414	46	138	490	940	56	12	3.2	1.4
11	2.6	253	209	326	38	144	468	926	56	12	3.2	1.4
12	3.2	231	207	263	39	140	400	816	53	11	3.2	1.3
13	3.2	302	250	215	47	136	351	980	55	10	2.8	1.2
14	3.2	360	342	188	*44	151	373	858	50	10	2.8	1.2
15	3.6	351	309	164	87	155	500	684	47	9.5	2.5	1.2
16	4.3	373	276	142	104	184	615	580	89	8.2	2.5	.8
17	6.1	321	276	127	123	195	717	503	69	7.8	2.4	.8
18	8.2	525	302	114	164	209	706	465	58	6.6	2.4	.8
19	8.2	495	321	102	154	209	651	542	56	6.6	2.2	.8
20	8.6	364	298	94	136	192	625	527	56	6.2	2.0	.8
21	11	280	269	87	177	180	610	494	162	5.8	2.0	.9
22	23	218	326	85	432	200	580	523	174	5.8	1.9	.9
23	25	180	298	87	386	217	540	495	142	5.4	1.6	1.2
24	24	167	263	94	*321	234	463	418	116	5.4	1.6	1.2
25	22	188	228	94	351	294	400	353	97	5.4	1.6	1.3
26	21	298	201	83	1,420	338	342	300	73	5.4	1.8	1.3
27	20	334	182	78	898	427	298	259	68	5.4	1.6	1.4
28	19	263	182	78	600	486	263	233	50	5.0	1.6	1.4
29	20	215	182	72	454	505	306	203	38	5.0	1.4	1.6
30	20	204	172	69	-	530	298	174	33	5.0	1.4	1.6
31	19	-	164	64	-	445	-	174	-	5.0	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	285.7	25	0.5	9.22	567
November	6,540	525	20	218	12,970
December	9,612	792	164	310	19,070
Calendar year 1947	39,169.9	798	.1	107	77,700
January	6,242	750	64	201	12,380
February	6,481	1,420	38	223	12,850
March	7,739	530	136	250	15,350
April	13,402	717	263	447	26,580
May	15,501	980	174	500	30,750
June	2,574	174	33	85.8	5,110
July	362.5	29	5.0	11.7	719
August	83.0	4.8	1.4	2.68	165
September	37.0	1.6	.8	1.23	73
Water year 1947-48	68,859.2	1,420	.5	188	136,600

Peak discharge (base, 700 sec.-ft.).- Dec. 3 (10 a.m.) 926 sec.-ft.; Jan. 7 (2:30 p.m.) 1,020 sec.-ft.; Feb. 26 (10 a.m.) 2,020 sec.-ft.; Apr. 17 (9:30 p.m.) 786 sec.-ft.; May 13 (5:30 a.m.) 1,140 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Birch Creek at Rieth.
b Stage-discharge relation affected by ice.
Note.- Backwater from moss July 24 to Sept. 30.

McKay Reservoir near Pendleton, Oreg.

Location.- Staff gage, lat. 45°36', long. 118°48', at dam on McKay Creek in SE¼ sec. 34, T. 2 N., R. 32 E., 4 miles south of Pendleton. Datum of gage is at mean sea level (surve by Bureau of Reclamation).

Drainage area.- 236 square miles.

Records available.- October 1930 to September 1948.

Extremes.- Maximum contents during year, 73,710 acre-feet (from high-water marks) May 10 11 (elevation, 1,321.9 feet); minimum observed, 10,020 acre-feet Oct. 31 (elevation, 1,237.5 feet).
1930-48: Maximum contents, that of May 10 or 11, 1948; minimum observed, 3,051 acr feet Oct. 1, Nov. 1, Dec. 1, 1935 (elevation, 1,217.6 feet).

Remarks.- Reservoir is formed by gravel-fill dam with concrete facing completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-feet, revised, between elevations 1,182 feet (floor of trash-rack structure) and 1,322 feet (top of spillway gates). De storage, about 6 acre-feet, included in contents given herein. Water is used for irri tion of lands along Umatilla River near Echo, Stanfield, and Hermiston. Gage read to neare foot or half-foot on last day of each month, occasionally at other times.

Cooperation.- Gage readings and capacity table furnished by Bureau of Reclamation.

Monthly elevation and contents, water year October 1947 to September 1948

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	1,239.0	10,640	-
Oct. 31	1,237.5	10,020	-620
Nov. 30	1,264.5	23,470	+13,450
Dec. 31	1,288.0	39,530	+16,060
Calendar year 1947	-	-	+3,830
Jan. 31	1,304.0	53,660	+14,130
Feb. 29	1,316.0	66,550	+12,890
Mar. 31	1,319.8	71,060	+4,510
Apr. 30	1,320.5	71,940	+880
May 31	1,319.5	70,700	-1,240
June 30	1,318.0	68,900	-1,800
July 31	1,304.5	54,160	-14,740
Aug. 31	1,279.5	33,190	-20,970
Sept.30	1,255.5	18,400	-14,790
Water year 1947-48	-	-	+7,760

McKay Creek near Pendleton, Oreg.

Location.- Water-stage recorder, lat. 45°37', long. 118°48', in SE¼NW¼ sec. 34, T. 2 N., R. 32 E., just upstream from irrigation diversion dam, a quarter of a mile downstream from McKay Dam, and 4 miles south of Pendleton.

Drainage area.- 236 square miles.

Records available.- November 1918 to September 1923, October 1924 to September 1948 (diversions by irrigation canal at gage not included since 1932).

Extremes.- Maximum discharge observed during year, 1,270 second-feet May 13 (gage height, 2.68 feet); probably no flow during most of period Oct. 10 to Mar. 2.
1918-48: Maximum discharge observed, 3,250 second-feet Feb. 10, 1921 (gage height, 4.4 feet, site and datum then in use), from rating curve extended above 1,200 second-feet; no flow at times.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation. Flow completely regulated since 1927 by McKay Reservoir.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 10

0.1	2.6	0.5	53	1.2	277
.2	10	.6	73	1.4	380
.3	22	.8	127	1.6	505
.4	36	1.0	194	1.8	640

May 11 to Sept. 30

0.2	8	0.7	82	1.7	500
.3	17	.8	107	2.0	720
.4	28	1.0	163	2.5	1,120
.5	42	1.2	241		
.6	60	1.4	329		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a2					-	214	251	458	15	344	329
2	a2					-	206	251	434	55	344	320
3	a2					12	206	330	288	109	344	306
4	41					14	334	404	288	230	329	306
5	121					16	440	404	261	230	288	301
6	124					16	398	404	270	226	297	292
7	124					16	392	404	230	230	297	270
8	46					15	392	479	80	233	292	178
9	9					56	392	550	78	233	292	182
10	-					80	392	612	78	233	292	178
11	-					78	392	a1,000	78	233	292	178
12	-					78	392	a900	78	249	311	178
13	-					78	392	a1,100	70	218	344	178
14	-					78	392	a1,100	17	218	344	178
15	-					149	404	a800	17	241	344	178
16	-					237	440	704	17	254	339	178
17	-					225	598	704	18	254	339	215
18	-					221	598	696	18	254	339	315
19	-					221	598	688	18	266	339	315
20	-					214	605	547	18	283	339	311
21	-					210	619	440	19	283	339	311
22	-					206	619	464	19	283	334	311
23	-					202	619	464	18	283	329	306
24	-					202	612	464	16	279	311	306
25	-					202	564	470	15	301	311	306
26	-					202	492	470	15	320	306	301
27	-					206	492	470	15	320	301	301
28	-					210	372	464	15	320	301	297
29	-					214	255	464	15	320	301	297
30	-					217	251	458	14	329	315	209
31	-					225	-	458	-	344	334	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October 1-9	471	124	2	52.3	934
November	-	-	-	-	-
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March 3-31	4,100	237	12	141	8,130
April	13,072	619	206	436	25,930
May	17,414	1,100	251	562	34,540
June	2,975	458	14	99.2	5,900
July	7,646	344	15	247	15,170
August	9,931	344	288	320	19,700
September	7,831	329	178	261	15,530
The period	63,440	-	-	-	125,800

a No gage-height record; discharge computed on basis of available gage readings, 2 discharge measurements, field estimate of discharge, and records for Umatilla River at Yoa'um.

Birch Creek at Rieth, Oreg.

Location.- Water-stage recorder, lat. 45°39', long. 118°53', in SE¼ sec. 13, T. 2 N., R. 31 E., a quarter of a mile upstream from mouth and half a mile southwest of Rieth.
Drainage area.- 291 square miles.
Records available.- May 1921 to September 1923, April 1927 to September 1948.
Average discharge.- 19 years (1929-48), 41.1 second-feet.
Extremes.- Maximum discharge during year, 750 second-feet (supersedes figure shown in Water Supply Paper 1080) May 14 (gage height, 4.70 feet); practically no flow Sept. 13-17.
1921-23, 1927-48: Maximum discharge, 1,640 second-feet Jan. 29, 1928 (gage height, 6.00 feet, site and datum then in use), from rating curve extended above 300 second-feet; no flow at times.
Remarks.- Records good except those below 5 second-feet, which are fair, and those for periods of ice effect or no gage-height record, which are poor. Several small diversions above station for irrigation.
Revisions (water years).- W 984: 1939.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 11 to Nov. 11)

Oct. 1 to Apr. 17

0.5	0.7	1.0	13	2.2	145
.6	1.7	1.2	27	2.6	218
.7	3.3	1.4	44	3.0	314
.8	5.5	1.6	65	3.4	420
.9	8.7	1.9	102	3.9	570

Apr. 18 to Sept. 30

0.02	0	0.7	12	2.1	154
.1	0.1	.8	16	2.6	230
.2	.4	.9	21	3.2	340
.3	1.8	1.0	28	3.9	510
.4	3.8	1.2	45	4.6	720
.5	6.0	1.4	66		
.6	8.5	1.7	101		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	13	191	93	b40	155	173	204	178	13	3.8	0.1
2	.8	13	259	92	b39	148	193	192	153	6.0	1.2	.1
3	.8	13	380	93	b38	132	242	189	134	3.6	3.6	.1
4	.8	14	363	93	b37	116	214	227	126	2.4	4.2	.1
5	.8	13	254	92	b36	115	180	237	117	4.2	3.6	.1
6	1.1	7.7	210	94	b35	105	173	264	102	10	2.6	.1
7	.9	9.6	176	191	b35	99	156	390	87	9.2	.4	.1
8	.9	16	158	369	78	*94	150	400	78	8.8	.4	.1
9	.9	19	144	284	54	97	151	438	67	10	.4	.1
10	.9	21	133	216	47	77	163	445	58	9.6	.3	.2
11	1.4	26	123	182	38	87	163	475	55	7.0	.3	.1
12	2.8	34	115	153	31	93	155	513	57	6.2	.2	.1
13	3.0	41	117	130	b40	97	144	660	59	4.9	.2	0
14	4.8	57	127	120	47	112	136	690	62	2.8	.2	0
15	5.5	57	124	112	94	126	188	561	56	1.5	.2	.7
16	5.5	67	116	94	53	138	356	522	82	1.4	.1	.4
17	6.5	69	112	b85	53	139	546	510	72	4.5	.1	0
18	6.5	81	117	b75	56	150	495	528	70	6.8	.1	.1
19	7.1	101	122	b70	54	140	420	651	64	6.8	.1	.1
20	8.4	99	120	b65	53	127	430	696	64	4.0	.1	a.1
21	11	94	117	b60	56	117	475	666	73	1.2	.1	a.1
22	10	87	130	67	76	123	460	678	69	5.8	.1	.1
23	9.8	81	123	67	92	133	405	606	57	6.0	.1	.2
24	9.1	78	117	67	93	133	a350	516	47	4.2	.1	a.2
25	9.1	93	112	66	93	136	a300	460	42	4.0	.1	a.5
26	9.6	122	105	55	154	138	a250	398	39	4.7	.1	a1.0
27	9.6	170	99	47	240	134	a200	354	25	4.5	.2	a3.0
28	10	170	99	b45	212	144	184	304	20	3.0	.1	a2.0
29	12	147	102	b44	176	163	216	254	22	2.0	.1	1.5
30	14	136	*101	b42	-	214	211	216	13	4.9	.1	3.2
31	13	-	96	b41	-	193	-	200	-	2.4	.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	177.4	14	0.8	5.72	352
November	1,949.3	170	7.7	65.0	3,870
December	4,662	380	96	150	9,250
Calendar year 1947	18,142.2	380	.4	49.7	35,990
January	3,304	369	41	107	6,550
February	2,150	240	31	74.1	4,260
March	3,975	214	77	128	7,880
April	7,879	546	136	263	15,630
May	13,444	696	189	434	26,670
June	2,148	178	13	71.6	4,260
July	165.4	13	1.2	5.34	328
August	23.3	4.2	.1	.75	46
September	14.5	3.2	0	.48	29
Water year 1947-48	39,891.9	696	0	109	79,120

Peak discharge (base, 300 sec.-ft.).- Dec. 3 (9 p.m.) 501 sec.-ft.; Jan. 8 (5 to 9 a.m.) 395 sec.-ft.; Apr. 17 (5 p.m.) 618 sec.-ft.; May 14 (8 a.m.) 750 sec.-ft.; May 20 (4 a.m.) 720 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Butter Creek at Pine City and McKay Creek near Pilot Rock.
b Stage-discharge relation affected by ice.
Note.- Figures of daily discharge May 1 to July 1 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

Butter Creek near Pine City, Oreg.
(Called North Fork Butter Creek on some maps)

Location.- Water-stage recorder, lat. 45°33', long. 119°18', in S½ sec. 22, T. 1 N., R. 28 E., half a mile below Mattlock Canyon, 6 miles southeast of settlement of Pine City, and 20 miles south of Hermiston.
Drainage area.- 291 square miles.
Records available.- October 1945 to September 1948 in reports of Geological Survey. March 1921 to April 1928 at site half a mile south of Pine City, and May 1928 to September 1941, at present site (incomplete) in reports of State engineer; October 1941 to September 1945 (unpublished) in files of State engineer.
Average discharge.- 16 years (1929-30, 1931-32, 1933-41, 1942-48), 19.9 second-feet.
Extremes.- Maximum discharge during year, 268 second-feet (supersedes figure shown in Water-Supply Paper 1080) May 19 (gage height, 2.70 feet); minimum recorded, 1.3 second-feet Oct. 9, probably less during period Oct. 1-8.
1921-48: Maximum discharge, 1,600 second-feet Jan. 28, 1942 (gage height, 7.91 feet), from rating curve extended above 300 second-feet; no flow at times.
Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. No regulation. Small diversions above station for irrigation; for about 20 days each year not over 30 second-feet may be diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River Basin.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 26						Feb. 27 to Sept. 30					
0.1	0.6	0.5	12	1.2	69	0.1	1.7	0.5	14	1.1	61
.2	2.3	.6	17	1.5	103	.2	3.4	.6	19	1.4	95
.3	4.3	.8	31	1.8	139	.3	5.7	.7	26	1.8	145
.4	7.3	1.0	48	2.2	188	.4	8.9	.9	42	2.5	240

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		6.1	68	37	b11	95	119	93	83	20	6.0	4.1
2		6.1	*98	37	b11	85	127	90	73	20	5.7	3.9
3		5.8	114	38	b11	74	146	82	65	18	6.0	3.4
4		5.8	131	37	b11	59	132	107	67	18	6.0	3.2
5	a1.0	6.1	104	37	b11	64	122	115	63	25	6.0	3.1
6		6.1	88	83	b10	61	112	114	56	24	6.0	3.1
7		6.4	78	178	b10	58	107	120	51	22	5.7	3.1
8		11	69	178	30	57	105	115	47	21	5.7	2.9
9	1.8	17	64	123	b25	57	112	109	49	19	5.7	2.7
10	2.0	15	56	95	b20	40	145	114	47	17	6.7	2.6
11	2.1	14	53	79	b15	42	131	114	48	16	5.5	2.4
12	2.3	14	50	60	b13	58	113	105	52	15	5.2	2.4
13	2.5	a15	49	51	b25	58	107	120	66	14	5.0	2.4
14	2.7	a20	54	42	38	64	109	118	62	13	4.1	2.2
15	2.5	a30	55	39	73	68	183	111	51	12	4.1	2.2
16	2.9	a50	52	34	52	71	204	106	46	7.9	4.3	2.4
17	2.5	a70	a50	b30	47	75	204	107	44	7.3	4.1	2.9
18	3.1	a110	a80	b27	76	96	209	129	42	7.6	3.9	3.1
19	3.3	a90	a75	b25	67	87	188	a240	46	7.6	3.6	3.1
20	4.9	a75	a70	b23	47	78	179	a230	44	7.6	3.4	3.2
21	4.6	a65	a66	b21	*43	73	175	a210	56	7.3	3.9	3.2
22	4.9	a55	a63	b20	101	113	172	a190	57	7.0	4.3	3.4
23	4.9	a52	a61	*36	81	126	164	a170	53	6.7	5.2	3.6
24	4.6	a50	a56	37	57	108	148	157	47	7.0	6.0	4.1
25	4.8	a5[illegible]	a55	34	55	115	129	141	42	6.3	6.3	5.0
26	4.[illegible]	4	a52	23	152	109	114	129	36	6.7	6.0	6.7
27	4.6	67	a50	13	180	111	102	127	32	6.3	5.5	6.3
28	4.7	56	a47	b13	129	142	91	118	28	6.3	5.2	5.7
29	5.2	48	a44	b12	107	176	89	106	21	7.3	5.0	5.7
30	5.2	44	a40	b12	-	166	91	95	22	7.3	4.8	5.7
31	5.8	-	*38	b12	-	132	-	90	-	6.7	4.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	93.9	5.8	-	3.03	186
November	1,139.4	110	5.8	38.0	2,260
December	2,031	131	38	65.5	4,030
Calendar year 1947	9,549.7	149	-	26.2	18,940
January	1,486	178	12	47.9	2,950
February	1,508	180	10	52.0	2,990
March	2,718	176	40	87.7	5,390
April	4,129	209	89	138	8,190
May	3,972	240	82	128	7,880
June	1,496	83	21	49.9	2,970
July	386.9	25	6.3	12.5	767
August	159.2	6.7	3.4	5.14	316
September	107.8	6.7	2.2	3.59	214
Water year 1947-48	19,227.2	240	-	52.5	38,140

Peak discharge (base, 200 sec.-ft.).- Jan. 7 (11:30 p.m.) 217 sec.-ft.; Feb. 26 (10 to 11 p.m.) 202 sec.-ft.; Mar. 29 (5:30 a.m.) 226 sec.-ft.; Apr. 16 (8 to 9 a.m.) 218 sec.-ft.; May 19 (time unknown) 268 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated or based on records for Butter Creek at Foley's Bridge near Echo (not published by U.S.G.S.) and Birch Creek at Rieth.
b Stage-discharge relation affected by ice.
Note.- Figures of daily discharge May 24-26, July 16-31 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

Principal diversions from Umatilla River between Pendleton and Umatilla, Oreg.

The following canals divert water from Umatilla River between Pendleton and Umatilla Furnish Canal, from right bank of Umatilla River in sec. 36, T. 3 N., R. 29 E. Umatill project feed canal, from right bank of Umatilla River in SW¼ sec. 22, T. 3 N., R. 29 E. to feed Cold Springs Reservoir of Bureau of Reclamation. Westerr Land Canal, from left bank of Umatilla River in NE¼ sec. 21, T. 3 N., R. 29 E.; gage is 1 mile downstream fro intake. Allen Canal, from right bank of Western Land Canal, half a mile downstream fro head gate of that canal. Maxwell Canal, from right bank of Umatilla River in SW¼ sec. 28, T. 4 N., R. 28 E.; at times it receives water from Cold Sprirgs Reservoir. West Di sion main canal, from left bank of Umatilla River in SW¼ sec. 28, T. 5 N., R. 28 E. Brownell Canal, from right bank of Umatilla River, 2 miles below West Division main can diversion and 1½ miles above mouth of Umatilla River.

Water diverted by all these canals is used for irrigation of lands on both sides of Umatilla River near and below Echo; except that diverted by West Division main canal, w is applied to land along Columbia River in vicinity of Irrigon.

Several smaller canals also divert water between Pendleton and Umatilla, but no reco for them were obtained.

Records of monthly discharge of the canals, published as a group, are available from March 1926 to September 1948; records for some of the canals published separately prior to 1926.

Diversions, in acre-feet, water year October 1947 to September 1948

Month	Furnish Canal	Umatilla project feed canal	Western Land Canal	Allen Canal	Maxwell Canal	West Division main canal
October	1,310	3,510	-	a301	b629	5,870
November	0	11,510	-	-	-	0
December	0	12,630	-	-	-	0
January	0	11,630	-	-	-	0
February	0	7,070	-	-	-	0
March	734	6,550	-	c35	-	3,490
April	5,600	9,890	7,480	710	3,170	9,410
May	4,070	7,600	10,090	719	3,750	12,160
June	6,470	10,320	6,390	1,120	3,800	11,710
July	7,690	32	13,400	807	3,630	11,490
August	8,290	0	12,200	783	3,260	12,230
September	4,660	0	10,910	1,020	2,500	11,310
Water year 1947-48	38,820	80,740	60,470	-	-	77,670

a Oct. 1-8.
b Oct. 1-15.
c Mar. 18-31.

Note.- No gage-height record for months of little or no flow and for a few days and short peri at other times. Discharge for some periods interpolated, or computed on basis of information fu nished by watermaster. Records for Brownell Canal not up to standards for publication for 1948.

John Day River at Prairie City, Oreg.

Location.- Water-stage recorder, lat. 44°27', long. 118°43', in NE¼ sec. 10, T. 13 S., R. 33 E., 600 feet upstream from power plant and outlet of Prairie power canal, a third of a mile below Dixie Creek, and three-quarters of a mile southwest of Prairie City. Datum of gage is 3,496.99 feet above mean sea level, datum of 1929.

Drainage area.- 231 square miles.

Records available.- October 1926 to September 1948. October 1916 to September 1917 (gage heights only) and March 1925 to September 1926 at site below outlet of Prairie power canal.

Average discharge.- 23 years (1925-48), 111 second-feet, including flow of Prairie power canal.

Extremes.- Maximum discharge during year, 1,150 second-feet May 28 (gage height, 5.11 feet); minimum daily, 10 second-feet Oct. 1-3, 5-8.

1926-48: Maximum discharge observed, 1,550 second-feet Mar. 19, 1932, from rating curve extended above 500 second-feet; maximum gage height, 5.4 feet Mar. 20, 21, 1939, at former site and datum, from floodmark; minimum discharge, 2 second-feet Dec. 8, 21, 22, 1932, Aug. 10, 1934.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation and for power. (See p. 39 for records for Prairie power canal at Prairie City.)

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 13 to Nov. 3)

Oct. 1 to May 16						May 17 to Sept. 30					
1.5	8.0	1.9	42	2.6	190	1.3	10	1.8	46	3.0	338
1.6	13	2.0	57	2.9	275	1.4	14	1.9	61	3.5	498
1.7	20	2.1	75	3.4	465	1.5	19	2.0	79	4.0	682
1.8	30	2.3	117			1.6	26	2.2	123	5.0	1,100
						1.7	35	2.5	200		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	16	110	46	40	68	120	210	578	70	18	18
2	10	18	115	102	20	66	120	192	583	66	16	16
3	10	17	90	64	32	59	125	202	654	74	16	13
4	11	18	80	182	33	45	125	245	780	70	16	12
5	10	20	75	126	18	59	120	236	704	87	15	11
6	10	24	70	254	14	52	115	272	652	77	15	11
7	10	28	65	324	25	50	110	433	637	70	15	11
8	10	38	55	239	31	48	105	457	687	56	14	13
9	12	33	50	180	23	50	105	389	622	50	14	13
10	19	30	45	145	14	b32	115	328	571	42	14	20
11	21	26	*45	119	*24	44	110	286	508	42	16	28
12	17	24	36	99	b45	41	120	269	425	36	15	33
13	14	31	45	75	b35	40	120	289	377	32	15	34
14	14	38	45	77	35	46	140	306	332	31	14	28
15	14	43	32	66	61	45	160	320	315	31	13	28
16	30	53	41	57	35	45	200	373	318	30	13	25
17	20	68	117	54	42	45	250	478	287	26	13	17
18	17	58	99	44	99	51	320	519	292	23	13	17
19	16	48	64	42	48	54	310	498	298	23	13	17
20	17	38	52	48	38	51	330	454	298	24	13	17
21	30	35	46	48	63	54	350	600	306	26	12	18
22	23	29	48	45	180	70	381	948	284	26	13	19
23	20	29	48	45	81	87	338	915	261	22	18	24
24	18	33	46	45	54	108	275	905	234	23	18	38
25	16	38	41	37	62	108	239	917	210	22	17	46
26	17	43	40	28	180	93	208	975	166	20	17	43
27	16	48	46	39	110	100	190	1,080	136	21	17	35
28	16	48	59	55	79	100	180	1,090	105	24	18	30
29	16	48	52	33	71	105	221	914	74	21	18	31
30	23	100	41	33	-	115	221	724	75	19	18	29
31	16	-	40	37	-	110	-	630	-	18	18	-

Month	River only				River and Prairie power canal			
	Maximum	Minimum	Mean	Runoff in acre-feet	Maximum	Minimum	Mean	Runoff in acre-feet
October	30	10	16.2	998	87	46	64.9	3,990
November	100	16	37.3	2,220	161	66	93.1	5,540
December	117	32	59.3	3,650	176	91	118	7,240
Calendar year 1947	321	5	55.5	40,190	392	18	110	79,640
January	324	28	89.9	5,530	388	85	152	9,320
February	180	14	54.9	3,160	245	74	118	6,800
March	115	32	65.8	4,050	177	84	128	7,890
April	381	105	194	11,550	446	167	258	15,340
May	1,090	192	531	32,640	1,150	249	590	36,270
June	780	74	392	23,340	840	131	450	26,790
July	87	18	38.8	2,380	148	72	98.0	6,020
August	18	12	15.3	942	72	37	53.7	3,300
September	46	11	23.2	1,380	103	43	61.5	3,660
Water year 1947-48	1,090	10	127	91,840	1,150	37	182	132,160

Peak discharge (base, 240 sec.-ft.).- Jan. 4 (8 a.m.) 266 sec.-ft.; Jan. 7 (1:30 p.m.) 397 sec.-ft.; Apr. 22 (8:30 a.m.) 393 sec.-ft.; May 8 (1 a.m.) 493 sec.-ft.; May 28 (1:30 a.m.) 1,150 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Oct. 1-12, Nov. 4 to Dec. 10, Jan. 23 to Feb. 11, Mar. 27 to Apr. 21; discharge computed on basis of recorded range in stage, weather records, and records for Prairie Power Canal at Prairie City and John Day River at Picture Gorge. Figures of daily discharge May 1-17, 19, 20, June 11-26, June 28 to July 31 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

John Day River at Picture Gorge, near Dayville, Oreg.

Location.- Water-stage recorder and concrete control, lat. 44°31'20", long. 119°37'30", sec. 20, T. 12 S., R. 26 E., on John Day Highway, 0.7 mile upstream from Rock Creek bridge and 7 miles northwest of Dayville. Datum of gage is 2,232.10 feet above mean level, datum of 1929.

Drainage area.- 1,640 square miles.

Records available.- April 1926 to September 1948.

Average discharge.- 22 years, 411 second-feet.

Extremes.- Maximum discharge during year, 6,520 second-feet May 22 (gage height, 13.72 feet); minimum, 70 second-feet Oct. 5, 6.
1926-48: Maximum discharge, that of May 22, 1948; minimum, 1 second-foot several days in August and September 1930, and on Aug. 8, 9, 1936.

Remarks.- Records excellent. Many diversions above station for irrigation.

Revisions (water year).- W 794: 1932(M).

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7

2.0	66	3.5	278	7.0	1,380
2.3	100	4.0	385	8.0	1,860
2.6	137	5.0	650	9.0	2,420
3.0	193	6.0	980		

Jan. 8 to Sept. 30

1.9	89	4.0	419	9.5	2,900
2.3	129	4.5	545	11.0	4,000
2.7	180	5.5	850	13.0	5,800
3.1	240	6.5	1,230		
3.5	312	8.0	1,950		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	77	187	590	376	414	690	882	1,940	2,870	615	167	1
2	80	188	647	515	403	663	994	1,780	2,640	567	162	1
3	80	193	593	686	351	600	976	1,760	2,590	515	161	1
4	77	194	596	614	355	548	998	2,200	2,790	487	156	1
5	72	200	540	861	401	545	941	2,140	2,980	548	148	1
6	74	200	505	1,230	338	561	920	2,230	2,770	583	147	1
7	86	211	472	2,300	286	542	888	2,610	2,600	540	141	1
8	98	252	452	2,690	342	523	840	2,890	2,680	508	136	1
9	117	255	440	1,770	389	523	850	2,650	2,720	477	133	1
10	142	248	405	1,340	376	465	910	2,340	2,480	441	142	1
11	153	241	400	1,130	308	448	910	2,080	2,620	419	146	1
12	157	236	369	972	268	490	868	1,930	2,300	387	143	1
13	153	245	371	832	321	477	878	1,920	1,980	361	133	1
14	151	261	405	726	364	480	1,170	1,930	1,770	334	128	9
15	154	278	425	693	414	492	1,560	1,920	1,580	310	126	9
16	167	355	362	636	526	487	2,070	1,970	1,640	288	124	9
17	180	402	378	586	455	482	2,440	2,210	1,660	257	121	9
18	181	480	617	567	540	487	2,500	2,550	1,570	245	116	1
19	172	462	566	490	561	487	2,330	2,910	1,490	240	110	1
20	168	400	478	502	445	477	2,370	3,190	1,540	232	111	1
21	177	355	442	523	460	477	2,610	3,150	1,720	224	115	1
22	187	308	425	529	1,170	513	2,630	5,580	1,650	196	120	1
23	187	278	412	526	1,020	567	2,490	5,070	1,470	180	130	1
24	184	282	402	529	711	669	2,250	4,490	1,330	167	139	1
25	182	286	380	502	639	744	1,970	4,130	1,210	158	137	1
26	181	300	380	417	966	738	1,800	4,540	1,090	149	141	2
27	184	367	358	342	1,100	759	1,670	4,400	962	148	151	2
28	184	383	390	353	818	787	1,580	4,270	871	153	156	2
29	184	376	440	387	750	854	1,820	4,040	744	177	157	2
30	188	380	415	438	-	892	2,040	3,540	663	173	149	2
31	188	-	367	414	-	846	-	3,240	-	160	145	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,565	188	72	147	9,0
November	8,803	480	187	293	17,4
December	14,002	647	358	452	27,7
Calendar year 1947	144,160	1,380	26	395	285,9
January	24,476	2,690	342	790	48,5
February	15,482	1,170	268	534	30,7
March	18,313	892	448	591	36,3
April	47,155	2,630	840	1,572	93,5
May	91,600	5,580	1,760	2,955	181,7
June	56,980	2,980	663	1,899	113,0
July	10,239	615	148	330	20,3
August	4,291	167	110	138	8,5
September	3,948	232	92	132	7,8
Water year 1947-48	299,854	5,580	72	819	594,7

Peak discharge (base, 1,000 sec.-ft.).- Jan. 8 (12:30 to 2:30 a.m.) 3,230 sec.-ft.; Feb. 22 (11 p.m.) 1,380 sec.-ft.; Feb. 27 (1:30 a.m.) 1,380 sec.-ft.; Apr. 22 (5 a.m.) 2,700 sec.-ft.; May 8 (1 p.m.) 2,940 sec.-ft.; May 22 (9 a.m.) 6,520 sec.-ft.

John Day River at Service Creek, Oreg.

Location.- Water-stage recorder, lat. 44°48', long. 120°00', in NE¼ sec. 18, T. 9 S., R. 23 E., a quarter of a mile downstream from Service Creek and three-quarters of a mile southwest of Service Creek post office. Datum of gage is 1,635.83 feet above mean sea level, datum of 1929.

Drainage area.- 5,090 square miles.

Records available.- October 1929 to September 1948 in reports of Geological Survey. March 1925 to September 1926 and October 1929 to September 1941 in reports of State engineer.

Average discharge.- 20 years (1925-26, 1929-48), 1,601 second-feet.

Extremes.- Maximum discharge during year, 23,900 second-feet May 22 (gage height, 15.25 feet), from rating curve extended above 10,000 second-feet on basis of parallel curve defined to 17,000 second-feet; minimum, 106 second-feet Oct. 5.
1929-48: Maximum discharge, 28,900 second-feet Mar. 19, 1932 (gage height, 16.75 feet), from rating curve extended above 11,000 second-feet; minimum, 20 second-feet Sept. 6, 1931.

Remarks.- Records fair. Many diversions above station for irrigation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	125	458	2,790	1,370	1,170	3,070	3,900	6,960	13,000	d3,050	615	319
2	132	434	3,860	1,560	1,170	2,800	4,680	6,510	12,400	d2,670	a620	298
3	137	422	3,150	2,360	1,020	2,490	5,550	6,120	12,200	d2,430	a900	274
4	130	426	2,890	2,170	849	2,200	5,120	8,190	13,900	d2,250	a700	252
5	108	430	2,610	2,530	1,080	1,920	4,390	7,910	13,400	d2,410	a640	261
6	113	442	2,340	3,050	1,000	2,000	4,010	7,910	12,200	d2,770	a610	255
7	122	454	2,140	11,700	777	1,980	3,750	9,730	11,500	d2,440	a610	249
8	125	526	1,990	13,000	872	1,890	3,450	10,800	11,300	d2,220	790	240
9	167	903	1,930	7,660	1,140	1,860	3,360	9,810	11,400	2,010	773	231
10	240	955	1,850	5,920	1,140	1,760	4,100	8,780	10,900	1,850	656	222
11	284	872	1,690	4,820	980	1,450	4,220	8,060	10,300	1,670	558	216
12	336	995	1,700	4,120	772	1,550	3,790	7,390	d8,920	1,580	522	205
13	364	1,100	1,560	3,450	786	1,620	3,530	7,760	d8,170	1,470	458	191
14	336	1,270	1,690	2,610	965	1,620	4,040	8,440	d7,230	1,350	403	205
15	274	1,580	1,850	2,310	1,180	1,730	6,940	8,220	d6,520	1,250	375	183
16	258	2,010	1,650	2,130	1,610	1,660	9,450	8,410	d6,440	1,170	358	175
17	302	2,130	1,490	1,880	1,550	1,730	10,500	9,480	d6,380	1,100	340	178
18	534	2,630	2,380	1,730	2,160	1,940	10,700	11,100	6,760	1,050	a330	199
19	470	2,510	2,480	1,630	2,230	1,890	9,750	13,200	7,680	1,000	a330	210
20	386	2,000	2,270	1,470	1,610	1,690	9,840	14,500	7,090	1,000	a320	219
21	358	1,710	2,080	1,530	1,510	1,610	10,700	13,100	7,820	945	a300	222
22	372	1,480	1,880	1,650	3,650	1,850	10,600	21,400	7,580	900	302	222
23	454	1,220	1,790	1,690	4,490	2,440	9,960	19,700	6,510	828	474	231
24	438	1,220	1,770	1,790	2,850	2,400	8,720	17,800	d5,770	782	498	264
25	400	1,260	1,650	1,720	2,310	2,650	7,580	17,100	d5,120	746	446	319
26	382	1,410	1,490	1,380	4,000	2,760	6,830	18,800	d4,560	710	446	446
27	375	1,930	1,440	1,030	5,980	2,610	6,480	19,800	d4,050	686	410	538
28	368	2,280	1,510	916	4,290	2,990	6,060	20,600	d3,680	674	396	554
29	378	2,150	1,710	921	3,500	3,700	6,290	17,400	d3,560	706	354	530
30	418	1,970	1,640	1,100	-	4,310	7,230	14,400	d3,460	730	368	530
31	450	-	1,500	1,230	-	4,040	-	14,300	-	678	344	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	9,336	534	108	301	18,520
November	39,177	2,630	422	1,306	77,710
December	62,770	3,860	1,440	2,025	124,500
Calendar year 1947	631,879	7,230	108	1,731	1,253,000
January	92,437	1,3000	916	2,982	183,300
February	56,641	5,980	772	1,953	112,300
March	70,210	4,310	1,450	2,265	139,300
April	195,520	10,700	3,360	6,517	387,800
May	373,680	21,400	6,120	12,050	741,200
June	249,800	13,900	3,460	8,327	495,500
July	45,125	3,050	674	1,456	89,500
August	15,246	900	300	492	30,200
September	8,438	554	175	281	16,700
Water year 1947-48	1,218,380	21,400	108	3,329	2,417,000

Peak discharge (base, 5,200 sec.-ft.).- Jan. 8 (4 a.m.) 15,800 sec.-ft.; Feb. 22 (8 p.m.) 6,150 sec.-ft.; Feb. 26 (10 p.m.) 7,500 sec.-ft.; Apr. 3 (3 p.m.) 5,720 sec.-ft.; Apr. 21 (4 p.m.) 11,300 sec.-ft.; May 7 (11 p.m.) 11,200 sec.-ft.; May 22 (12 m.) 23,900 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station at McDonald Ferry.

d Doubtful gage-height record; discharge computed on basis of recorder graph adjusted for sluggish inlet.

John Day River at McDonald Ferry, Oreg.

Location.- Water-stage recorder, lat. 45°35', long. 120°25', in NW¼ sec. 11, T. 1 N., R. 19 E., at McDonald Ferry, half a mile downstream from Rock Creek and 10 miles east of Klondike. Datum of gage is 392.27 feet above mean sea level, datum of 1929.

Drainage area.- 7,580 square miles.

Records available.- December 1904 to September 1948.

Average discharge.- 43 years, 1,942 second-feet.

Extremes.- Maximum discharge during year, 23,000 second-feet May 23 (gage height, 9.83 feet); minimum, 158 second-feet Oct. 4 (gage height, 1.38 feet).
1904-48: Maximum discharge, 27,800 second-feet Feb. 6, 1917 (gage height, 10.8 feet); minimum, 4 second-feet Aug. 31, 1931 (gage height, 0.63 foot).
Maximum stage known, 12.8 feet, probably occurred in 1894 (discharge, 39,100 second feet, from rating curve extended above 22,000 second-feet).

Remarks.- Records excellent except those for periods of ice effect, which are good. Diversions above station for irrigation.

Revisions (water years).- W 1094: 1894(M), 1907, 1932(M).

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.4	165	2.6	1,020	5.0	5,300
1.6	250	3.0	1,500	6.0	8,070
1.8	355	3.5	2,240	7.5	13,100
2.0	485	4.0	3,130	9.5	21,600
2.3	720	4.5	4,140		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	177	450	2,030	1,560	1,330	4,060	4,680	8,130	14,600	3,740	783	5
2	165	478	2,270	1,400	b1,400	3,620	4,480	7,740	13,100	3,420	729	4
3	165	492	4,080	1,460	b1,350	3,320	5,480	6,920	12,400	3,130	672	4
4	165	485	3,850	2,160	1,190	3,020	6,390	6,810	12,400	2,890	672	4
5	169	464	3,300	2,440	b860	2,720	5,910	9,310	14,400	2,800	783	4
6	181	471	2,960	2,710	b820	2,380	5,110	8,740	13,200	3,070	640	4
7	181	464	2,650	5,030	b950	2,410	4,590	8,800	12,000	3,170	664	4
8	185	471	*2,430	13,600	b1,000	2,440	4,360	10,700	11,100	2,890	626	4
9	193	471	2,240	12,800	b960	2,320	4,040	11 400	10,900	2,650	592	3
10	201	515	2,110	8,040	1,170	2,220	3,950	10,400	11,800	2,440	568	3
11	205	840	2,030	5,990	1,420	2,160	4,570	9,370	f12,100	2,240	714	3
12	201	880	1,840	4,770	1,210	1,880	4,800	8,680	f11,700	2,080	672	3
13	236	830	1,820	4,210	1,110	1,820	4,480	8,160	11,200	1,950	632	3
14	311	943	1,730	3,640	1,000	2,000	4,180	8,560	9,830	1,830	584	3
15	355	1,040	1,730	2,890	*2,100	2,050	4,870	9,120	8,250	1,700	568	3
16	379	1,420	1,950	2,600	2,310	2,130	8,070	8,870	8,070	1,590	522	3
17	338	1,590	1,860	2,460	2,500	2,160	10,200	9,120	8,040	1,470	508	3
18	311	2,410	1,730	2,220	2,850	2,340	11,500	10,300	7,650	1,380	485	3
19	311	2,650	2,220	2,030	2,620	2,460	11,800	11,900	8,740	1,300	478	3
20	443	2,890	2,690	1,920	2,810	2,500	10,800	14,100	f8,990	1,240	471	3
21	538	2,360	2,630	1,740	2,220	2,220	10,700	15,100	f8,680	1,190	471	3
22	464	1,950	2,310	1,660	2,460	2,180	11,500	14,100	9,210	1,150	443	3
23	403	1,660	2,080	1,800	4,470	2,380	11,600	21,300	8,590	1,110	443	3
24	397	1,400	1,900	1,920	5,250	2,980	10,800	19,800	7,500	1,030	492	3
25	429	1,210	1,820	1,980	3,620	3,040	9,470	18,000	6,670	965	592	3
26	450	1,290	1,730	2,020	3,170	3,170	8,310	17,500	5,990	910	632	4
27	443	1,350	1,590	1,700	4,840	3,340	7,470	20,000	5,400	840	592	4
28	429	1,800	1,460	b1,350	6,610	3,220	6,810	20,900	4,870	783	576	5
29	429	2,290	1,440	b1,100	4,840	3,540	6,340	21,400	4,430	774	560	6
30	429	2,190	1,600	1,010	-	4,230	7,040	17,600	4,120	765	538	5
31	429	-	1,690	1,190	-	4,840	-	14,800	-	783	530	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	9,712	538	165	313	19,260
November	37,754	2,890	450	1,258	74,88
December	67,770	4,080	1,440	2,186	134,400
Calendar year 1947	623,314	6,720	107	1,708	1,236,00
January	101,400	13,600	1,010	3,271	201,10
February	68,440	6,610	820	2,360	135,70
March	85,150	4,840	1,820	2,747	168,90
April	214,300	11,800	3,950	7,143	425,10
May	387,630	21,400	6,810	12,500	768,90
June	285,930	14,600	4,120	9,531	567,10
July	57,260	3,740	765	1,847	113,60
August	18,232	783	443	588	36,16
September	12,316	632	328	411	24,43
Water year 1947-48	1,345,894	21,400	165	3,677	2,670,00

Peak discharge (base, 6,300 sec.-ft.).- Jan. 8 (12 p.m.) 15,600 sec.-ft.; Feb. 27 (10 p.m.) 8,07 sec.-ft.; Apr. 18 (9 p.m.) to Apr. 19 (8 a.m.) 12,000 sec.-ft.; May 8 (10 p.m.) to May 9 (3 a.m.) 11,700 sec.-ft.; May 23 (2:30 p.m.) 23,000 sec.-ft.

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
f Computed on basis of partly estimated gage-height record.

Note.- Figures of daily discharge for July 9-31 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

Prairie power canal at Prairie City, Oreg.

Location.- Staff gage, lat. 44°27', long. 118°42', in sec. 11, T. 13 S., R. 33 E., upstream from county road bridge over canal and 1 mile south of Prairie City.

Records available.- May 1925 to September 1948.

Average discharge.- 23 years, 48.5 second-feet.

Extremes.- Maximum daily discharge observed during year, 67 second-feet Jan. 29, 30, Feb. 2, 5, 9, 16, 17; minimum daily, 10 second-feet Sept. 12, 13.
1925-48: Maximum daily discharge, 86 second-feet May 5, 1939; no flow at times.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Staff gage read twice daily. Canal diverts from John Day River in SE¼ sec. 7, T. 13 S., R. 34 E. Water is used by power plant at Prairie City and is returned to river below station on John Day River at Prairie City.

Cooperation.- Gage read by employee of California-Pacific Utilities Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	50	61	62	e55	64	62	a60	a60	61	54	44
2	36	51	55	62	67	62	62	a57	a60	62	48	44
3	36	51	59	62	e55	64	62	a60	a60	61	48	47
4	39	51	59	63	65	64	62	a64	a60	61	46	48
5	42	51	59	63	67	64	62	a60	a60	61	46	48
6	44	51	59	63	e60	64	62	a60	a54	61	46	48
7	44	57	59	64	e60	65	62	a60	a57	61	46	48
8	46	57	59	64	64	64	62	a64	a54	61	a43	a45
9	46	57	59	64	67	61	62	a60	a57	61	40	a40
10	46	57	59	64	66	52	66	a60	a60	61	38	a30
11	47	57	59	62	e50	62	66	a60	a54	61	33	a15
12	47	57	59	59	e60	62	66	a60	a60	61	31	a10
13	48	57	59	59	65	62	65	a57	a57	59	27	a10
14	48	57	59	59	65	64	65	a51	a57	59	25	a15
15	57	57	59	59	65	64	65	a60	a54	59	a25	a15
16	57	57	59	62	67	64	65	a60	a54	56	24	a20
17	57	57	59	64	67	62	65	a60	a48	54	25	29
18	51	57	59	63	66	62	66	a57	a60	56	26	33
19	50	57	59	63	63	62	66	a60	a57	56	24	33
20	50	57	57	62	63	62	66	a60	57	60	24	33
21	53	55	a57	65	64	62	65	a60	a60	59	a26	33
22	53	56	a57	65	65	62	65	a54	a60	59	29	33
23	55	57	a57	65	65	64	65	a60	a60	60	39	36
24	56	57	a58	66	65	64	65	a57	a57	60	44	51
25	56	57	a58	63	65	64	a64	a57	a64	59	46	57
26	53	57	a58	57	61	62	a64	a60	a60	59	47	57
27	53	57	a58	51	64	62	a62	60	a60	59	48	57
28	52	57	58	40	64	62	a62	a60	a60	60	48	57
29	51	57	58	67	65	62	a60	a57	a57	60	48	57
30	51	61	58	67	-	62	a60	a57	a60	54	48	57
31	50	-	58	e60	-	62	-	a60	-	54	48	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,510	57	36	48.7	3,000
November	1,674	61	50	55.8	3,320
December	1,811	61	55	58.4	3,590
Calendar year 1947	19,885	76	12	54.5	39,450
January	1,909	67	40	61.6	3,790
February	1,835	67	50	63.3	3,640
March	1,938	65	52	62.5	3,840
April	1,911	66	67	63.7	3,790
May	1,832	64	51	59.1	3,630
June	1,738	64	48	57.9	3,450
July	1,835	62	54	59.2	3,640
August	1,190	54	24	38.4	2,360
September	1,150	57	10	38.3	2,280
Water year 1947-48	20,333	67	10	55.6	40,330

a No gage-height record; discharge computed on basis of power-plant output record, comparison of combined canal and river flow with records for other stations in John Day River Basin, or by interpolation.
e Gage height not representative of mean for day; discharge computed on assumption that flow was reduced to about 10 second-feet for 2 to 4 hours.

Strawberry Creek above Slide Creek, near Prairie City, Oreg.

Location.- Water-stage recorder, lat. 44°20', long. 118°39', in SW¼ sec. 20, T. 14 S., R 34 E., 100 feet upstream from Slide Creek and 8½ miles south of Prairie City.

Records available.- October 1930 to September 1948.

Average discharge.- 18 years, 11.9 second-feet.

Extremes.- Maximum discharge during year, 172 second-feet June 8; maximum gage height, 2 feet May 28; minimum discharge, 1.6 second-feet Feb. 10, 11.
1930-48: Maximum discharge, that of June 8, 1948; maximum gage height, 2.44 feet June 9, 1933; minimum discharge, 1.4 second-feet several days in 1931, 1934, 1935, 19 and on Nov. 19, 1939.

Remarks.- Records good except those for periods of shifting control or doubtful gage-hei record, which are fair. No diversion above station; some natural regulation by Straw berry Lake.

Rating tables, water year 1947-48, except periods of ice effect or shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 28						May 29 to Sept. 30					
1.1	1.4	1.5	18	1.9	61	0.7	4.2	1.1	17	1.5	66
1.2	3.4	1.6	25	2.0	80	.8	6.0	1.2	25	1.6	85
1.3	7.0	1.7	34	2.1	103	.9	8.2	1.3	36	1.7	108
1.4	12	1.8	46	2.3	158	1.0	12	1.4	50	1.9	168

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	3.4	4.1	5.9	3.0	2.0	3.8	3.0	9.0	106	53	d9.5	6
2	3.4	4.1	5.9	3.0	2.0	3.8	3.2	9.0	116	50	d9.0	6
3	3.4	4.1	5.9	2.8	2.0	3.4	3.2	10	132	46	d9.0	6
4	3.4	3.8	5.6	3.2	1.8	b3.4	3.2	12	138	42	d9.0	6
5	3.4	3.8	5.2	3.2	1.8	3.4	3.2	13	136	39	d8.5	6
6	3.4	3.8	5.2	4.8	b1.8	3.4	3.2	15	140	36	d8.5	5
7	3.4	4.1	5.2	7.0	1.8	3.4	3.2	19	136	34	d9.0	5
8	3.4	4.1	5.2	7.0	1.8	3.4	3.2	18	159	32	d8.5	5
9	3.4	4.1	5.2	6.6	1.8	3.2	3.2	17	147	29	d9.0	5
10	3.4	4.1	4.8	6.3	1.8	b3.2	3.2	16	122	27	8.9	5
11	3.0	4.1	*4.8	5.6	*b3.0	b3.0	3.0	15	108	25	8.9	5
12	3.0	3.8	4.8	5.2	3.4	3.0	3.0	14	92	23	8.9	5
13	3.4	3.8	4.8	4.5	3.4	3.0	3.0	15	89	21	8.5	5
14	3.4	3.8	4.5	4.5	3.4	3.0	3.9	16	86	d20	8.5	5
15	5.2	4.1	4.5	4.1	3.4	3.0	5.9	17	84	d18	8.2	5
16	6.3	4.1	4.5	3.8	3.4	3.0	8.5	22	82	d17	8.0	5
17	5.2	4.1	4.5	3.8	3.4	3.0	12	29	79	d16	7.8	5
18	4.5	4.1	3.8	3.2	3.4	3.0	11	29	79	d15	7.5	5
19	4.5	4.1	3.8	3.2	3.4	3.0	10	27	77	d15	7.5	5
20	4.5	3.8	3.8	3.2	3.4	3.0	11	29	83	d14	7.5	4
21	4.5	3.4	3.8	3.2	3.8	3.0	13	32	94	d14	7.3	4
22	4.1	3.4	3.4	3.0	3.8	3.0	13	42	101	d13	7.3	4
23	4.1	3.4	3.4	3.0	3.4	3.0	13	45	92	d13	7.3	4
24	4.1	3.8	3.4	2.8	3.4	3.0	12	49	83	d12	7.3	5
25	4.1	3.8	3.2	2.6	3.4	3.0	10	60	77	d12	7.1	4
26	4.1	4.1	3.2	b2.4	4.1	3.0	10	76	72	d11	7.1	4
27	4.5	4.5	3.4	b2.2	3.8	3.0	9.5	119	64	d11	6.9	5
28	4.5	4.5	3.2	2.2	3.8	3.0	9.5	147	61	d12	6.9	5
29	4.5	4.5	3.0	2.0	3.8	3.0	9.5	129	58	d11	6.7	4
30	4.5	5.6	3.0	2.0	-	3.0	9.5	117	55	d10	6.4	4
31	4.1	-	3.0	2.0	-	3.0	-	108	-	d10	6.4	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	124.1	6.3	3.0	4.00	24
November	120.9	5.6	3.4	4.03	24
December	133.9	5.9	3.0	4.32	26
Calendar year 1947	4,704.2	76	2.4	12.9	9,34
January	115.4	7.0	2.0	3.72	22
February	85.5	4.1	1.8	2.95	17
March	97.4	3.8	3.0	3.14	19
April	212.0	13	3.0	7.07	42
May	1,275.0	147	9.0	41.1	2,53
June	2,948	159	55	98.3	5,85
July	701	53	10	22.6	1,39
August	246.9	9.5	6.4	7.96	49
September	161.4	6.4	4.9	5.38	32
Water year 1947-48	6,221.5	159	1.8	17.0	12,34

Peak discharge (base, 50 sec.-ft.).- May 28 (3 p.m.) 170 sec.-ft.; June 8 (5 a.m.) 172 sec.-ft.
* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed on basis of change in stage when inlets were flushed on Aug. 10, and records for nearby streams.
Note.- Shifting-control method used Oct. 1-11, May 28 to June 17. Figures of daily discharge fo May 1-23, 25-27, June 18 to July 3, July 6-18, 23-26, 28, 31 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

North Fork John Day River near Dale, Oreg.

Location.- Water-stage recorder, lat. 45°00', long. 118°57', in SE¼ sec. 35, T. 6 S., R. 31 E., three-eighths of a mile downstream from Desolation Creek and 1½ miles northeast of Dale. Datum of gage is 2,775.85 feet above mean sea level, datum of 1929.

Drainage area.- 525 square miles.

Records available.- October 1929 to September 1948.

Average discharge.- 19 years, 362 second-feet.

Extremes.- Maximum discharge during year, 8,170 second-feet May 26 (gage height, 10.48 feet); minimum, 52 second-feet Oct. 5 (gage height, 2.12 feet).
1929-48: Maximum discharge, that of May 26, 1948; minimum, 6 second-feet Nov. 3, 1936 (gage height, 1.40 feet).

Remarks.- Records excellent except those for periods of ice effect, which are fair. Several small diversions above station for irrigation and mining cause diurnal fluctuation at low flow.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 14

2.1	50	3.1	260
2.3	77	3.6	450
2.5	112	4.1	690
2.8	176		

Apr. 15 to Sept. 30

2.3	64	4.0	620	7.5	3,720
2.5	96	4.5	900	9.0	5,820
2.8	159	5.0	1,230	10.1	7,540
3.1	242	5.5	1,620		
3.5	387	6.5	2,560		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	99	270	129	b140	320	306	978	4,100	780	184	93
2	57	103	245	150	b120	284	362	882	4,410	700	176	89
3	58	98	245	154	b105	251	418	936	4,780	645	172	82
4	65	96	216	162	b120	202	382	1,120	5,430	615	184	82
5	55	89	184	150	b120	230	346	1,060	4,420	670	162	82
6	55	92	164	245	b100	224	334	1,400	4,280	595	152	81
7	66	110	150	495	b90	205	298	2,250	4,050	580	145	81
8	74	129	b145	665	b100	197	278	2,030	4,280	520	141	81
9	91	137	b140	472	b120	192	306	1,720	3,750	480	134	81
10	99	120	*142	366	b100	142	326	1,530	3,390	439	164	79
11	112	123	146	358	b95	164	312	1,400	2,890	426	150	78
12	99	118	131	320	*b90	199	295	1,350	2,500	396	136	74
13	84	125	142	216	b110	184	312	1,790	2,270	359	128	72
14	80	118	152	b200	b130	179	410	1,990	2,020	336	121	70
15	74	129	135	b190	b150	171	635	2,140	1,870	313	121	72
16	98	135	108	b180	b140	166	894	2,680	1,760	292	115	73
17	171	139	152	b175	b150	166	1,120	3,340	1,580	278	111	73
18	112	159	162	b165	b180	166	1,090	3,120	1,690	278	111	78
19	91	144	152	b160	b160	162	1,060	3,090	2,050	271	109	78
20	86	129	146	b160	b140	154	1,240	3,280	1,890	271	107	76
21	108	112	131	b180	b180	154	1,580	3,660	2,360	252	107	73
22	108	72	131	b190	b350	171	1,590	4,770	2,010	236	107	73
23	98	77	142	b200	b300	169	1,420	4,850	1,770	221	115	79
24	98	b120	135	b220	b250	174	1,220	5,080	1,570	212	126	100
25	87	142	b125	b180	205	186	1,060	5,750	1,400	201	132	109
26	84	154	b120	b130	386	179	948	6,540	1,250	192	119	109
27	87	197	b140	b110	430	192	852	7,390	1,120	190	113	109
28	103	189	162	b120	398	230	822	6,680	1,010	224	107	115
29	103	179	144	b130	342	288	1,080	5,040	930	215	100	111
30	107	189	b130	b150	-	326	1,060	4,190	853	195	96	100
31	103	-	b110	b140	-	288	-	4,080	-	179	94	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,775	171	55	89.5	5,500
November	3,823	197	72	127	7,580
December	4,797	270	108	155	9,510
Calendar year 1947	149,281	2,970	52	409	296,100
January	6,862	665	110	221	13,610
February	5,301	430	90	183	10,510
March	6,315	326	142	204	12,530
April	22,356	1,590	278	745	44,340
May	96,118	7,390	892	3,101	190,600
June	77,682	5,430	852	2,589	154,100
July	11,561	780	179	373	22,930
August	4,059	184	94	130	8,010
September	2,553	115	70	85.1	5,060
Water year 1947-48	244,180	7,390	55	667	484,300

Peak discharge (base, 1,200 sec.-ft.).- Apr. 22 (5 a.m.) 1,640 sec.-ft.; May 7 (6 p.m.) 2,300 sec.-ft.; May 26 (11 p.m.) 8,170 sec.-ft.; June 4 (1 a.m.) 6,530 sec.-ft.; June 21 (8:30 a.m.) 2,490 sec.-ft.

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.

North Fork John Day River at Monument, Oreg.

Location.- Water-stage recorder, lat. 44°49', long. 119°26', in E½ sec. 1, T. 9 S., R. 27 E., just downstream from entrance to canyon, three-quarters of a mile west of Monument.
Drainage area.- 2,520 square miles.
Records available.- March 1925 to September 1948.
Average discharge.- 22 years (1925-27, 1928-48), 1,077 second-feet.
Extremes.- Maximum discharge during year, 21,100 second-feet May 22 (gage height, 14.67 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 110 second-feet Oct. 1 (gage height, 1.63 feet).
1925-48: Maximum discharge, 22,000 second-feet Mar. 18, 1932 (gage height, 14.8 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 6 second-feet sometime during period Nov. 2-13, 1936, when recorder was not operating.
Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Many small diversions above station for irrigation.
Revisions (water year).- W 754: 1932(M).

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 29 to Apr. 14)

Oct. 1 to Apr. 14						Apr. 15 to Sept. 30					
1.6	104	2.8	580	6.3	4,210	2.8	147	4.0	855	9.0	8,060
1.7	125	3.2	850	7.0	5,200	2.9	172	4.5	1,360	11.0	12,000
1.9	177	3.7	1,260	8.0	6,720	3.1	245	5.0	1,930	13.2	17,200
2.2	275	4.3	1,820	9.0	8,420	3.4	395	6.0	3,240		
2.5	410	5.2	2,790	10.0	10,300	3.7	600	7.5	5,490		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	244	2,340	766	b660	1,780	2,490	4,670	8,250	1,690	a410	202
2	132	230	2,680	1,050	b560	1,610	3,290	4,070	8,080	1,540	a390	198
3	125	224	2,080	1,410	a440	1,430	3,660	4,130	8,040	1,420	a370	185
4	117	217	1,890	1,210	a580	1,190	3,080	6,020	10,300	1,330	a390	182
5	121	220	1,680	1,400	a580	1,240	2,580	5,170	8,740	1,440	a370	182
6	125	224	1,480	3,920	a430	1,250	2,460	5,430	7,950	1,560	a350	179
7	117	237	1,330	10,200	a460	1,180	2,260	7,390	7,400	1,300	a320	179
8	125	390	1,240	8,070	a600	1,150	2,070	7,380	7,320	a1,200	a310	175
9	144	675	*1,220	4,570	a620	1,170	2,300	6,620	7,000	a1,100	a350	175
10	183	598	1,090	3,270	a540	930	2,780	6,110	6,390	a1,000	a400	172
11	210	532	1,070	2,620	a480	962	2,670	5,600	6,270	a960	a350	170
12	214	556	978	2,320	a420	1,070	2,330	5,170	5,130	a880	272	167
13	201	532	946	1,840	b500	1,050	2,270	6,060	4,830	a800	258	164
14	171	586	1,130	1,480	*b600	1,090	3,040	6,340	4,320	a740	245	164
15	155	703	1,080	a1,300	b750	1,070	5,040	6,070	3,970	a680	233	160
16	149	1,580	866	a1,150	b960	1,090	6,510	6,480	4,200	a640	229	160
17	268	1,520	1,180	a1,000	b1,000	1,200	7,320	7,470	3,960	a620	221	170
18	295	2,080	1,520	a940	b1,400	1,320	7,090	8,300	4,180	a620	213	170
19	220	1,790	1,620	a900	1,260	1,150	6,560	10,300	4,740	a600	205	172
20	189	1,330	1,400	a850	930	1,050	6,920	10,400	4,240	a580	205	172
21	198	1,120	1,260	a920	970	1,060	7,770	10,700	5,310	a540	205	170
22	237	866	1,150	a1,000	3,740	1,490	7,390	17,200	4,610	a500	241	170
23	240	717	1,090	a1,100	2,040	1,540	6,820	13,600	3,950	a480	290	172
24	217	759	1,050	a1,050	1,510	1,510	5,890	12,600	3,460	a460	254	195
25	207	780	906	b900	1,490	1,690	5,090	12,600	3,020	a440	258	237
26	192	1,110	815	b600	4,620	1,580	4,520	14,100	2,690	a430	254	258
27	189	1,580	822	b500	3,320	1,620	4,040	16,300	2,400	a420	245	250
28	192	1,670	994	b470	2,560	1,970	3,740	16,600	2,200	a450	237	245
29	220	1,400	1,010	b550	2,030	2,520	4,600	11,900	1,990	a470	221	245
30	240	1,300	906	b700	-	2,770	4,960	8,900	1,880	a440	213	233
31	254	-	759	b660	-	2,340	-	8,920	-	a400	209	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,759	295	112	186	11,420
November	25,770	2,080	217	859	51,110
December	39,582	2,680	759	1,277	78,510
Calendar year 1947	416,095	5,100	83	1,140	825,300
January	58,716	10,200	470	1,894	116,500
February	36,050	4,620	420	1,243	71,500
March	44,072	2,770	930	1,422	87,420
April	131,540	7,770	2,070	4,385	260,900
May	272,600	17,200	4,070	8,794	540,700
June	156,620	10,300	1,880	5,227	311,000
July	25,730	1,690	400	830	51,030
August	8,718	410	205	281	17,290
September	5,673	258	160	189	11,250
Water year 1947-48	811,030	17,200	112	2,216	1,609,000

Peak discharge (base, 4,900 sec.-ft.).- Jan. 8 (12:30 a.m.) 13,300 sec.-ft.; Feb. 22 (10 a.m.) 5,1 sec.-ft.; Feb. 26 (10:30 a.m.) 6,320 sec.-ft.; Apr. 21 (7:30 a.m.) 8,100 sec.-ft.; May 22 (3 a.m.) 21,100 sec.-ft.; May 28 (5 a.m.) 18,600 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for nearby stations.
b Stage-discharge relation affected by ice.

Camas Creek near Ukiah, Oreg.

Location.- Water-stage recorder, lat. 45°09', long. 118°49', in SE¼ sec. 3, T. 5 S., R. 32 E., 1.2 miles upstream from Cable Creek and 6 miles east of Ukiah.
Drainage area.- 121 square miles.
Records available.- May 1914 to September 1917, November 1919 to June 1924, and October 1945 to September 1948 in reports of Geological Survey. May 1914 to September 1917, November 1919 to June 1924, and March 1932 to September 1941 (incomplete) in reports of State engineer; Oct. 1941 to September 1945 (incomplete) in files of State engineer.
Average discharge.- 14 years (1914-17, 1919-23, 1940-44, 1945-48), 113 second-feet.
Extremes.- Maximum discharge during year, 1,870 second-feet Jan. 7 (gage height, 4.25 feet), from rating curve extended above 810 second-feet by logarithmic plotting; minimum daily, 3.0 second-feet Oct. 1.
1914-17, 1919-24, 1932-48: Maximum discharge, 2,350 second-feet Dec. 12, 1946, from rating curve extended above 810 second-feet by logarithmic plotting; minimum observed, 1 second-foot Aug. 1-9, 1932, June 24 to July 2, 1940.
Remarks.- Records good except those for periods of ice effect or doubtful or no gage-height record, which are fair. Small diversions above station for irrigation; no regulation.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 26 to Sept. 30)
(Backwater from debris Nov. 25, 26)

Oct. 1 to Apr. 16						Apr. 17 to Sept. 30					
0.8	2.5	1.4	33	2.8	440	1.0	3.5	1.6	41	2.8	413
.9	3.8	1.6	54	3.1	640	1.1	6.0	1.7	55	3.1	607
1.0	6.2	1.8	82	3.5	980	1.2	9.5	1.8	89	3.4	835
1.1	11	2.0	120	3.8	1,300	1.3	14	2.1	132	3.7	1,110
1.2	17	2.2	175			1.4	21	2.3	188		
1.3	24	2.5	290			1.5	30	2.5	263		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	d3.0	a14	375	60	35	169	294	419	d560	51	8.8	5.5
2	d3.5	a14	282	67	32	145	446	348	d520	44	8.8	4.8
3	d3.5	a15	206	64	28	125	440	391	d540	40	10	5.0
4	d4.0	a16	151	68	32	95	322	512	d560	37	14	a5.0
5	d4.3	a18	128	68	26	110	258	461	405	57	12	a5.0
6	d4.5	a25	110	412	25	98	218	572	354	45	9.5	a5.0
7	h5.2	67	100	1,280	25	91	192	852	311	41	8.4	a5.0
8	d7.2	160	89	752	23	87	175	763	268	34	8.1	a5.0
9	h7.6	114	84	407	26	86	203	702	234	29	7.8	a5.0
10	d6.7	96	76	270	24	64	214	718	219	26	8.4	a5.0
11	d7.5	100	*74	222	22	76	196	710	183	24	7.8	a5.0
12	d8.0	84	67	172	20	76	178	665	166	22	7.4	a5.0
13	d8.0	80	70	125	25	70	222	992	164	20	7.0	4.8
14	8.1	79	66	110	30	72	404	844	150	18	7.4	4.8
15	7.6	108	63	a90	45	64	720	725	134	16	7.0	4.8
16	13	140	58	a76	55	63	980	732	128	15	7.0	4.8
17	13	160	72	68	75	63	1,050	771	118	14	6.7	5.0
18	10	192	76	62	90	63	894	730	120	14	6.7	5.2
19	9.1	151	82	58	84	60	878	846	138	14	6.7	5.8
20	10	125	78	55	76	57	992	746	141	14	6.7	5.8
21	18	110	72	54	90	57	1,010	710	173	12	6.7	5.8
22	17	96	72	54	190	73	912	786	167	12	7.0	5.8
23	a16	91	67	54	*160	70	811	773	155	11	8.8	7.0
24	a15	78	60	53	150	78	651	738	135	10	8.8	8.4
25	a15	102	62	50	250	86	538	764	118	10	8.4	8.8
26	a14	218	58	48	450	86	467	816	103	9.5	7.0	8.4
27	a14	278	58	45	396	106	391	d852	93	9.2	7.0	8.4
28	a14	214	57	43	270	200	408	d800	80	11	6.7	7.8
29	a14	163	54	40	210	312	538	d680	63	10	6.4	7.4
30	a14	192	52	38	-	299	473	d620	61	9.2	5.8	6.7
31	a14	-	50	34	-	242	-	d580	-	8.4	a5.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	308.8	18	3.0	9.96	0.082	0.09	612
November	3,300	278	14	110	.909	1.01	6,550
December	2,969	375	50	95.8	.792	.91	5,890
Calendar year 1947	28,928.1	452	3.0	79.3	.655	8.90	57,370
January	4,999	1,280	34	161	1.33	1.54	9,920
February	2,964	450	20	102	.843	.92	5,880
March	3,343	312	57	108	.893	1.03	6,630
April	15,475	1,050	175	516	4.26	4.76	30,690
May	21,618	992	348	697	5.76	6.64	42,880
June	6,571	560	61	219	1.81	2.02	13,030
July	687.3	57	8.4	22.2	.183	.21	1,360
August	244.6	14	5.8	7.89	.065	.08	485
September	175.8	8.8	4.8	5.86	.048	.05	349
Water year 1947-48	62,655.5	1,280	3.0	171	1.41	19.25	124,300

Peak discharge (base, 550 sec.-ft.).- Jan. 7 (3 p.m.) 1,860 sec.-ft.; Apr. 20 (11 p.m.) 1,250 sec.-ft.; May 7 (6 a.m.) 912 sec.-ft.; May 13 (6 a.m.) 1,090 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record, discharge computed on basis of recorded range in stage (when available) and records for stations on North Fork John Day River near Dale and Middle Fork John Day at Ritter.
d Doubtful gage-height record, discharge computed on basis of stations mentioned in footnote a.
h Computed from staff-gage readings.
Note.- Stage-discharge relation affected by ice Dec. 26, 27, 30, 31, Jan. 1, Jan. 14 to Feb. 26.

Middle Fork John Day River at Ritter, Oreg.

Location.- Water-stage recorder, lat. 44°53', long. 119°08', in NW¼ sec. 8, T. 8 S., R. 30 E., at bridge half a mile south of Ritter. Datum of gage is 2,544.56 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.
Drainage area.- 526 square miles.
Records available.- October 1929 to September 1948.
Average discharge.- 19 years, 219 second-feet.
Extremes.- Maximum discharge during year, 2,500 second-feet May 28 (gage height, 6.37 feet); minimum, 27 second-feet Oct. 6 (gage height, 1.89 feet).
1929-48: Maximum discharge, 4,000 second-feet Mar. 19, 1932 (gage height, 7.78 feet), from rating curve extended above 2,200 second-feet; minimum, 1.0 second-foot Dec. 10, 1932.
Remarks.- Records good except those for period of ice effect, which are fair. Several small diversions above station for irrigation.
Revisions (water year).- W 739: 1931.

Rating tables, water year 1947-48, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 14						Apr. 15 to Sept. 30					
1.9	28	2.6	118	4.4	760	2.2	31	3.1	165	5.0	1,140
2.0	36	3.0	196	4.8	1,050	2.3	39	3.4	247	5.5	1,590
2.1	46	3.3	272	5.3	1,490	2.5	60	3.7	355	6.3	2,420
2.2	57	3.6	375			2.7	88	4.0	490		
2.3	70	4.0	545			2.9	122	4.5	775		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	53	684	147	b135	343	678	840	1,530	320	79	48
2	29	53	540	201	b120	325	812	750	1,490	287	79	47
3	30	52	427	212	b105	293	895	725	1,530	264	74	45
4	33	52	371	203	b115	242	748	955	1,840	250	76	44
5	30	54	325	219	b125	261	625	889	1,770	270	73	45
6	29	55	290	367	b100	252	600	970	1,710	260	69	45
7	34	74	258	1,360	b90	236	532	1,380	1,660	247	65	44
8	38	179	250	1,440	b100	236	486	1,440	1,670	223	63	43
9	46	153	244	818	b115	239	536	1,320	1,590	206	69	43
10	48	122	*214	615	b100	194	684	1,200	1,490	188	76	42
11	60	125	219	527	b85	196	662	1,040	1,330	182	66	42
12	64	116	196	443	*b75	208	575	948	1,130	175	61	40
13	52	123	205	322	b110	196	605	1,030	1,030	158	58	39
14	41	147	242	287	b130	214	786	1,070	934	147	58	39
15	32	230	208	269	151	212	1,160	1,040	860	138	57	37
16	75	309	169	236	140	208	1,440	1,120	856	130	54	37
17	118	328	219	219	144	214	1,580	1,230	769	122	53	40
18	72	443	242	208	179	239	1,520	1,230	740	118	52	41
19	57	309	239	183	167	222	1,440	1,410	804	117	51	40
20	54	236	234	181	142	208	1,450	1,580	776	115	52	41
21	67	186	205	201	171	208	1,580	1,540	1,190	109	52	39
22	74	132	210	212	439	278	1,510	2,000	948	102	54	37
23	64	136	201	236	328	281	1,380	2,030	794	94	63	40
24	58	155	186	258	244	325	1,190	1,960	694	91	65	54
25	55	177	165	222	266	391	1,020	2,000	612	86	64	63
26	52	247	153	149	742	359	903	2,160	546	85	59	63
27	53	322	165	b110	620	379	801	2,370	490	84	58	61
28	69	299	194	b120	447	473	737	2,380	438	88	56	60
29	62	278	190	b130	391	595	868	2,020	389	91	52	58
30	67	302	169	b150	-	662	910	1,690	355	84	50	54
31	65	-	134	b140	-	585	-	1,620	-	76	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,658	118	29	53.5	3,290
November	5,447	443	52	182	10,800
December	7,748	684	134	250	15,370
Calendar year 1947	90,786	1,070	14	249	180,000
January	10,385	1,440	110	335	20,600
February	6,076	742	75	210	12,050
March	9,274	662	194	299	18,390
April	28,713	1,580	486	957	56,950
May	43,937	2,380	725	1,417	87,150
June	31,965	1,840	355	1,066	63,400
July	4,907	320	76	158	9,730
August	1,907	79	49	61.5	3,780
September	1,371	63	37	45.7	2,720
Water year 1947-48	153,388	2,380	29	419	304,200

Peak discharge (base, 760 sec.-ft.).- Jan. 7 (11 p.m.) 2,030 sec.-ft.; Feb. 26 (11:30 a.m.) 1,200 sec.-ft.; Apr. 3 (6 a.m.) 932 sec.-ft.; Apr. 17 (8 a.m.) 1,610 sec.-ft.; May 28 (4 a.m.) 2,500 sec.-ft.; June 21 (11:30 a.m.) 1,350 sec.-ft.
* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Fox Creek at gorge, near Fox, Oreg.
(The lower part of this stream is named Cottonwood Creek)

Location.- Water-stage recorder, lat. 44°37', long. 119°16', in NW¼ sec. 17, T. 11 S., R. 29 E., at head of gorge, 6 miles southwest of Fox.

Drainage area.- 92 square miles.

Records available.- October 1930 to September 1948.

Average discharge.- 18 years, 22.6 second-feet.

Extremes.- Maximum discharge during year, 1,850 second-feet May 22 (gage height, 5.84 feet) by slope-area method; no flow at times.
1930-48: Maximum discharge, that of May 22, 1948; no flow at times.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Several diversions above station for irrigation.

Revisions (water year).- W 754: 1932(M).

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 18

0.4	0	1.0	6.3	1.8	69
.5	.1	1.1	9.5	2.0	97
.6	.5	1.2	14	2.3	150
.7	1.2	1.3	20	2.6	218
.8	2.3	1.4	29	3.0	324
.9	4.0	1.6	48	3.6	501

May 19 to Sept. 30

0.5	0.2	1.2	16	2.5	198
.6	.6	1.3	22	2.9	308
.7	1.4	1.4	30	3.5	525
.8	2.7	1.6	49	4.0	750
.9	4.5	1.8	70	4.7	1,110
1.0	7.0	2.0	98		
1.1	10	2.2	132		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.2	113	b17	b10	34	73	173	226	35	4.3	1.7
2	0	.2	78	b24	b10	24	88	133	153	28	4.3	1.4
3	.1	.1	36	b35	b10	26	84	131	122	26	4.5	1.5
4	.1	.1	b32	b45	b10	20	74	218	222	24	4.1	1.7
5	0	.1	b30	b100	b12	25	62	158	213	32	3.6	1.7
6	.1	.3	b27	b350	b10	32	69	176	131	35	3.6	1.8
7	.1	1.1	b24	482	b8	30	64	264	100	34	3.2	1.9
8	.1	1.6	b22	233	6.9	30	57	269	174	28	2.6	1.7
9	.1	1.9	b21	111	7.6	35	84	213	205	24	3.1	1.7
10	.3	2.2	*b20	77	8.9	20	150	178	153	21	3.6	1.5
11	.7	2.0	b30	59	b10	23	124	152	215	18	3.2	1.5
12	1.0	2.0	b35	b46	b10	24	84	140	148	16	3.2	1.4
13	.8	2.2	b40	b39	*b10	26	69	158	104	14	2.7	1.3
14	.5	2.3	b28	b35	b10	33	100	165	96	12	2.4	1.2
15	.3	5.0	b23	b32	b14	32	171	160	64	11	2.9	1.1
16	.4	13	b19	b29	b20	32	182	165	a120	9.8	2.6	.9
17	.3	24	34	b28	b100	40	213	192	a100	8.8	2.4	.8
18	.2	28	67	b27	194	56	220	299	a135	8.4	2.4	.8
19	.2	16	96	b26	148	39	180	686	340	7.7	1.9	.7
20	.2	9.2	64	b25	40	30	180	532	240	7.4	1.8	.6
21	.2	7.3	44	b25	52	39	204	648	217	6.8	1.9	.5
22	.2	b5	b32	30	194	97	204	1,090	170	6.5	2.7	.6
23	.2	b4	b20	38	76	100	189	422	125	5.8	3.6	.9
24	.1	b4	b18	39	38	110	160	324	100	5.5	4.0	1.3
25	.1	b6	b14	29	45	99	135	287	83	5.5	4.0	2.2
26	.1	17	b14	b28	178	85	117	390	70	5.2	3.8	3.1
27	.1	27	26	b17	78	85	108	312	60	5.0	3.6	2.9
28	.2	19	61	b14	43	91	110	362	51	4.0	2.3	2.7
29	.2	14	b50	b12	37	92	189	250	41	3.6	2.2	2.7
30	.2	32	b35	b12	-	89	220	205	40	3.8	2.6	2.6
31	.2	-	b25	b10	-	70	-	225	-	4.0	2.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7.3	1.0	0	0.24	14
November	246.8	32	.1	8.23	490
December	1,178	113	14	38.0	2,340
Calendar year 1947	7,950.4	350	0	21.8	15,780
January	2,074	482	10	66.9	4,110
February	1,390.4	194	6.9	47.9	2,760
March	1,568	110	20	50.6	3,110
April	3,964	220	57	132	7,860
May	9,077	1,090	131	293	18,000
June	4,238	340	40	141	8,410
July	455.8	35	3.6	14.7	904
August	95.7	4.5	1.8	3.09	190
September	46.4	3.1	.5	1.55	92
Water year 1947-48	24,341.4	1,090	0	66.5	48,280

Peak discharge (base, 150 sec.-ft.).- Dec. 1 (5 p.m.) 160 sec.-ft.; Jan. 6 (3 p.m.) 812 sec.-ft.; Feb. 18 (6 a.m.) 261 sec.-ft.; Apr. 29 (12 p.m.) 248 sec.-ft.; May 22 (2 a.m.) 1,850 sec.-ft.; June 19 (3 p.m.) 403 sec.-ft.

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of other records in John Day River Basin.
b Stage-discharge relation affected by ice.

Deschutes River below Snow Creek, near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°49', long. 121°46', in NW¼ sec. 28, T. 20 S., R 8 E., 50 feet downstream from Snow Creek, upstream from flow line of Crane Prairie Reservoir, and 17 miles northwest of Lapine. Altitude of gage, about 4,445 feet.

Records available.- November 1937 to September 1948.

Average discharge.- 10 years (1938-48), 121 second-feet.

Extremes.- Maximum discharge during year, 341 second-feet Aug. 22 (gage height, 2.52 feet); minimum, 91 second-feet Apr. 7 and probably at other times during period of no gage-height record Mar. 21 to Apr. 6.

1937-48: Maximum discharge, 362 second-feet Aug. 31, Sept. 1, 1943; (maximum gage height, 4.12 feet Jan. 21, 1943 (ice jam); minimum discharge, 43 second-feet Dec. 27, 1941 (gage height, 1.12 feet).

Remarks.- Records good except those during period December to Feb. 21 and those for periods of no gage-height record, which are fair. No diversion or regulation above station.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 15 to Feb. 21)

Oct. 1 to Feb. 21		Feb. 22 to Sept. 30			
1.3	87	1.2	91	1.9	253
1.4	113	1.4	138	2.2	306
1.6	167	1.6	188	2.5	339
1.7	194				

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	175	159	145	132	105	112	a94	98	190	211	307	31
2	172	159	145	137	103	112	a100	100	190	211	309	31
3	172	159	145	132	b105	109	a98	109	190	213	312	31
4	172	159	145	135	105	107	a96	105	190	215	316	31
5	170	159	143	129	105	105	a93	107	193	226	316	30
6	167	159	143	145	b108	105	a91	109	195	224	318	30
7	167	159	143	148	b105	102	91	107	195	222	319	30
8	167	159	143	137	110	105	93	107	197	222	321	30
9	172	159	140	132	110	105	93	107	200	222	322	30
10	175	156	140	132	108	102	93	109	206	222	323	29
11	172	156	137	132	b108	102	93	109	206	222	324	29
12	167	156	137	129	b108	102	93	112	204	224	324	29
13	164	156	137	129	110	98	96	116	204	229	326	29
14	162	156	140	124	110	98	98	116	204	229	326	29
15	175	162	140	124	113	98	100	119	204	233	326	28
16	183	159	137	121	113	98	100	124	204	237	326	28
17	172	156	137	121	113	96	100	126	204	241	327	29
18	170	156	137	121	113	96	102	128	206	245	327	28
19	167	154	137	121	110	96	102	133	206	249	327	28
20	183	151	137	118	113	96	105	136	209	257	324	27
21	172	151	135	116	126	a96	102	136	211	261	326	27
22	167	145	135	118	124	a95	102	138	211	266	333	27
23	167	145	132	118	116	a95	100	143	211	270	330	27
24	170	145	132	121	114	a95	102	148	211	274	326	27
25	167	145	129	118	114	a95	100	160	211	277	324	27
26	167	145	129	113	116	a94	98	163	211	283	323	27
27	167	145	129	b113	114	a94	98	170	211	288	322	27
28	164	145	129	108	114	a94	98	178	211	292	321	26
29	164	145	129	108	112	a94	98	178	211	295	320	26
30	164	145	129	105	-	a93	98	183	211	298	318	25
31	162	-	126	103	-	a93	-	197	-	304	316	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,255	183	162	170	10,420
November	4,605	162	145	154	9,130
December	4,242	145	126	137	8,410
Calendar year 1947	57,650	239	103	158	114,300
January	3,842	148	103	124	7,620
February	3,225	126	103	111	6,400
March	3,082	112	93	99.4	6,110
April	2,927	105	91	97.6	5,810
May	4,071	197	98	131	8,070
June	6,107	211	190	204	12,110
July	7,662	304	211	247	15,200
August	9,979	333	307	322	19,790
September	8,669	315	259	289	17,190
Water year 1947-48	63,666	333	91	174	126,300

a No gage-height record; discharge computed on basis of recorded range in stage and weather record
b Stage-discharge relation affected by ice.

Deschutes River at Crane Prairie, near Lapine Oreg.

Location.- Water-stage recorder, lat. 43°45', long. 121°47', in NW¼ sec. 16, T. 21 S., R. 8 E., 200 yards downstream from Crane Prairie Dam and 15 miles northwest of Lapine.

Drainage area.- 244 square miles.

Records available.- January 1914 to June 1917, February 1922 to September 1948.

Average discharge.- 27 years (1914-14, 1922-48), 185 second-feet.

Extremes.- Maximum discharge during year, 578 second-feet Feb. 25-27 (gage height, 2.33 feet); minimum, 2 second-feet June 13-25.
1914-17, 1922-48: Maximum discharge, 1,170 second-feet July 28, 1947 (gage height, 3.34 feet); minimum, 2 second-feet Dec. 21, 1940, Nov. 1, 1942, June 13-25, 1948.

Remarks.- Records good except those below 10 second-feet, which are fair. No diversion above station; flow partly regulated since Nov. 4, 1922, by Crane Prairie Reservoir (see p. 55).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.1	0.7	0.6	37	1.6	280
.2	2.3	.7	53	2.0	435
.3	6.3	.9	90	2.4	610
.4	14	1.1	132		
.5	24	1.3	185		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	298	71	21	132	132	565	150	137	188	459	511	18
2	298	20	21	132	134	565	142	137	188	455	511	18
3	298	21	21	132	134	560	134	137	191	455	511	19
4	298	21	21	132	134	556	134	128	191	455	511	19
5	298	22	21	132	134	552	134	98	191	455	511	19
6	294	22	21	132	134	547	137	80	191	451	511	19
7	298	22	21	132	134	542	137	45	191	451	506	19
8	294	22	21	132	132	385	137	45	191	451	506	19
9	287	11	21	132	134	154	137	45	191	451	506	19
10	287	3	21	132	134	152	137	45	191	451	502	19
11	287	19	21	132	134	152	137	45	194	451	502	19
12	287	37	21	132	134	152	137	45	194	447	502	19
13	224	37	21	132	134	152	137	45	146	447	471	18
14	209	37	21	132	134	152	137	45	2	447	407	18
15	209	37	21	132	134	152	137	88	2	447	407	19
16	215	37	20	132	134	152	137	182	2	447	407	19
17	215	29	20	132	134	152	137	182	2	463	415	19
18	215	24	59	132	137	152	137	182	2	516	439	19
19	212	24	132	132	137	152	137	136	2	511	439	19
20	218	24	132	134	137	152	137	150	2	511	435	19
21	215	24	132	134	137	152	137	152	2	511	435	19
22	215	24	132	134	134	152	137	152	2	511	431	19
23	203	12	132	134	134	152	137	152	2	506	431	20
24	185	4	132	134	134	152	137	152	2	506	431	20
25	185	12	132	134	312	152	137	152	159	506	431	20
26	185	19	132	134	578	152	137	163	308	506	265	20
27	185	29	132	134	578	150	137	188	287	506	29	20
28	147	30	132	132	574	150	137	188	273	511	18	20
29	104	22	132	132	570	150	137	188	355	516	18	20
30	104	19	132	132	-	150	137	188	463	516	18	20
31	102	-	132	132	-	150	-	188	-	516	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,071	298	102	228	14,030
November	735	71	3	24.5	1,460
December	2,130	132	20	68.7	4,220
Calendar year 1947	84,029	1,160	3	230	166,700
January	4,108	134	132	133	8,150
February	5,836	578	132	201	11,580
March	7,760	565	150	250	15,390
April	4,119	150	134	137	8,170
May	3,860	188	45	125	7,660
June	4,305	463	2	144	8,540
July	14,832	516	447	478	29,420
August	12,035	511	18	388	23,870
September	574	20	18	19.1	1,140
Water year 1947-48	67,365	578	2	184	133,600

Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°41', long. 121°41', in NE¼ sec. 7, T. 22 S., R. 9 E., about 2,000 feet downstream from Wickiup Dam (under construction, 1938-48) and 9 miles west of Lapine.

Records available.- June 1938 to September 1948.

Average discharge.- 10 years (1938-48), 664 second-feet.

Extremes.- Maximum discharge during year, 1,980 second-feet July 16 (gage height, 7.37 feet); minimum, 12 second-feet Feb. 18 (gage height, 0.82 foot); minimum daily, 31 second-feet Mar. 3.
1938-48: Maximum discharge, that of July 16, 1948; minimum, that of Feb. 18, 1948.

Remarks.- Records fair. Flow regulated by Crane Prairie Reservoir and since Dec. 24, 1942, by Wickiup Reservoir (see p. 55).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	898	228	108	52	51	45	48	520	h607	1,230	1,500	1,420
2	902	220	108	53	51	38	45	520	h607	1,250	1,490	1,470
3	902	222	108	52	51	31	42	520	582	1,320	1,460	1,570
4	902	222	108	53	52	40	42	520	502	1,310	1,460	1,560
5	902	222	109	53	52	40	166	517	502	1,310	1,460	1,550
6	902	178	107	57	53	40	312	550	505	1,290	1,440	1,550
7	890	91	108	57	53	40	322	572	508	1,230	1,410	1,530
8	882	91	152	55	53	41	327	572	529	1,230	1,410	1,530
9	882	91	251	148	53	37	324	576	705	1,220	1,410	1,520
10	1,040	91	75	251	52	40	324	576	778	1,170	1,390	1,520
11	1,310	91	55	249	52	128	324	576	778	1,180	1,380	1,520
12	1,370	93	66	249	53	235	324	579	778	1,240	1,380	1,520
13	1,130	82	92	183	94	263	324	h670	778	1,250	1,380	1,510
14	874	57	92	208	335	246	327	h747	719	1,310	1,380	1,500
15	834	81	93	355	377	145	330	h740	610	1,450	1,340	1,510
16	838	81	308	250	372	47	330	h803	562	1,690	1,290	1,520
17	794	82	451	43	366	48	361	h845	562	1,870	1,270	1,510
18	686	81	445	43	153	47	380	h831	547	1,860	1,260	1,520
19	686	83	442	43	47	45	382	h754	505	1,650	1,260	1,520
20	710	82	442	57	47	45	361	d700	505	1,570	1,240	1,510
21	646	83	442	64	48	45	350	d680	505	1,570	1,220	1,510
22	596	84	442	51	48	45	358	d620	505	1,570	1,220	1,520
23	558	86	388	51	49	45	353	d620	505	1,570	1,220	1,520
24	520	168	327	50	50	43	353	d650	502	1,580	1,220	1,530
25	520	308	327	50	50	43	353	h702	541	1,570	1,220	1,520
26	523	318	327	49	51	43	391	h702	565	1,610	1,260	1,510
27	523	320	327	51	50	45	433	h702	705	1,550	1,360	1,510
28	523	196	327	52	50	45	424	h702	887	1,560	1,450	1,530
29	526	102	171	51	50	45	418	h702	1,050	1,490	1,440	1,550
30	526	107	52	51	-	47	457	h702	1,210	1,490	1,430	1,550
31	413	-	52	51	-	47	-	h652	-	1,530	1,430	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	24,208	1,370	413	781	48,020
November	4,241	320	57	141	8,410
December	6,902	451	52	223	13,690
Calendar year 1947	248,869	1,370	52	682	493,600
January	3,082	355	43	99.4	6,110
February	2,863	377	47	98.7	5,680
March	2,134	263	31	68.8	4,230
April	9,285	457	42	310	18,420
May	20,122	845	517	649	39,910
June	19,144	1,210	502	638	37,970
July	44,720	1,870	1,170	1,443	88,700
August	42,080	1,500	1,220	1,357	83,460
September	45,610	1,570	1,420	1,520	90,470
Water year 1947-48	224,391	1,870	31	613	445,100

d Doubtful gage-height record; discharge computed on basis of records for station at Pringle Falls.
h Computed from staff-gage reading.

Deschutes River at Pringle Falls, near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°44', long. 121°37', in SW¼ sec. 23, T. 21 S., R. 9 E., half a mile upstream from bridge at Pringle Falls and 7 miles northwest of Lapine. Prior to Oct. 1, 1947, at datum 2.0 feet higher.

Records available.- December 1915 to June 1917, June 1922 to September 1948.

Average discharge.- 25 years (1923-48), 698 second-feet.

Extremes.- Maximum discharge during year, 1,930 second-feet July 16 (gage height, 5.43 feet); minimum, 30 second-feet Mar. 3 (gage height, 1.18 feet).
1915-17, 1922-48: Maximum discharge, that of July 16, 1948; minimum, that of Mar. 3, 1948.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. No diversion above station. Flow regulated since 1922 by Crane Prairie Reservoir, and since Dec. 24, 1942, by Wickiup Reservoir (see p. 55).

Revisions (water years).- W 1014: 1943(m).

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.2	31	2.2	158	4.2	990
1.4	44	2.5	235	4.8	1,420
1.6	61	2.9	350	5.5	1,990
1.8	85	3.3	495		
2.0	117	3.7	695		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	913	232	107	b50	b50	47	49	508	595	1,230	1,540	1,460
2	913	216	*107	b50	b50	41	49	508	605	1,240	1,540	1,500
3	913	216	108	b50	b50	32	44	513	595	1,280	1,500	1,630
4	913	216	108	b50	a50	36	44	508	504	1,280	1,500	1,620
5	913	216	108	53	a50	40	88	508	504	1,290	1,490	1,610
6	907	195	108	58	a50	40	296	531	504	1,290	1,470	1,600
7	901	h114	108	62	b50	40	314	580	504	1,240	1,450	1,590
8	889	a92	110	54	b50	41	317	580	508	1,260	1,450	1,580
9	889	a92	282	b100	b50	37	326	580	668	1,250	1,450	1,570
10	977	92	a100	b250	b50	36	326	575	766	1,190	1,440	1,570
11	1,240	92	52	254	b50	67	326	575	766	1,200	1,430	1,580
12	1,370	92	56	254	b50	230	326	575	766	1,250	1,430	1,560
13	1,150	91	92	222	b60	243	326	662	766	1,270	1,420	1,550
14	889	56	92	b130	b320	246	326	778	712	1,290	1,420	1,540
15	823	85	94	356	366	213	326	772	615	1,450	1,400	1,550
16	823	82	224	314	369	43	326	800	555	1,630	1,340	1,560
17	788	82	447	b45	*369	46	347	835	555	1,900	1,310	1,560
18	690	82	439	b45	224	46	376	817	540	1,910	1,290	1,580
19	690	82	439	b45	51	46	376	756	487	1,750	1,290	1,570
20	700	82	439	b50	51	46	360	717	487	1,600	1,270	1,550
21	656	82	439	b65	b50	46	344	678	487	1,600	1,250	1,560
22	605	82	439	50	b50	47	356	615	487	1,590	1,250	1,570
23	560	82	402	50	50	46	347	615	487	1,600	1,250	1,580
24	518	116	326	50	50	*45	347	625	491	1,620	1,240	1,590
25	522	302	326	b50	50	44	344	700	522	1,600	1,240	1,580
26	522	320	326	b50	52	45	363	695	565	1,660	1,280	1,560
27	522	320	326	b50	50	46	420	695	678	1,580	1,340	1,570
28	522	240	326	b50	50	47	416	695	823	1,620	1,470	1,590
29	526	97	239	b50	50	48	409	695	977	1,520	1,470	1,620
30	526	107	b50	b50	-	48	424	695	1,190	1,520	1,470	1,590
31	451	-	b50	b50	-	47	-	668	-	1,570	1,460	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	24,221	1,370	451	781	48,040
November	4,255	320	56	142	8,440
December	6,869	447	50	222	13,620
Calendar year 1947	249,155	1,370	50	683	494,200
January	3,057	356	45	98.6	6,060
February	2,862	369	50	98.7	5,680
March	2,125	246	32	68.5	4,210
April	9,038	424	44	301	17,930
May	20,054	835	508	647	39,780
June	18,709	1,190	487	624	37,110
July	45,280	1,910	1,190	1,461	89,810
August	43,150	1,540	1,240	1,392	85,590
September	47,140	1,630	1,460	1,571	93,500
Water year 1947-48	226,760	1,910	32	620	449,800

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for station below Wickiup Reservoir.
b Stage-discharge relation affected by ice.
h Computed from staff-gage reading.

Deschutes River at Benham Falls, near Bend, Oreg.

Location.- Water-stage recorder, lat. 43°56', long. 121°25', in SE¼ sec. 9, T. 19 S., R 11 E., 50 yards upstream from head of Benham Falls, 1½ miles downstream from dam sit for proposed Benham Falls Reservoir, and 10 miles southwest of Bend. Altitude of ga 4,143 feet (from river-profile map). Prior to Nov. 13, 1947, at datum 1.0 foot high

Records available.- March 1909 to September 1913, August 1920 to September 1921, Februa 1924 to September 1948. July 1906 to February 1909 and April to September 1941 at W Ranch, 7 miles upstream.

Average discharge.- 31 years (1906-13, 1924-48), 1,303 second-feet.

Extremes.- Maximum discharge during year, 2,670 second-feet July 19, 20 (gage height, 4 feet); minimum recorded, 472 second-feet Dec. 31, Jan. 26, but may have been less du period of no gage-height record Feb. 6-14; minimum daily, 480 second-feet Feb. 12.
1906-13, 1920-21, 1924-48: Maximum discharge, 5,000 second-feet (estimated) Nov. 1909 (gage height not determined); minimum recorded, that of Dec. 31, 1947, Jan. 26, 1948; minimum daily, that of Feb. 12, 1948.

Remarks.- Records excellent except those for periods of no gage-height record, which are fair. Small diversions above station for irrigation. Flow regulated since 1922 by Crane Prairie and Crescent Lake Reservoirs, and since December 1942 by Wickiup Reserv (see p. 55).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 13				Nov. 13 to Sept. 30			
-0.4	560	1.4	1,320	0.2	470	2.5	1,370
-.1	665	2.2	1,800	.9	670	3.4	1,940
.5	905			1.7	995	4.3	2,670

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	1,380	982	563	500	495	642	587	1,140	1,530	2,000	a2,200	1,9
2	1,380	a800	563	502	495	626	605	1,190	1,500	2,010	a2,200	1,9
3	1,380	a740	566	492	486	599	620	1,210	1,530	2,030	a2,200	1,9
4	1,370	a720	566	505	502	563	629	1,210	1,520	2,100	a2,200	2,0
5	1,370	a710	563	502	505	554	632	1,220	1,450	2,130	a2,150	2,0
6	1,370	a700	560	551	a490	551	680	1,260	1,450	2,140	a2,150	2,0
7	1,360	a690	560	620	a500	542	845	1,320	1,460	2,130	a2,150	2,0
8	1,360	a620	551	629	a495	545	857	1,350	1,500	2,070	a2,100	2,0
9	1,360	a590	560	646	a490	542	861	1,360	1,560	2,070	a2,100	2,0
10	1,370	a580	670	702	a490	539	861	1,360	1,760	2,070	a2,100	2,0
11	1,440	a570	539	901	a485	524	857	1,360	1,880	2,010	a2,050	2,0
12	1,630	a570	492	889	a480	581	849	1,360	1,920	1,990	a2,050	2,0
13	1,790	578	495	833	a490	725	849	1,340	1,950	2,010	a2,050	2,0
14	1,690	593	539	666	a505	753	853	1,440	1,990	2,030	a2,000	2,0
15	1,450	552	536	694	757	753	861	1,500	1,940	2,030	a2,000	2,0
16	1,360	554	524	910	861	698	873	1,500	1,810	2,150	a2,000	2,0
17	1,340	557	663	849	877	560	918	1,550	1,720	2,310	a2,000	2,0
18	1,300	560	901	599	877	545	1,000	1,590	1,690	2,580	a1,950	2,0
19	1,220	569	897	554	702	545	1,050	1,600	1,640	2,650	1,950	2,0
20	1,240	566	901	548	575	545	1,050	1,550	1,580	2,610	1,940	2,0
21	1,220	560	905	548	569	545	1,030	1,530	1,560	a2,500	1,930	2,0
22	1,180	545	905	566	617	539	1,030	1,470	1,540	a2,400	1,910	2,0
23	1,140	524	905	557	599	551	1,050	1,420	1,510	a2,350	1,930	2,0
24	1,110	521	849	545	593	551	1,050	1,410	1,490	a2,300	1,920	2,0
25	1,070	563	761	542	596	548	1,050	1,430	1,470	a2,300	1,920	2,0
26	1,050	733	761	498	652	545	1,040	1,470	1,480	a2,300	1,930	2,0
27	1,040	773	777	498	663	542	1,070	1,470	1,500	a2,300	1,920	2,0
28	1,040	773	781	518	649	548	1,140	1,480	1,610	a2,300	1,900	2,0
29	1,040	702	765	515	646	554	1,130	1,480	1,760	a2,300	1,980	2,0
30	1,040	566	656	508	-	569	1,120	1,510	1,890	a2,250	1,980	2,0
31	1,030	-	484	500	-	572	-	1,560	-	a2,250	1,970	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	40,120	1,790	1,030	1,294	79,5
November	19,061	982	521	635	37,8
December	20,758	905	484	670	41,1
Calendar year 1947	460,115	1,980	484	1,261	912,6
January	18,887	910	492	609	37,4
February	17,141	877	480	591	34,0
March	17,996	753	524	581	35,6
April	27,047	1,140	587	902	53,6
May	43,640	1,600	1,140	1,408	86,5
June	49,190	1,990	1,450	1,640	97,5
July	68,670	2,650	1,990	2,215	136,2
August	62,830	2,200	1,900	2,027	124,6
September	60,960	2,080	1,950	2,032	120,9
Water year 1947-48	446,300	2,650	480	1,219	885,2

a No gage-height record; discharge computed on basis of unpublished records for stations below ham Falls, at Ryan Ranch, and at Camp Abbot Bridge.

Deschutes River below Lava Island, near Bend, Oreg.

Location.- Water-stage recorder, lat. 44°00', long. 121°22', in SW¼ sec. 23, T. 18 S., R. 11 E., three-quarters of a mile downstream from Lava Island, 1 mile downstream from intake of Arnold Canal, and 6 miles southwest of Bend. Prior to Nov. 12, 1947, at datum 1.0 foot higher.

Records available.- March 1926 to September 1948.

Average discharge.- 22 years, 1,061 second-feet.

Extremes.- Maximum discharge during year, 2,300 second-feet July 20 (gage height, 3.14 feet); minimum, 420 second-feet Feb. 3, 12.
1926-48: Maximum discharge, that of July 20, 1948; minimum, that of Feb. 3, 12, 1948.

Remarks.- Records good. Arnold Canal diverts water above station for irrigation (see p. 62). Flow regulated by Crescent Lake, Crane Prairie, and Wickiup Reservoirs (see p. 55).

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 12				Nov. 12 to Sept. 30			
0.0	505	1.0	1,190	0.8	420	2.1	1,280
.4	735	1.5	1,650	1.2	610	2.6	1,750
.7	940			1.6	870	3.2	2,370

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,190	863	535	478	a470	604	550	980	1,330	1,830	2,020	1,750
2	1,190	716	535	482	a470	594	566	1,060	1,290	1,790	2,020	1,740
3	1,180	658	535	474	a465	566	577	1,080	1,320	1,800	2,010	1,730
4	1,180	652	535	482	b470	535	588	1,080	1,320	1,850	1,990	1,800
5	1,200	646	535	478	469	525	594	1,110	1,260	1,890	1,960	1,830
6	1,280	640	530	515	b450	525	604	1,140	1,250	1,900	1,950	a1,850
7	1,240	634	530	577	b450	515	761	1,200	1,260	1,900	1,980	a1,850
8	1,240	572	525	622	b465	515	774	1,210	1,290	1,860	1,980	a1,840
9	1,240	540	525	610	469	515	780	1,190	1,330	1,860	1,900	a1,830
10	1,240	535	622	628	464	510	787	1,190	1,500	1,850	1,900	a1,810
11	1,280	530	520	800	460	500	787	1,190	1,630	1,810	1,890	a1,810
12	1,450	525	474	814	440	525	780	1,180	1,660	1,790	1,880	a1,810
13	1,590	535	474	814	469	545	780	1,170	1,710	1,830	1,870	a1,810
14	1,560	535	505	*761	464	696	780	1,240	1,750	1,890	1,860	a1,800
15	1,370	520	510	640	634	696	780	1,320	1,710	1,830	1,850	a1,800
16	1,260	530	505	814	754	670	794	1,320	1,590	1,900	1,830	a1,790
17	1,210	530	588	794	787	540	821	1,350	1,500	1,990	1,790	a1,790
18	1,170	535	814	577	787	520	891	1,390	1,480	2,200	1,760	a1,810
19	1,080	540	814	520	690	520	940	1,410	1,420	2,270	1,750	a1,850
20	1,100	540	821	520	530	520	940	1,360	a1,390	2,270	1,730	a1,830
21	1,080	530	828	520	535	515	926	1,330	a1,380	2,150	1,720	a1,800
22	1,040	520	821	530	577	515	919	1,300	a1,360	2,090	1,710	a1,800
23	996	500	821	520	560	520	948	1,240	a1,340	2,070	1,720	a1,820
24	956	505	787	515	550	520	940	1,240	1,330	2,060	1,710	a1,830
25	905	525	709	510	545	515	926	1,240	1,300	2,070	1,710	a1,860
26	898	664	702	482	594	510	912	1,280	1,300	2,060	1,710	a1,900
27	891	709	716	482	616	510	912	1,280	1,320	2,080	1,710	a1,890
28	884	716	722	492	604	515	980	1,280	1,380	2,110	1,700	a1,880
29	891	676	709	492	604	520	980	1,280	1,510	2,060	1,760	a1,880
30	891	540	640	482	-	530	964	1,310	1,670	2,030	1,760	a1,890
31	891	-	474	474	-	540	-	1,350	-	2,010	1,750	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	35,573	1,590	884	1,148	70,560
November	17,661	863	500	589	35,030
December	19,361	828	474	625	38,400
Calendar year 1947	407,245	1,760	474	1,116	807,800
January	17,899	814	474	577	35,500
February	15,842	787	440	546	31,420
March	16,846	696	500	543	33,410
April	24,281	980	550	809	48,160
May	38,300	1,410	980	1,235	75,970
June	42,880	1,750	1,250	1,429	85,050
July	61,100	2,270	1,790	1,971	121,200
August	56,880	2,020	1,700	1,835	112,800
September	54,680	1,900	1,730	1,823	108,500
Water year 1947-48	401,303	2,270	440	1,096	796,000

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of unpublished records for stations above Lava Island, near Bend and above millpond, near Bend, adjusted for flow in intervening canals.
b Stage-discharge relation affected by ice.

Deschutes River below Bend, Oreg.

Location.- Water-stage recorder, lat. 44°05', long. 121°18', in SE¼ sec. 20, T. 17 S., R. 12 E., half a mile downstream from North Canal Dam and 2 miles north of Bend.

Records available.- October 1914 to September 1948.

Average discharge.- 34 years, 608 second-feet.

Extremes.- Maximum discharge during year, 968 second-feet Dec. 23, Sept. 30; maximum gage height, 3.08 feet Sept. 30; minimum discharge, 4 second-feet Apr. 27 (gage hei 0.81 foot).
1914-48: Maximum discharge, 2,500 second-feet Dec. 7, 1921 (gage height, 3.9 fee minimum, 1 second-foot Aug. 25, 1930.
Maximum discharge known near this site since 1905, 4,820 second-feet Nov. 27, 190

Remarks.- Records good except those for periods of no gage-height reford, which are poo Six large canals divert water above station for irrigation (see p. 62). Flow regulated by hydroelectric plant at Bend, and by Crane prairie, Wickiup, and Crescent La Reservoirs (see p. 55).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from moss Oct. 1 to Dec. 20, Aug. 17 to Sept. 30)

1.0	14	1.4	73	2.0	300
1.1	23	1.5	97	2.3	475
1.2	36	1.6	125	2.6	675
1.3	53	1.8	200	2.9	900

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	90	469	540	501	475	427	361	36	322	153	78	24
2	87	433	534	494	a470	433	379	90	285	65	111	22
3	92	373	546	451	a470	403	391	103	290	59	150	21
4	87	361	553	482	a470	397	403	78	265	75	119	27
5	95	367	546	482	a470	391	415	95	196	92	103	31
6	128	367	527	560	a460	379	403	105	168	146	114	31
7	105	379	501	619	a450	373	275	139	122	160	142	31
8	117	361	501	661	463	361	280	150	97	108	200	30
9	168	316	501	654	457	344	328	111	80	119	122	28
10	235	290	640	668	445	344	322	69	136	114	97	25
11	300	316	540	592	433	344	338	63	192	105	95	24
12	482	300	482	475	427	391	338	36	184	92	103	24
13	328	311	463	553	439	361	306	17	311	46	97	24
14	114	311	514	836	355	290	295	27	421	117	103	23
15	168	311	540	682	338	275	192	73	488	44	117	46
16	344	322	527	828	373	280	114	44	421	69	119	20
17	306	322	566	836	403	355	117	50	355	65	87	25
18	275	322	546	640	501	508	150	92	427	215	65	32
19	220	338	427	546	433	488	132	150	482	306	55	35
20	322	350	403	546	403	488	111	172	445	295	63	35
21	415	338	409	553	546	338	90	196	421	136	75	38
22	379	328	514	560	592	265	57	220	433	57	85	39
23	316	306	892	553	586	290	92	168	421	41	114	43
24	306	300	868	540	488	344	97	136	445	57	225	50
25	333	361	760	540	338	344	85	90	210	50	275	64
26	316	397	752	508	421	333	73	103	153	36	300	74
27	300	361	775	488	501	328	a65	92	71	39	306	79
28	316	361	782	514	488	338	a100	95	59	132	285	87
29	328	316	775	494	463	338	a75	95	85	95	300	85
30	322	338	717	457	-	344	43	114	83	90	280	88
31	306	-	469	463	-	355	-	240	-	69	270	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	7,700	482	87	248	15,2
November	10,325	469	290	344	20,4
December	18,110	892	403	584	35,9
Calendar year 1947	126,702	1,010	9	347	251,3
January	17,776	836	451	573	35,2
February	13,158	592	338	454	26,1
March	11,249	508	265	363	22,3
April	6,427	415	43	214	12,7
May	3,249	240	17	105	6,4
June	8,068	488	59	269	16,0
July	3,247	306	36	105	6,4
August	4,655	306	55	150	9,2
September	12,105	884	205	404	24,0
Water year 1947-48	116,069	892	17	317	230,2

a No gage-height record; discharge computed on basis of records for station below Lava Island corrected for intervening canals.

Deschutes River near Madras, Oreg.

Location.- Water-stage recorder, lat. 44°43', long. 121°14', in NE¼ sec. 13, T. 10 S., R. 12 E., 1 mile downstream from Pelton dam site, 4 miles upstream from Shitike Creek, and 9 miles northwest of Madras. Altitude of gage, 1,404 feet (from river-profile map).

Records available.- October 1923 to September 1948.

Average discharge.- 25 years, 4,175 second-feet.

Extremes.- Maximum discharge during year, 7,820 second-feet Jan. 9 (gage height, 4.37 feet); minimum, 3,400 second-feet Oct. 1, 2, (gage height, 1.75 feet).
1923-48: Maximum discharge, 13,300 second-feet Jan. 1, 1943 (gage height, 6.89 feet); minimum, 2,940 second-feet Sept. 20, 1942 (gage height, 1.41 feet).

Remarks.- Records excellent. Large diversions in upper river basin for irrigation. Some winter and spring runoff stored in Crane Prairie, Wickiup, Crescent Lake, and Ochoco Reservoirs. Slight fluctuations caused by power plants on Deschutes River near Redmond and Crooked River near Culver.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.7	3,330	3.5	6,210
2.1	3,910	4.0	7,120
2.5	4,530	4.3	7,690
3.0	5,350		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Juns	July	Aug.	Sept.
1	3,400	3,910	4,090	4,040	4,140	4,980	4,910	4,980	6,440	4,510	3,680	3,840
2	3,440	4,060	4,180	4,260	4,140	4,820	5,040	4,880	6,520	4,400	3,740	3,760
3	3,540	3,980	4,210	4,140	3,970	4,740	5,520	4,880	6,260	4,180	3,680	3,730
4	3,500	3,940	4,200	4,140	4,080	4,640	5,570	4,850	6,700	4,090	3,720	3,720
5	3,430	3,910	4,200	4,180	4,120	4,560	5,210	5,150	6,860	4,150	3,670	3,790
6	3,410	3,910	4,150	4,590	4,030	4,480	4,900	5,200	6,370	4,180	3,660	3,800
7	3,460	3,940	4,120	6,100	4,000	4,420	4,740	5,370	6,250	4,200	3,660	3,800
8	3,460	4,030	4,080	7,040	4,140	4,400	4,610	5,520	6,000	4,180	3,670	3,800
9	3,530	3,960	4,060	7,600	4,180	4,400	4,610	5,300	5,790	4,090	3,730	3,790
10	3,600	3,910	4,020	6,300	4,120	4,320	4,590	5,010	5,860	4,090	3,660	3,740
11	3,730	3,880	4,140	5,540	4,060	4,310	3,630	4,790	5,930	4,090	3,640	3,720
12	3,730	3,880	4,060	5,130	3,980	4,240	4,640	4,860	5,930	4,030	3,640	3,700
13	3,940	3,910	4,040	4,880	4,060	4,290	4,530	4,840	5,930	3,970	3,640	3,700
14	4,040	3,960	4,030	4,960	4,100	4,310	4,560	4,840	5,880	3,910	3,640	3,680
15	4,030	4,020	4,060	4,960	4,210	4,210	5,010	4,580	5,810	3,960	3,640	3,700
16	4,580	4,030	4,080	4,740	4,150	4,260	6,210	4,610	5,600	3,880	3,640	3,910
17	4,290	4,040	4,080	4,830	4,230	4,290	6,620	4,710	5,470	3,820	3,640	3,700
18	4,640	4,090	4,160	4,740	4,320	4,370	6,660	4,800	5,590	3,820	3,640	3,760
19	4,420	4,090	4,100	4,480	4,480	4,430	6,390	4,990	5,840	3,880	3,620	3,820
20	4,580	4,160	4,000	4,370	4,740	4,420	6,160	5,250	5,980	4,090	3,610	3,850
21	4,550	4,100	4,030	4,320	4,740	4,400	6,430	5,840	5,980	3,980	3,620	3,850
22	4,210	4,040	4,060	4,290	6,050	4,260	6,800	6,260	5,860	3,850	3,670	3,880
23	4,150	4,030	4,260	4,290	6,350	4,260	6,460	6,190	5,710	3,740	3,730	3,910
24	4,060	3,970	4,420	4,310	6,030	4,340	6,030	6,080	5,450	3,670	3,790	4,020
25	4,030	3,970	4,310	4,290	5,300	4,420	5,670	5,930	5,210	3,640	3,900	4,120
26	4,030	4,030	4,210	4,260	5,180	4,420	5,420	6,010	4,980	3,670	3,900	4,340
27	4,000	4,020	4,210	4,160	5,420	4,480	5,260	6,860	4,820	3,670	3,900	4,420
28	3,970	3,980	4,240	4,160	5,500	4,420	5,130	6,710	4,660	3,640	3,860	4,430
29	3,980	3,980	4,230	4,160	5,230	4,580	5,010	6,530	4,500	3,670	3,840	4,480
30	3,970	3,970	4,230	4,160	-	4,880	5,060	6,170	4,590	3,680	3,840	4,480
31	3,940	-	4,150	4,120	-	5,010	-	6,030	-	3,680	3,800	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	121,640	4,640	3,400	3,924	241,300
November	119,700	4,160	3,880	3,990	237,400
December	128,410	4,420	4,000	4,142	254,700
Calendar year 1947	1,486,580	5,590	3,370	4,073	2,949,000
January	147,540	7,600	4,040	4,759	292,600
February	133,050	6,350	3,970	4,588	263,900
March	138,360	5,010	4,210	4,463	274,400
April	162,380	6,800	4,530	5,413	322,100
May	167,420	6,860	4,580	5,401	332,100
June	172,770	6,860	4,500	5,759	342,700
July	122,410	4,510	3,640	3,949	242,800
August	115,070	3,900	3,610	3,712	228,200
September	117,240	4,480	3,680	3,908	232,500
Water year 1947-48	1,645,990	7,600	3,400	4,497	3,265,000

Peak discharge (base, 6,100 sec.-ft.).- Jan. 9 (5 a.m.) 7,820 sec.-ft.; Feb. 23 (1:30 to 3 p.m.) 6,520 sec.-ft.; Apr. 22 (4 p.m.) 6,970 sec.-ft.; May 27 (8 to 10 a.m.) 7,010 sec.-ft.

Deschutes River at Moody, near Biggs, Oreg.

Location.- Water-stage recorder, lat. 45°37', long. 120°54', in SE¼ sec. 26, T. 2 N., R 15 E., at Moody, 1½ miles upstream from mouth and 5 miles southwest of Biggs. Datum gage is 167.43 feet above mean sea level, datum of 1929.
Drainage area.- 10,500 square miles.
Records available.- July 1906 to September 1948. October 1897 to December 1899 at site near Moro, 10 miles above mouth.
Average discharge.- 43 years (1898-99, 1906-48), 5,700 second-feet.
Extremes.- Maximum discharge during year, 19,000 second-feet Jan. 7 (gage height, 5.96 from floodmark); minimum, 3,930 second-feet Oct. 2, 3 (gage height, 2.29 feet).
1897-99, 1906-48: Maximum discharge, 43,600 second-feet Jan. 7, 1923 (gage height 10.2 feet), from rating curve extended above 15,000 second-feet; minimum, 3,380 second-feet Sept. 16-19, 1931 (gage height, 2.06 feet).
Remarks.- Records excellent except those for periods of no gage-height record, which are good. Many diversions in upper river basin for irrigation. Some winter and spring run off stored in Crane Prairie, Wickiup, Crescent Lake, and Ochoco Reservoirs.
Cooperation.- Water-stage recorder inspected by agent of Eastern Oregon Land Co.
Revisions.- W 754: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.2	3,710	4.0	9,800
2.6	4,780	4.5	12,000
3.0	6,030	5.0	14,200
3.5	7,830	5.2	15,200

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	3,950	4,690	4,960	5,100	5,200	7,000	6,580	6,650	8,760	5,640	4,320	4,
2	3,930	4,660	5,170	5,500	5,200	6,700	6,510	6,440	9,190	5,480	4,320	4,
3	4,000	4,810	5,170	5,400	5,000	h6,440	6,940	6,340	9,000	5,290	4,380	4,
4	4,110	4,690	5,260	5,400	5,100	6,200	7,380	6,720	9,030	5,080	4,350	4,
5	4,000	4,640	5,230	5,400	5,200	6,100	7,150	6,790	9,380	5,050	4,320	4,
6	3,950	4,610	5,200	7,000	5,100	6,000	6,680	7,230	9,170	5,170	4,290	4,
7	3,980	4,690	5,170	15,000	5,100	5,900	6,340	7,340	8,780	5,200	4,270	4,
8	4,030	5,260	5,110	13,000	5,200	5,800	6,130	7,530	8,590	5,170	4,270	4,
9	4,080	5,350	5,100	11,500	5,200	5,800	5,960	7,560	8,280	5,080	4,290	4,
10	4,180	5,110	5,100	10,000	5,200	5,700	6,000	7,190	8,100	4,960	4,320	4,
11	4,320	5,080	5,200	8,000	5,100	5,700	5,930	6,830	8,380	4,930	4,270	4,
12	4,460	4,990	5,100	7,200	5,000	5,640	5,960	6,580	8,390	4,900	4,210	4,
13	4,410	4,990	5,100	6,800	5,100	5,570	5,830	6,480	8,520	4,810	4,240	4,
14	4,580	5,050	5,200	6,700	5,200	5,700	5,800	6,440	8,540	4,690	4,240	4,
15	4,660	5,320	5,200	6,600	5,800	5,830	6,100	6,370	8,080	4,660	4,240	4,
16	4,990	6,000	5,200	6,300	5,600	5,670	7,010	6,300	8,120	4,660	4,270	4,
17	5,640	5,640	5,200	6,300	5,800	6,300	8,170	6,420	7,530	4,550	4,240	4,
18	5,570	5,640	5,300	6,200	5,900	6,650	8,680	6,530	7,260	4,490	4,240	4,
19	6,000	5,570	5,300	5,800	6,000	6,270	8,680	6,650	7,610	4,490	4,270	4,
20	5,730	5,480	5,200	5,700	6,200	6,000	8,250	6,940	7,810	4,610	4,210	4,
21	6,170	5,410	5,200	h5,700	6,600	5,830	8,290	7,450	7,940	4,780	4,210	4,
22	5,540	5,290	5,200	5,600	13,000	6,030	8,800	8,180	7,720	4,610	4,240	4,
23	5,170	5,140	5,400	5,600	11,000	6,130	9,080	8,660	7,450	4,460	4,350	4,
24	5,020	5,050	5,600	5,600	9,000	5,960	8,440	8,440	7,080	4,410	4,350	4,
25	4,870	4,960	5,400	5,500	7,600	6,100	8,020	8,550	6,720	4,320	4,430	4,
26	4,780	4,990	5,300	5,400	7,900	5,960	7,560	8,570	6,400	4,290	4,490	4,
27	4,780	5,050	5,300	5,300	8,000	5,930	7,260	9,860	6,100	4,290	4,490	5,
28	4,720	4,990	5,300	5,300	7,900	5,900	7,040	10,200	5,930	4,380	4,490	5,
29	4,690	4,960	5,300	5,300	7,400	5,930	6,830	9,880	5,700	4,320	4,460	5,
30	4,780	4,930	5,300	5,300	-	6,300	6,650	9,410	5,600	4,350	4,410	5,
31	4,780	-	5,200	5,200	-	6,620	-	8,780	-	4,320	4,410	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-f
October	145,870	6,170	3,930	4,705	289,
November	153,040	6,000	4,610	5,101	303,
December	161,970	5,600	4,960	5,225	321,
Calendar year 1947	1,844,640	7,980	3,880	5,054	3,659,
January	208,700	15,000	5,100	6,732	414,
February	185,600	13,000	5,000	6,400	368,
March	187,660	7,000	5,570	6,054	372,
April	214,050	9,080	5,800	7,135	424,
May	233,310	10,200	6,300	7,528	462,
June	235,160	9,380	5,600	7,839	466,
July	147,440	5,640	4,290	4,756	292,
August	133,890	4,490	4,210	4,319	265,
September	133,360	5,080	4,210	4,445	264,
Water year 1947-48	2,140,050	15,000	3,930	5,847	4,245,

Peak discharge (base, 8,800 sec.-ft.).- Jan. 7 (time unknown) 19,000 sec.-ft.; Feb. 22 (time a discharge unknown); Apr. 23 (7 to 9 a.m.) 9,240 sec.-ft.; May 27 (11 to 12 p.m.) 10,300 sec.-ft.
h Computed from staff-gage readings.
Note.- No gage-height record Dec. 9 to Jan. 20, Jan. 22 to Mar. 2, Mar. 4-11; discharge computed on basis of recorded range in stage, when available, and records for Deschutes River near Madras White River near Tygh Valley.

Reservoirs in Deschutes River Basin above Bend, Oreg.

Crane Prairie Reservoir.- Staff gage, lat. 43°45', long. 121°47', at dam on Deschutes River in NW¼ sec. 16, T. 21 S., R. 8 E., 15 miles northwest of Lapine. Datum of gage is 4,400.0 feet above mean sea level (Bureau of Reclamation bench mark). Drainage area, 244 square miles. Records available, November 1922 to September 1948. Maximum contents observed during year, 50,470 acre-feet June 25 (elevation, 4,444.00 feet); minimum observed, 16,790 acre-feet Oct. 10, 12 (elevation, 4,435.80 feet). Maximum contents observed during period 1922-48, 60,500 acre-feet June 5-7, 1943 (elevation, 4,446.0 feet); no usable contents at times.

Reservoir is formed by earth dam completed by North Canal Co. in 1922; gates were first closed Nov. 22, 1922; reconstructed as rock-faced earth dam with concrete control works by Bureau of Reclamation in 1939-40. Capacity, 55,340 acre-feet between elevations 4,424 feet (lip of fish screen structure) and 4,445 feet (crest of spillway). Natural flow passing through reservoir when outlet gates are open prevents withdrawal of storage to elevation of sill of gates. Water used for irrigation near Bend and Redmond. Gage read once daily except during winter when occasional readings are made.

Wickiup Reservoir.- Tape gage, lat. 43°41', long. 121°41', in gate chamber structure at dam on Deschutes River in NE¼ sec. 7, T. 22 S., R. 9 E., 9 miles west of Lapine. Gage reads elevation above mean sea level (levels by Bureau of Reclamation). Records available, December 1942, when storage began,,to September 1948. Maximum contents observed during year, 145,600 acre-feet Apr. 5 (elevation, 4,332.18 feet); minimum observed, 24,030 acre-feet Sept. 30 (elevation, 4,297.25 feet). Maximum contents observed during period 1942-48, that of Apr. 5, 1948; no storage in most of period November 1943 to March 1944 (corrected).

Reservoir is formed by rock-faced earth-fill dam completed by Bureau of Reclamation August 1949. Timber removal practically complete. Capacity, 182,100 acre-feet between elevations 4,265.0 feet (no storage) to 4,336.0 feet (crest of spillway, with earth soft plug to elevation 4,339.0 feet). Natural flow passing through reservoir when outlet gates are open prevents withdrawal of storage below elevation 4,265.0 feet. Sill of trash rack structure elevation 4,259.75 feet. Water stored is used for irrigation near Madras. Gage read once daily. Daily elevations and capacity table furnished by Bureau of Reclamation.

Crescent Lake Reservoir.- Staff gage, lat. 43°30', long. 121°58', at head of spillway on dam at lake outlet in sec. 11, T. 24 S., R. 6 E., and auxiliary staff gage at boat dock 100 yards south, 14 miles west of Crescent. Datum of gage is 4,826.0 feet above mean sea level (levels of Deschutes County Municipal Improvement District). Drainage area, 58 square miles. Records available, August 1922 to September 1948. Maximum contents observed during year, 56,230 acre-feet June 12 (elevation, 4,841.36 feet); minimum observed, 31,260 acre-feet Oct. 6 (elevation, 4,834.74 feet). Maximum contents observed during period 1922-48, 72,460 acre-feet July 15, 1923 (elevation, 4,845.55 feet); minimum observed, 9,640 acre-feet Oct. 21, 1931 (elevation, 4,828.75 feet).

Reservoir is formed by dam of earth and logs, completed and storage begun in 1922. Capacity, 86,050 acre-feet between elevations 4,826 feet (sill of outlet gate) and 4,849 feet (crest of spillway). Dead storage not known; records given herein represent usable contents. Water is diverted from Deschutes River at Bend and used by Deschutes County Municipal Improvement District for irrigation near Tumalo. Gage read about once a week.

Revisions (water year).- W 739: 1923 (maximum contents).

Monthly elevation and contents, water year October 1947 to September 1948

Date	Crane Prairie Reservoir			Wickiup Reservoir			Crescent Lake Reservoir		
	Elevation (feet)*	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)*	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)*	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30....	4,436.09	17,790	-	4,311.55	53,080	-	-	a31,030	-
Oct. 31....	4,436.70	19,940	+2,150	4,311.94	53,300	+220	-	a35,260	+4,230
Nov. 30....	4,439.58	30,940	+11,000	-	a76,040	+22,740	-	a37,740	+2,480
Dec. 31....	-	a36,860	+5,920	4,324.40	93,560	+17,520	-	a41,180	+3,440
Calendar year 1947	-	-	-6,420	-	-	+50,000	-	-	-4,700
Jan. 31....	-	a39,440	+2,580	-	a118,300	+24,740	4,838.10	43,810	+2,630
Feb. 29....	-	a36,740	-2,700	-	a130,300	+12,000	-	a46,850	+3,040
Mar. 31....	-	a30,450	-6,290	4,331.98	143,900	+13,600	-	a48,730	+1,880
Apr. 30....	4,440.00	32,660	+2,210	4,331.20	137,400	-6,500	4,839.70	49,890	+1,160
May 31....	4,441.66	39,740	+7,080	4,328.46	117,000	-20,400	-	a54,490	+4,600
June 30....	4,443.68	48,950	+9,210	4,327.58	111,200	-5,800	-	a54,550	+60
July 31....	4,440.92	36,530	-12,420	4,322.58	85,320	-25,880	-	a46,140	-8,410
Aug. 31....	4,440.56	35,000	-1,530	4,317.37	68,010	-17,310	-	a39,580	-6,560
Sept.30....	4,443.68	48,950	+13,950	4,297.25	24,030	-43,980	-	a41,960	+2,380
Water year 1947-48..	-	-	+31,160	-	-	-29,050	-	-	+10,930

* Time of gage reading variable.
a No gage-height record; contents interpolated.

Cultus River above Cultus Creek, near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°49', long. 121°48', at road crossing in sec. 2
or 29, T. 20 S., R. 8 E., upstream from flow line of Crane Prairie Reservoir, 2 mile
upstream from Cultus Creek, and 18 miles northwest of Lapine. Altitude of gage, 4,4
feet (from reservoir surveys by Bureau of Reclamation).

Records available.- June 1923 to September 1925, November 1937 to September 1948.

Average discharge.- 12 years (1923-25, 1938-48), 56.0 second-feet.

Extremes.- Maximum discharge during year, 101 second-feet June 10, 11; minimum, 55 seco
feet Apr. 12-18.
1923-25, 1937-48: Maximum discharge, 118 second-feet May 16, 1938, June 1, 1943;
minimum, 28 second-feet Mar. 22, Apr. 5-10, 1941.

Remarks.- Records fair. No diversion or regulation above station.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	70	68	62	58	66	64	56	60	96	80	80	
2	70	68	62	60	66	62	56	60	94	80	80	
3	70	68	60	60	66	62	56	60	94	83	80	
4	70	68	60	60	64	62	56	60	94	83	80	
5	70	68	60	60	64	60	56	60	94	85	78	
6	70	68	60	60	64	60	56	60	94	85	78	
7	70	68	60	62	64	58	56	62	94	85	78	
8	70	68	60	62	64	58	56	62	94	85	78	
9	70	68	60	62	64	58	56	62	94	85	76	
10	70	68	60	62	64	58	56	64	99	83	76	
11	70	66	60	62	64	58	56	64	99	83	76	
12	70	66	60	62	64	58	55	66	92	83	76	
13	70	66	60	62	64	58	55	66	90	83	76	
14	70	66	60	62	64	58	55	66	87	83	74	
15	70	66	58	64	64	58	55	68	85	83	74	
16	70	66	58	64	64	58	55	74	85	83	74	
17	70	66	58	62	64	58	55	74	85	83	76	
18	70	66	58	64	64	56	55	74	85	80	76	
19	70	66	58	64	64	56	56	74	85	80	76	
20	70	66	56	64	64	56	56	74	80	80	76	
21	70	66	56	64	64	56	58	74	80	80	76	
22	70	64	56	64	64	56	58	76	80	83	76	
23	70	64	56	64	62	56	58	78	80	83	76	
24	70	64	56	64	62	56	58	83	80	80	76	
25	70	64	56	64	64	56	58	87	80	80	76	
26	70	64	56	64	64	56	58	94	80	80	76	
27	68	64	56	66	64	56	58	96	80	80	76	
28	68	64	58	68	64	56	60	96	83	80	76	
29	68	62	58	68	64	56	60	94	80	80	76	
30	68	62	58	68	-	56	60	92	80	80	76	
31	68	-	58	66	-	56	-	94	-	83	76	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	2,160	70	68	69.7	4,28
November	1,978	68	62	65.9	3,92
December	1,814	62	56	58.5	3,60
Calendar year 1947	25,722	87	56	70.5	51,01
January	1,956	68	58	63.1	3,88
February	1,858	66	62	64.1	3,69
March	1,792	64	56	57.8	3,55
April	1,699	60	55	56.6	3,37
May	2,274	96	60	73.4	4,51
June	2,623	99	80	87.4	5,20
July	2,544	85	80	82.1	5,05
August	2,374	80	74	76.6	4,71
September	2,210	78	70	73.7	4,38
Water year 1947-48	25,282	99	55	69.1	50,14

Quinn River near Lapine, Oreg.

Location.- Water-stage recorder and wooden control, lat. 43°47', long. 121°50', in NW¼ sec. 1, T. 21 S., R. 7 E., just upstream from flow line of Crane Prairie Reservoir, 150 feet downstream from springs at head of river, and 19 miles northwest of Lapine. Datum of gage is 4,442.1 feet (corrected) above mean sea level, based on elevation of Crane Prairie Reservoir (Bureau of Reclamation bench mark) in period May to September 1943, when slack water reached station.

Records available.- June 1922 to September 1925, November 1937 to September 1948.

Average discharge.- 13 years (1923-25, 1938-48), 18.5 second-feet.

Extremes.- Maximum discharge recorded during year, 50 second-feet July 3, 4; maximum gage height, 1.99 feet June 25 (backwater from reservoir); minimum discharge recorded, 14 second-feet Mar. 27 to Apr. 14.
1922-25, 1937-48: Maximum discharge, 55 second-feet July 22-25, 1946 (gage height, 1.99 feet); practically no flow Nov. 14, 1941.

Remarks.- Records good except those for periods of no gage-height record, which are fair, and those for period of backwater from reservoir, which are poor. No diversion or regulation above station.

Rating table, water year 1947-48, except periods of backwater from Crane Prairie Reservoir
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 16 to Nov. 4, June 8-17, July 3-11)

1.6	8.3
1.7	16
1.8	27
1.9	40
2.0	57

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	20	19	18			14	18	27	c49	43	42
2	20	20	19	18			14	18	27	c50	43	42
3	20	20	19				14	18	27	50	43	42
4	22	20	19				14	18	27	50	43	42
5	22	20	19				14	19	28	47	43	42
6	22	20	19				14	19	28	45	43	40
7	22	20	19				14	19	27	43	43	40
8	22	20	19				14	20	27	42	43	40
9	22	22	19				14	20	28	42	43	39
10	22	22	19				14	20	28	42	42	39
11	22	22	19				14	22	27	42	42	37
12	20	22	19				14	22	27	40	40	37
13	20	22	19				14	23	28	40	39	37
14	20	22	19			a15	14	23	28	40	39	36
15	20	22	19		a16		15	24	30	40	37	35
16	20	22	19				15	24	32	40	36	34
17	20	22	19	a17			15	24	35	40	36	34
18	20	22	18				15	24	c36	40	37	34
19	20	20	18				16	25	c37	40	37	32
20	20	20	18				16	25	c38	42	37	32
21	20	a20	18				17	25	c39	42	37	31
22	20	a20	18				17	25	c40	43	39	31
23	20	a20	18				17	26	c41	43	39	31
24	20	a20	18				17	26	c42	43	40	31
25	20	a20	18				17	26	c43	43	40	31
26	20	a19	18				17	27	c44	43	40	31
27	20	a19	18			14	18	27	c45	43	40	a31
28	20	a19	18			14	18	27	c46	43	40	a31
29	20	a19	18			14	18	27	c47	43	42	a31
30	20	a19	18		-	14	18	27	c48	43	42	a31
31	20	-	18		-	14	-	27	-	43	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	636	22	20	20.5	1,260
November	615	22	19	20.5	1,220
December	575	19	18	18.5	1,140
Calendar year 1947	9,839	39	18	27.0	19,530
January	529	18	-	17.1	1,050
February	464	-	-	16.0	920
March	460	-	14	14.8	912
April	462	18	14	15.4	916
May	715	27	18	23.1	1,420
June	1,027	48	27	34.2	2,040
July	1,336	50	40	43.1	2,650
August	1,250	43	36	40.3	2,480
September	1,066	42	31	35.5	2,110
Water year 1947-48	9,135	50	14	25.0	18,120

a No gage-height record; discharge interpolated.
c Backwater from Crane Prairie Reservoir; discharge interpolated.

Odell Creek near Crescent, Oreg.

Location.- Water-stage recorder, lat. 43°33', long. 121°58', in SW¼ sec. 25, T. 23 S., R 6 E., at outlet of Odell Lake, 3½ miles north of Crescent Lake and 14 miles northwest of Crescent. Datum of gage is 4,778.83 feet above mean sea level, datum of 1929.
Drainage area.- 39 square miles.
Records available.- August 1911 to August 1914 (incomplete), December 1923 to June 1924, May 1933 to September 1948.
Average discharge.- 15 years (1933-48), 70.0 second-feet.
Extremes.- Maximum discharge during year, 269 second-feet June 2 (gage height, 1.08 feet); minimum, 23 second-feet Sept. 12 (gage height, 0.26 foot).
1911-14, 1923-24, 1933-48: Maximum discharge, 405 second-feet Dec. 30, 1945, from rating curve extended above 190 second-feet; maximum gage height, 2.03 feet Jan. 5, 1947 (ice jam); minimum discharge, 12 second-feet sometime during period Sept. 7-30, 1934.
Remarks.- Records good. Flow regulated occasionally in winter by ice jams and at other times by debris which collects on fish racks or by boards used at outlet of Odell Lake to change lake levels; slightly affected at times by seiches on Odell Lake. No diversion above station.
Revisions (water years).- W 794: 1933, 1934.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 13 to July 17)

0.2	16	0.6	96
.3	28	.8	158
.4	44	1.0	233
.5	68	1.1	278

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	88	74	74	63	102	74	74	145	158	66	56
2	39	85	74	99	63	102	74	79	205	155	63	56
3	41	82	76	99	63	96	74	82	246	152	61	51
4	41	79	74	105	63	90	74	82	242	148	63	49
5	41	79	74	105	63	88	76	88	229	145	58	49
6	41	79	74	142	63	88	76	88	225	145	61	46
7	42	79	74	186	63	82	74	82	225	139	61	44
8	44	85	74	201	71	82	71	90	225	132	56	46
9	54	85	76	201	88	88	74	93	233	129	56	49
10	63	82	74	190	88	82	74	93	251	123	56	49
11	66	85	74	186	85	79	74	99	256	111	54	38
12	63	82	74	172	82	74	74	99	242	108	54	24
13	61	88	74	155	82	74	68	90	233	102	51	34
14	61	85	74	142	79	76	74	85	221	96	54	36
15	68	90	71	136	88	76	71	99	201	96	51	31
16	99	96	68	126	85	82	74	88	193	90	51	39
17	102	96	68	117	82	82	74	85	182	90	54	46
18	102	96	71	111	88	79	74	82	179	79	49	49
19	99	93	68	102	82	68	74	93	176	82	49	51
20	111	90	68	99	82	41	71	114	176	76	49	49
21	117	88	68	96	90	88	66	93	182	74	46	49
22	111	85	68	90	120	88	66	96	179	71	49	49
23	108	79	68	88	129	88	66	96	176	71	56	56
24	102	76	66	82	120	88	74	99	168	74	54	56
25	96	76	66	76	114	88	63	102	165	74	54	54
26	90	74	63	74	117	82	56	120	158	71	49	54
27	88	74	63	68	108	82	74	117	158	71	49	61
28	88	71	68	68	108	76	90	136	152	74	54	54
29	88	68	71	66	105	76	88	158	152	71	51	56
30	88	71	68	66	-	88	82	155	155	71	49	67
31	85	-	66	63	-	79	-	139	-	68	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,338	117	39	75.4	1.93	2.23	4,640
November	2,486	96	68	82.9	2.13	2.37	4,930
December	2,189	76	63	70.6	1.81	2.09	4,340
Calendar year 1947	29,199	145	35	80.0	2.05	27.84	57,920
January	3,585	201	63	116	2.97	3.42	7,110
February	2,534	129	63	87.4	2.24	2.42	5,030
March	2,554	102	41	82.4	2.11	2.44	5,070
April	2,194	90	56	73.1	1.87	2.09	4,350
May	3,096	158	74	99.9	2.56	2.95	6,140
June	5,930	256	145	198	5.08	5.65	11,760
July	3,146	158	68	101	2.59	3.00	6,240
August	1,677	66	46	54.1	1.39	1.60	3,330
September	1,446	63	24	48.2	1.24	1.38	2,870
Water year 1947-48	33,175	256	24	90.6	2.32	31.64	65,810

Fall River near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°48', long. 121°34', in SE¼ sec. 31, T. 20 S., R. 10 E., downstream from spillway from ponds at State fish hatchery, 10 miles northwest of Lapine.

Records available.- May to September 1912 (fragmentary) and June 1938 to September 1948 in reports of Geological Survey. October 1923 to September 1924 (at site 3 miles downstream) in report of State engineer.

Average discharge.- 10 years (1938-48), 126 second-feet.

Extremes.- Maximum discharge during year, 171 second-feet Sept. 24, 25; minimum recorded, 118 second-feet Dec. 15, Jan. 26, Feb. 2, 16, but may have been less during period Feb. 17 to Mar. 16; minimum gage height, 1.23 feet during period Feb. 17 to Mar. 16 when clock was stopped.

1938-48: Maximum discharge, 194 second-feet sometime during period Jan. 8 to Apr. 21, 1943, and on Sept. 15, 1943, probably caused by release of water from fish hatchery; minimum, 68 second-feet Apr. 6, 1942.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Water diverted above station only to ponds at fish hatcheries, from which water returns to river above station.

Revisions (water years).- W 984: 1938-42 (maximum and minimum only).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	135	a134	134	127	a133	140	146	142	144	146	146
2	139	134	134	134	127	a133	140	146	142	142	146	147
3	139	134	134	132	127	a134	140	147	140	142	147	144
4	139	134	132	132	129	a134	140	146	140	142	149	144
5	139	134	132	134	129	a134	139	146	140	144	149	146
6	139	134	132	137	129	a134	139	146	140	a143	a149	146
7	139	134	132	137	130	a135	137	146	140	a143	a149	146
8	139	134	132	134	130	a135	135	146	140	a142	a149	146
9	139	134	130	132	130	a135	137	146	140	a141	a148	146
10	139	134	130	134	130	a135	135	146	140	a141	a148	146
11	137	134	130	132	130	a136	135	147	140	140	a148	146
12	137	134	130	132	130	a136	135	a147	140	140	a148	147
13	137	134	130	130	130	a136	135	a146	140	140	a148	147
14	137	134	129	130	130	a136	137	a146	140	140	a148	149
15	139	134	129	129	130	a137	137	a146	140	140	a147	149
16	139	a134	130	130	130	a137	139	a145	140	140	a147	151
17	137	a134	130	130	a130	137	140	a145	140	140	147	153
18	139	a134	130	129	a130	137	139	a144	142	140	147	154
19	137	a134	130	129	a130	137	139	a144	142	140	146	154
20	140	a134	132	127	a131	139	140	a144	142	140	146	154
21	139	a134	132	127	a131	139	142	a143	142	140	147	158
22	137	a134	132	129	a131	139	144	a143	142	142	147	160
23	137	a134	132	129	a131	140	144	a142	142	144	146	163
24	137	a134	132	127	a132	139	144	142	142	142	146	165
25	137	a134	132	127	a132	139	144	142	142	142	146	167
26	137	a134	a132	127	a132	140	144	144	142	144	147	169
27	137	a134	a132	127	a132	139	146	142	142	144	149	169
28	137	a134	a132	127	a133	139	146	142	142	144	149	169
29	135	a134	132	127	a133	140	147	142	142	144	149	169
30	135	a134	132	126	-	140	147	144	142	146	147	167
31	135	-	132	126	-	139	-	144	-	146	147	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,272	140	135	138	8,470
November	4,021	135	134	134	7,980
December	4,074	134	129	131	8,080
Calendar year 1947	53,060	160	129	145	105,200
January	4,037	137	126	130	8,010
February	3,776	133	127	130	7,490
March	4,243	140	133	137	8,420
April	4,206	147	135	140	8,340
May	4,485	147	142	145	8,900
June	4,230	142	140	141	8,390
July	4,402	146	140	142	8,730
August	4,572	149	146	147	9,070
September	4,617	169	144	154	9,160
Water year 1947-48	50,935	169	126	139	101,000

a No gage-height record; discharge interpolated.

Little Deschutes River near Lapine, Oreg.

Location.- Water-stage recorder, lat. 43°41', long. 121°30', in SW¼ sec. 2, T. 22 S., R. 10 E., at bridge at former town of Rosland, 1½ miles north of Lapine. Datum of gage is 4,192.81 feet above mean sea level, datum of 1929.

Records available.- September 1910 to October 1913 (incomplete), June to November 1918, August to October 1920, May 1924 to September 1948.

Average discharge.- 24 years (1924-48), 155 second-feet.

Extremes.- Maximum discharge during year, 836 second-feet June 12 (gage height, 6.77 feet); minimum not determined; minimum daily, 45 second-feet Dec. 10.
1910-13, 1918, 1920, 1924-48: Maximum discharge, 985 second-feet Apr. 22, 1943 (gage height, 7.00 feet); minimum, 8 second-feet Sept. 2, 3, 1931 (gage height, 0.71 foot).

Remarks.- Records good except those for periods of ice effect, which are poor. Small diversions above station for irrigation. Flow regulated since August 1922 by Crescent Lake Reservoir (see p. 55).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	92	84	b65	80	197	163	265	532	384	317	84
2	54	88	82	b70	80	164	183	259	547	378	314	81
3	54	86	*83	b80	75	145	209	267	535	377	301	77
4	54	83	83	b90	75	141	195	295	521	377	293	77
5	53	*81	83	113	73	129	173	350	583	398	291	74
6	52	80	78	140	*73	129	152	359	599	435	290	73
7	52	78	73	261	72	126	142	362	677	442	283	73
8	53	81	70	362	80	128	134	371	695	432	282	70
9	56	83	60	359	75	130	130	373	698	421	278	67
10	59	89	45	363	75	118	129	363	755	399	273	63
11	66	87	55	337	75	120	126	353	761	384	266	64
12	73	82	60	335	80	119	123	348	815	368	263	62
13	73	83	70	269	90	119	121	344	871	359	257	61
14	68	83	70	230	120	124	131	349	797	348	254	60
15	67	87	70	180	150	119	154	339	755	336	249	60
16	80	94	72	165	189	122	206	332	725	333	248	60
17	98	120	78	150	209	121	253	341	698	329	246	64
18	103	122	78	140	219	*118	272	343	680	326	246	66
19	96	108	70	135	222	112	251	362	658	320	247	65
20	89	97	70	130	216	111	251	374	649	315	245	64
21	93	80	65	140	212	111	276	389	671	313	240	62
22	101	70	60	150	248	123	302	385	599	308	243	60
23	94	75	65	135	234	122	293	368	566	301	264	64
24	88	78	65	125	253	117	297	351	538	296	273	73
25	82	85	65	110	283	117	284	345	520	294	270	83
26	78	86	70	100	265	111	302	350	524	290	182	89
27	76	82	70	b95	264	116	301	362	508	300	122	88
28	76	81	65	b90	243	124	290	380	458	314	106	81
29	82	81	60	b85	224	135	284	402	408	317	103	76
30	90	82	55	b85	-	144	273	436	390	315	94	74
31	93	-	60	b80	-	157	-	490	-	315	87	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,308	103	52	74.5	4,580
November	2,604	122	70	86.8	5,160
December	2,134	84	45	68.8	4,230
Calendar year 1947	61,473	378	45	168	121,900
January	5,169	363	65	167	10,250
February	4,554	283	72	157	9,030
March	3,969	197	111	128	7,870
April	6,400	302	121	213	12,690
May	11,007	490	259	355	21,830
June	18,613	821	390	620	36,920
July	10,824	442	290	349	21,470
August	7,427	317	87	240	14,730
September	2,117	89	60	70.6	4,200
Water year 1947-48	77,126	821	45	211	153,000

Peak discharge (base, 300 sec.-ft.).- Jan. 8 (4 p.m.) 382 sec.-ft.; Apr. 26 (3 p.m.) 311 sec.-ft. May 8 (8 p.m.) to May 9 (5 a.m.) 377 sec.-ft.; May 21 (5 to 10 p.m.) 393 sec.-ft.; June 12 (1 to 4 p.m.) 836 sec.-ft.; July 7 (2 a.m.) 445 sec.-ft.; July 31 (11 p.m.) 327 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-dischsrge relation affected by ice Nov. 21-23, Dec. 9 to Jan. 4, Jan. 14 to Feb. 15.

Crescent Creek at Crescent Lake, near Crescent, Oreg.

Location.- Water-stage recorder and Parshall flume, lat. 43°30', long. 121°58', in sec. 11, T. 24 S., R. 6 E., 100 yards downstream from dam at outlet of Crescent Lake and 14 miles west of Crescent.

Drainage area.- 58 square miles.

Records available.- January 1911 to July 1915, July 1927 to September 1928 (incomplete), October 1928 to September 1948.

Average discharge.- 23 years (1911-14, 1928-48), 37.0 second-feet.

Extremes.- Maximum discharge during year, 235 second-feet June 10-17 (gage height, 2.74 feet); minimum observed, 3.8 second-feet Nov. 5 (gage height, 0.19 foot).
1911-15, 1927-48: Maximum discharge, 313 second-feet July 9, 1929, Aug. 9, 1936; no flow at times.

Remarks.- Records good except those for Oct. 1 to May 31, Aug. 25 to Sept. 30, which are poor. Flow regulated since 1922 by Crescent Lake Reservoir (p. 55), storage being released June 1 to Aug. 24 for diversion below station through Deschutes County Municipal Improvement District Canal at Bend. No diversion above station.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			a4.3			h6.1			74	140	215	
2			a4.3						169	140	213	
3	a5.0	a3.9	h4.3						178	165	213	
4								a7.9	194	198	212	
5		h3.8		a5.4					193	198	210	
6	h4.9				a6.1				193	196	208	
7								h8.1	193	196	206	
8									193	196	203	
9				h5.5					210	196	200	a8.3
10						a6.2			235	196	200	
11									235	195	198	
12					h6.1				235	195	196	
13									235	194	194	
14								a8.5	235	193	193	
15			a4.8				a7.0		235	193	190	
16									235	193	189	
17									220	191	186	h8.5
18				a5.8					204	190	185	
19	a4.5	a4.0						8.9	204	190	184	
20						h6.4			203	189	184	
21					a6.1				204	189	182	
22									204	187	181	
23									204	187	180	
24									204	186	128	a8.7
25						a6.5		a10	173	196		
26									138	222		
27									139	221	a8.1	
28				h6.1					139	220		
29									139	219		
30				a6.1	-				139	219		
31		-			-		-		-	217		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	142.4	-	-	4.59	282
November	119.4	-	-	3.98	237
December	147.3	-	-	4.75	292
Calendar year 1947	21,286.0	203	-	58.3	42,220
January	177.5	-	-	5.73	352
February	176.9	-	-	6.10	351
March	195.6	-	-	6.31	388
April	210.0	-	-	7.00	417
May	277.9	-	-	8.96	551
June	5,756	235	74	192	11,420
July	6,007	222	140	194	11,910
August	4,706.7	215	-	152	9,340
September	254.4	-	-	8.48	505
Water year 1947-48	18,171.1	235	-	49.6	36,040

a No gage-height record; discharge interpolated.
h Computed from staff-gage reading.

Diversions from Deschutes River near Bend, Oreg.

The following six canals, which are equipped with water-stage recorders, are the only diversions from Deschutes River between gaging stations at Benham Falls and below Bend.

Arnold Canal diverts from right bank at head of Lava Island, in SW¼ sec. 27, T. 18 S. R. 11 E.; water used for irrigation southeast of Bend.

Central Oregon Canal diverts from right bank in NE¼ sec. 13, T. 18 S., R. 11 E.; wate used for irrigation east of Bend. (Beginning Oct. 1, 1932, record obtained upstream fro intake of Pilot Butte Canal.)

Deschutes County Municipal Improvement District Canal diverts from left bank in NE¼ sec. 32, T. 17 S., R. 12 E., at Bend; water used to supplement flow of Tumalo project fe canal for irrigation near Tumalo; water stored at Crescent Lake Reservoir is diverted by this canal.

North Unit Main Canal diverts water from right bank in NE¼ sec. 29, T. 17 S., R. 12 E water used for irrigation near Madras.

North and Swalley Canals divert from right bank in NE¼ sec. 29, T. 17 S., R. 12 E.; water used for irrigation north of Bend, mostly near Redmond.

Records of monthly discharge of these canals, published as a group, are available fro October 1926 to September 1948; records for each canal published separately prior to 192

Diversions, in acre-feet, water year October 1947 to September 1948

Month	Arnold Canal	Central Oregon Canal	Deschutes County Municipal Improvement District Canal	North Unit Main Canal	North Canal	Swalley Canal	Tota
October	3,810	19,050	1,550	9,550	17,770	4,340	56,07
November	77	2,490	0	0	9,410	1,360	13,33
December	0	2,100	0	0	1,550	492	4,14
January	0	1,150	0	0	766	514	2,43
February	0	1,900	0	1,670	1,310	266	5,14
March	0	1,940	0	6,470	1,430	910	10,75
April	415	12,910	0	7,290	12,290	2,340	35,24
May	3,720	24,520	0	14,440	25,000	5,460	73,14
June	5,060	22,810	0	18,270	23,430	5,480	75,05
July	4,950	31,280	4,880	38,000	30,270	7,250	116,63
August	5,390	30,600	9,350	26,190	29,010	7,280	107,82
September	5,000	24,120	7,490	21,400	23,430	6,160	87,60
Water year 1947-48	28,422	174,870	23,270	143,280	175,666	41,852	587,36

Tumalo Creek near Bend, Oreg.

Location.- Water-stage recorder, lat. 44°05', long. 121°22', in SE¼ sec. 23, T. 17 S., R. 11 E., a quarter of a mile upstream from diversion dam of feed canal of Tumalo project, 4 miles upstream from mouth, and 4 miles northwest of Bend.
Drainage area.- 57 square miles.
Records available.- October 1906 to December 1908 and October 1910 to April 1913 (winters only), November 1913 to September 1948.
Average discharge.- 33 years (1913-21, 1923-48), 78.8 second-feet, excluding Columbia Southern Canal.
Extremes.- Maximum discharge during year, 732 second-feet Oct. 20, from rating curve extended above 250 second-feet; maximum gage height, 6.23 feet Feb. 12, 13 (backwater from ice); minimum discharge, 12 second-feet Dec. 8 (gage height, 1.19 feet).
1906-8, 1911-48: Maximum discharge, 1,420 second-feet about Jan. 6, 1923, from rating curve extended above 200 second-feet; maximum gage height, that of Feb. 12, 13, 1948; minimum discharge, 1 second-foot June 28 to July 3, 1940.
Remarks.- Records good except those for periods of backwater from debris, which are fair, and those for periods of ice effect or no gage-height record, which are poor. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Columbia Southern Canal diverts from creek above station; canal record good. Records of daily discharge do not include diversion by Columbia Southern Canal.
Revisions (water years).- W 864: 1937.

Rating tables, water year 1947-48, except periods of backwater from debris and periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 14				Feb. 15 to Sept. 30					
1.2	13	1.8	79	1.2	15	1.6	54	2.6	270
1.3	20	2.0	115	1.3	22	1.8	84	2.9	385
1.4	29	2.3	180	1.4	31	2.0	120	3.3	560
1.5	40	2.6	270	1.5	42	2.3	186		
1.6	52	3.0	425						

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	88	71	72	b75	68	68	79	a215	220	60	27
2	107	82	48	72	a75	68	71	79	a250	158	44	28
3	113	79	19	71	a75	b68	70	89	353	130	41	28
4	75	78	18	72	a75	b68	67	89	309	130	40	28
5	71	76	18	72	a75	68	65	89	313	144	36	28
6	68	75	18	109	a75	67	64	99	457	130	38	26
7	69	75	18	162	a75	67	64	107	510	107	34	25
8	71	79	b18	126	a75	68	62	98	520	98	34	25
9	79	76	b18	b110	*a75	68	64	94	535	86	38	24
10	76	75	b35	b105	b75	b70	62	98	483	96	38	23
11	72	*75	*b72	100	b75	b70	62	94	405	112	34	21
12	73	72	b72	b95	b75	70	61	99	325	96	32	22
13	75	75	73	b90	b75	68	61	103	302	89	32	22
14	84	73	72	b90	b75	68	64	99	258	87	32	21
15	160	79	71	91	78	68	68	101	212	86	33	24
16	256	76	71	89	71	*70	74	114	202	86	32	25
17	117	76	71	b90	71	68	79	122	189	86	31	28
18	263	76	71	88	67	68	74	114	277	82	34	30
19	298	75	71	b85	64	68	76	118	313	78	34	27
20	393	73	69	86	62	68	81	118	333	62	32	26
21	147	72	69	84	70	68	89	136	317	58	32	27
22	111	b72	69	84	79	70	86	149	252	62	40	27
23	102	b72	68	84	68	68	84	164	223	62	40	30
24	94	71	68	82	65	68	82	164	220	52	36	32
25	93	71	68	b82	65	68	84	151	196	46	33	a32
26	96	72	*68	b80	84	65	82	194	186	44	33	a32
27	93	72	68	b80	76	65	82	220	199	44	32	a45
28	88	72	68	b80	70	67	81	218	212	44	31	a75
29	88	71	b68	b80	70	68	79	191	215	41	30	a75
30	84	71	b70	b80	-	68	79	a185	258	42	30	a75
31	84	-	72	b80	-	67	-	a185	-	71	28	-

Month	Tumalo Creek					Columbia Southern Canal (runoff in acre-feet)	Combined runoff in acre-feet
	Second-foot-days	Discharge in second-feet			Runoff in acre-feet		
		Maximum	Minimum	Mean			
October	3,682	393	68	119	7,300	0	7,300
November	2,249	88	71	75.0	4,460	0	4,460
December	1,750	73	18	56.5	3,470	819	4,290
Calendar year 1947	30,823	393	18	84.4	61,130	16,370	77,500
January	2,771	162	71	89.4	5,500	0	5,500
February	2,110	84	62	72.8	4,190	0	4,190
March	2,108	70	65	68.0	4,180	0	4,180
April	2,185	89	61	72.8	4,330	0	4,330
May	3,960	220	79	128	7,850	972	8,820
June	9,039	535	186	301	17,930	3,340	21,270
July	2,729	220	41	88.0	5,410	3,640	9,050
August	1,094	60	28	35.3	2,170	3,220	5,390
September	958	75	21	31.9	1,900	2,410	4,310
Water year 1947-48	34,635	535	18	94.6	68,690	14,400	83,090

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Squaw Creek near Sisters and Columbia Southern Canal.
b Stage-discharge relation affected by ice.
Note.- Corrections for backwater from beaver dam or logs applied Oct. 1-20, June 6 to Sept. 30.

Squaw Creek near Sisters, Oreg.

Location.- Water-stage recorder, lat. 44°14', long. 121°34', in NW¼ sec. 32, T. 15 S., R. 10 E., just upstream from intake of McCallister ditch and 4 miles south of Sisters.

Drainage area.- 63 square miles.

Records available.- 1913-25 (irrigation seasons only), October 1925 to September 1948. July 1906 to May 1913 at site 700 feet downstream, below intake of McCallister ditch.

Average discharge.- 36 years (1906-18, 1919-21, 1925-48), 101 second-feet.

Extremes.- Maximum discharge during year, 580 second-feet Oct. 16 (gage height, 3.40 feet); minimum recorded, 32 second-feet Jan. 26, but may have been less during period of ice effect or no gage-height record Jan. 27 to Feb. 10.

1906-48: Maximum gage height, about 8.75 feet (over top of gage) Nov. 22, 1909, site and datum then in use (discharge not determined); maximum discharge recorded since that time, 1,130 second-feet Dec. 2, 1941 (gage height, 3.33 feet); minimum, 19 second-feet Dec. 6, 1922.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. A canal near mouth of Pole Creek, a tributary above station, diverts entire flow of that creek for irrigation of lands near Sisters.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	59	114	73	67	b35	71	56	65	232	340	168	9
2	83	102	67	71	b40	69	58	65	253	289	168	9
3	110	99	71	69	a40	68	56	78	304	268	175	9
4	77	95	69	64	a45	68	55	76	277	268	162	8
5	70	90	66	66	a45	66	55	72	259	268	145	8
6	68	90	64	139	a50	63	55	90	310	248	143	8
7	66	93	66	190	a50	63	55	92	331	235	143	8
8	68	97	64	111	a55	62	54	86	379	218	140	8
9	81	86	66	84	a55	61	54	84	433	220	140	8
10	72	88	67	b70	*a55	62	54	84	433	240	138	8
11	70	86	*69	60	b60	62	54	84	394	245	136	8
12	62	73	71	b55	b60	61	54	88	367	232	133	7
13	61	75	67	53	b65	59	54	90	355	220	133	7
14	64	77	66	b50	b70	59	61	86	340	220	128	8
15	225	82	64	b45	b80	*59	71	88	316	218	128	7
16	328	84	64	45	b90	58	76	92	304	220	124	7
17	175	82	62	b45	66	56	72	99	298	220	124	6
18	314	79	64	43	58	56	68	94	364	225	122	6
19	259	77	62	b40	54	55	69	96	352	210	122	6
20	342	73	62	b40	54	55	72	101	358	205	120	6
21	214	71	62	36	72	55	76	109	349	208	105	6
22	169	66	62	36	94	56	72	113	319	220	120	7
23	147	67	62	36	72	54	69	126	316	210	111	6
24	129	69	60	36	68	54	69	136	316	185	105	7
25	121	71	62	34	68	53	69	158	304	172	109	7
26	119	75	*62	33	92	53	69	200	298	172	107	7
27	119	73	62	b33	81	53	68	242	301	190	101	7
28	116	71	64	b33	74	54	66	238	310	158	99	6
29	109	69	64	b35	72	55	66	195	340	148	99	7
30	99	71	62	b35	-	54	65	190	379	155	99	7
31	107	-	77	b35	-	54	-	242	-	170	94	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,103	342	59	132	8,140
November	2,445	114	66	81.5	4,850
December	2,023	77	60	65.3	4,010
Calendar year 1947	36,807	342	50	101	73,000
January	1,789	190	33	57.7	3,550
February	1,820	94	35	62.8	3,610
March	1,828	71	53	59.0	3,630
April	1,892	76	54	63.1	3,750
May	3,659	242	65	118	7,260
June	9,891	433	232	330	19,620
July	6,797	340	148	219	13,480
August	3,941	175	94	127	7,820
September	2,310	92	69	77.0	4,580
Water year 1947-48	42,498	433	33	116	84,300

Peak discharge (base, 300 sec.-ft.).- Oct. 16 (3 a.m.) 580 sec.-ft.; Oct. 18 (2 a.m.) 422 sec.-ft. Oct. 20 (7 a.m.) 430 sec.-ft.; June 9 (7 p.m.) 484 sec.-ft.; June 18 (4 p.m.) 424 sec.-ft.; June 2 (10 p.m.) 430 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Tumalo Creek near Bend.

b Stage-discharge relation affected by ice.

Crooked River near Post, Oreg.

Location.- Water-stage recorder, lat. 44°07', long. 120°16', in NE¼ sec. 12, T. 17 S., R. 20 E., 1 mile downstream from North Fork and 11½ miles southeast of Post. Datum of gage is 3,461.72 feet above mean sea level, datum of 1929.

Drainage area.- 2,160 square miles, of which 500 square miles is probably noncontributing.

Records available.- November 1908 to August 1911, December 1939 to September 1948.

Extremes.- Maximum discharge during year, 3,290 second-feet Jan. 7 (gage height, 5.06 feet); minimum, 19 second-feet Sept. 11, 12 (gage height, 1.16 feet).
1908-11, 1939-48: Maximum discharge, 6,190 second-feet Dec. 28, 1945 (gage height, 6.66 feet), from rating curve extended above 2,600 second-feet; minimum, 4.4 second-feet July 12, 1940.

Remarks.- Records good except those for periods of ice effect, which are poor. Several small diversions above station; one small canal diverts on right bank 800 feet above station for irrigation below station; no regulation.

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.1	15	1.6	74	3.0	570
1.2	22	1.8	117	3.3	780
1.3	31	2.0	170	3.5	1,000
1.4	43	2.3	270	4.0	1,700
1.5	57	2.7	430	4.8	2,900

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	57	194	124	b110	362	1,100	880	1,220	159	43	32
2	30	53	218	130	b105	350	1,500	772	952	148	42	31
3	29	51	207	191	b100	290	1,270	880	1,690	134	43	28
4	30	53	185	176	b110	246	840	1,450	1,590	122	43	27
5	30	53	167	182	*b110	224	618	1,460	1,150	137	41	26
6	31	54	164	652	b105	232	565	1,640	880	218	41	24
7	32	54	150	2,860	b95	224	516	1,730	724	207	37	22
8	37	56	145	1,940	b100	224	506	1,410	672	188	36	21
9	39	71	*137	892	b110	232	525	1,140	588	162	35	21
10	41	69	b104	576	b115	207	600	940	511	137	35	22
11	49	62	b104	475	b110	185	555	840	594	137	36	21
12	46	60	b104	410	b120	194	525	850	588	134	36	20
13	42	62	b115	334	b135	197	651	976	612	124	33	21
14	42	78	b120	249	164	252	1,660	904	576	112	33	21
15	42	86	b118	b220	207	280	2,540	916	470	106	32	21
16	41	106	b118	b200	252	242	2,640	1,010	550	96	31	21
17	41	153	132	b180	334	249	2,520	1,110	488	94	29	21
18	41	210	132	b160	444	270	2,060	1,170	506	90	26	22
19	41	191	162	b140	439	246	2,140	1,320	594	86	26	22
20	41	153	176	b135	354	218	2,460	1,700	520	84	26	26
21	46	132	148	b140	459	207	2,570	2,030	686	84	26	25
22	46	86	130	b150	1,380	310	2,030	1,780	560	82	31	25
23	46	b84	124	b160	860	378	1,720	1,740	462	69	51	25
24	44	b108	122	b150	511	366	1,360	1,480	398	64	56	27
25	44	110	101	b135	422	444	1,220	1,700	338	60	51	31
26	44	112	99	b120	594	390	1,100	1,820	290	56	46	43
27	46	137	103	b100	780	422	976	1,570	252	51	44	43
28	46	148	108	b110	516	651	892	1,500	221	51	37	44
29	50	142	99	b110	398	928	1,040	1,180	194	54	35	46
30	54	148	106	b110	-	928	928	928	170	53	35	44
31	59	-	124	b110	-	764	-	1,480	-	42	33	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,281	59	29	41.3	2,540
November	2,939	210	51	98.0	5,830
December	4,216	218	99	136	8,360
Calendar year 1947	61,647	972	9	169	122,300
January	11,621	2,860	100	375	23,050
February	9,539	1,380	95	329	18,920
March	10,692	928	185	345	21,210
April	39,627	2,640	506	1,321	78,600
May	40,306	2,030	772	1,300	79,950
June	19,046	1,690	170	635	37,780
July	3,341	218	42	108	6,630
August	1,149	56	26	37.1	2,280
September	823	46	20	27.4	1,630
Water year 1947-48	144,580	2,860	20	395	286,800

Peak discharge (base, 1,600 sec.-ft.).- Jan. 7 (12:30 p.m.) 3,290 sec.-ft.; Feb. 22 (6 p.m.) 1,740 sec.-ft.; Apr. 15 (10:30 p.m.) 3,170 sec.-ft.; May 6 (2 a.m.) 1,970 sec.-ft.; May 21 (1 a.m.) 2,400 sec.-ft.; June 3 (7 p.m.) 2,340 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Crooked River above Hoffman Dam, near Prineville, Oreg.

Location.- Water-stage recorder, lat. 44°09', long. 120°50', in N½ sec. 32, T. 16 S., R. 16 E., 0.9 mile upstream from Hoffman diversion dam and 11 miles south of Prineville. Datum of gage is 2,981.23 feet above mean sea level, datum of 1929.
Drainage area.- 2,810 square miles, of which 500 square miles is probably noncontributing
Records available.- January 1940 to February 1941 (discharge measurements only), March 1941 to September 1948. October 1908 to December 1912 at Stearns Ranch, 5½ miles south of Prineville, below Hoffman and Stearns diversions. January 1913 to September 1914 at Hoffman Ranch, 10 miles south of Prineville, below Hoffman diversion. Records practically equivalent to those at present site except for diversions.
Extremes.- Maximum discharge during year, 3,700 second-feet May 26 (gage height, 5.67 feet); minimum, 18 second-feet Aug. 21 (gage height, 1.35 feet).
1908-12, 1913-14, 1940-48: Maximum discharge observed, 9,080 second-feet Mar. 1, 2 1910 (gage height, 9.4 feet, former site and datum), from rating curve extended above 1,000 second-feet; no flow at times in 1940. Maximum discharge in recent years, 6,300 second-feet Mar. 28, 1943 (gage height, 7.07 feet), from rating curve extended above 3,400 second-feet.
Remarks.- Records good except those for periods of ice effect, which are poor. Diversion above station for irrigation; no regulation.

Rating tables, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 15						Apr. 16 to Sept. 30					
1.4	19	2.6	313	4.0	1,500	1.3	14	2.3	180	4.0	1,450
1.6	39	2.8	433	4.5	2,110	1.4	21	2.6	300	4.5	2,070
1.8	65	3.1	640	5.2	3,030	1.5	30	2.9	465	5.0	2,740
2.0	100	3.4	880			1.7	53	3.3	760	5.3	3,160
2.3	181	3.7	1,170			2.0	102	3.7	1,120		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	62	159	131	120	408	970	848	1,530	187	49	33
2	20	65	207	123	120	389	1,490	858	1,150	168	43	33
3	24	65	236	146	110	353	1,630	816	1,590	153	42	33
4	24	64	214	196	*98	293	1,150	1,340	2,100	140	39	30
5	24	64	200	178	96	258	821	1,490	1,450	135	41	28
6	23	64	181	207	94	249	678	1,690	1,120	156	41	26
7	24	64	178	1,790	94	244	626	1,890	894	223	41	26
8	27	64	165	2,950	110	236	591	1,630	769	201	40	25
9	32	65	*155	1,490	115	244	570	1,310	870	174	36	24
10	35	78	130	804	125	236	640	1,070	792	148	37	21
11	39	83	125	626	120	207	670	930	858	130	36	20
12	41	76	120	528	130	200	605	894	752	125	30	20
13	45	83	125	480	150	207	633	984	688	118	29	26
14	44	79	130	364	170	222	1,040	1,010	728	107	28	20
15	43	92	120	324	200	272	2,720	966	591	94	28	20
16	43	109	116	250	250	267	3,060	1,020	542	89	26	22
17	41	128	139	200	330	249	2,920	1,120	605	77	26	24
18	40	175	139	180	430	267	2,530	1,290	605	78	28	27
19	43	227	139	160	500	277	2,290	1,290	658	69	26	30
20	50	203	165	140	473	249	2,600	1,880	635	69	19	27
21	51	168	175	150	383	227	2,880	2,360	688	66	18	26
22	50	133	149	160	1,210	236	2,400	2,190	720	54	21	26
23	51	95	139	170	1,350	364	2,020	2,080	556	46	74	28
24	51	102	126	155	708	383	1,610	1,810	465	46	60	33
25	51	128	116	140	514	420	1,340	1,810	400	38	57	36
26	50	118	105	120	648	466	1,200	2,610	340	38	54	43
27	51	121	107	110	880	408	1,090	1,970	305	38	49	49
28	52	146	112	115	747	584	984	1,820	268	37	41	53
29	54	155	118	115	500	880	1,010	1,570	243	39	37	52
30	55	152	125	120	-	1,070	1,020	1,210	215	40	33	53
31	58	-	130	125	-	916	-	1,410	-	64	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,255	58	19	40.5	2,490
November	3,228	227	62	108	6,400
December	4,545	236	105	147	9,010
Calendar year 1947	63,961	1,060	5	175	126,900
January	12,747	2,950	110	411	25,280
February	10,775	1,350	94	372	21,370
March	11,281	1,070	200	364	22,380
April	43,788	3,060	570	1,460	86,850
May	45,266	2,610	816	1,460	89,780
June	23,126	2,100	215	771	45,870
July	3,147	223	37	102	6,240
August	1,161	74	18	37.5	2,300
September	914	53	20	30.5	1,810
Water year 1947-48	161,233	3,060	18	441	319,800

Peak discharge (base, 2,000 sec.-ft.).- Jan. 8 (3 a.m.) 3,450 sec.-ft.; Apr. 16 (9 to 11 a.m.) 3,420 sec.-ft.; May 7 (12 m.) 2,170 sec.-ft.; May 21 (1 p.m.) 2,800 sec.-ft.; May 26 (4 a.m.) 3,700 sec.-ft.; June 4 (5 a.m.) 2,500 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 23, Dec. 10-15, 30, 31, Jan. 16 to Feb. 19.

Crooked River near Culver, Oreg.

Location.- Water-stage recorder, lat. 44°33'36", long. 121°16'12", in sec. 3 (50 feet west of ¼-corner on line between secs. 2 and 3), T. 12 S., R. 12 E., 1 mile upstream from mouth, 1 mile downstream from Cove power plant, and 4 miles northwest of Culver.
Drainage area.- 4,330 square miles, of which 500 square miles is probably noncontributing.
Records available.- October 1917 to September 1948.
Average discharge.- 31 years, 1,465 second-feet.
Extremes.- Maximum discharge during year, 4,290 second-feet Apr. 22 (gage height, 5.79 feet); minimum, 927 second-feet Aug. 22 (gage height, 1.69 feet); minimum daily, 1,290 second-feet July 31.
1917-48: Maximum discharge observed, 8,260 second-feet Mar. 30, 31, 1943 (gage height, 6.70 feet, site and datum then in use); minimum, 920 second-feet Oct. 14, 1945 (gage height, 1.67 feet); minimum daily, 970 second-feet July 12 to Sept. 5, 1921.
Remarks.- Records excellent except those for periods of no gage-height record, which are fair. Flow slightly regulated by Ochoco Reservoir; occasional diurnal fluctuation caused by power plant 1 mile above station. Summer flow above Prineville diverted for irrigation. Springs increase flow about 1,000 second-feet within an area extending 17 miles above station.
Revisions (water years).- W 864: 1923, 1925, 1928, 1932, 1936, 1937.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.4	1,260	3.0	1,650	4.0	2,490
2.5	1,320	3.3	1,880	5.0	3,410
2.7	1,440	3.6	2,130	5.7	4,170

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,330	1,380	1,480	1,390	1,430	1,800	2,210	2,620	3,280	1,660	1,300	1,350
2	1,330	1,380	1,460	1,430	1,430	1,720	2,330	2,570	3,260	1,640	1,310	1,350
3	1,330	1,370	1,500	1,430	1,390	1,700	2,760	2,490	2,980	1,570	1,310	1,340
4	1,330	1,370	1,540	1,440	1,400	1,660	2,770	2,360	3,340	1,540	1,310	1,350
5	1,330	1,370	1,520	1,490	1,400	1,600	2,410	2,750	3,540	1,540	1,300	1,360
6	1,330	1,370	1,500	1,490	1,410	1,570	2,140	2,720	3,080	1,570	1,310	1,360
7	1,330	1,370	1,490	1,640	1,400	1,570	2,000	2,880	2,800	1,560	1,310	1,360
8	1,330	1,370	1,480	3,080	1,380	1,560	1,950	3,010	2,580	1,570	1,330	1,360
9	1,330	1,380	1,460	3,660	1,420	1,540	1,980	2,770	2,400	1,550	1,320	1,350
10	1,340	1,370	1,450	2,640	1,440	1,560	1,960	2,550	2,480	1,520	1,310	1,340
11	1,350	1,360	1,420	2,110	1,420	1,560	2,040	2,360	2,490	1,500	1,310	1,330
12	1,360	1,360	1,420	1,910	1,400	1,510	2,050	2,240	2,570	1,470	1,320	1,330
13	1,460	1,380	1,410	1,830	1,420	1,500	1,980	2,210	2,540	1,450	1,330	1,330
14	1,680	1,400	1,410	1,760	1,450	1,520	1,990	2,300	2,440	1,440	1,340	1,330
15	1,720	1,410	1,430	1,650	1,550	1,540	2,550	2,270	2,380	1,420	1,340	1,340
16	1,530	1,440	1,430	1,590	1,550	1,600	3,590	2,260	2,200	1,390	1,340	1,340
17	1,410	1,440	1,420	1,570	1,600	1,600	3,970	2,330	2,180	1,390	1,340	1,340
18	1,430	1,460	1,430	1,540	1,650	1,590	4,000	2,440	2,240	1,380	1,330	1,360
19	1,430	1,500	1,430	1,520	1,720	1,570	3,680	2,570	2,300	1,370	1,340	1,360
20	1,430	1,540	1,460	1,480	1,920	1,560	3,540	2,710	2,400	1,360	1,360	1,370
21	1,410	1,520	1,500	1,480	1,750	1,540	3,820	3,160	2,380	1,340	1,370	1,370
22	h1,390	1,480	1,520	1,490	1,760	1,520	4,150	3,550	2,450	1,340	1,370	1,370
23	1,380	1,460	1,500	1,500	2,630	1,590	3,790	3,420	2,350	1,330	1,400	1,370
24	1,380	1,430	1,470	1,520	2,420	1,660	3,450	3,350	2,180	1,310	1,470	1,380
25	1,370	1,440	1,430	1,520	1,990	1,660	3,100	3,160	2,050	1,310	1,440	1,400
26	1,370	1,450	1,420	1,510	1,860	1,710	2,920	3,270	1,960	1,320	1,440	1,430
27	1,360	1,450	1,410	1,480	2,090	1,730	2,800	3,850	1,870	1,320	1,410	1,460
28	1,360	1,450	1,410	1,440	2,200	1,720	2,720	3,520	1,780	1,310	1,400	1,440
29	1,360	1,460	1,410	1,420	2,010	1,910	2,620	3,440	1,720	1,300	1,390	1,450
30	1,350	1,480	1,410	1,430	-	2,210	2,660	3,190	1,690	1,300	1,370	1,450
31	1,350	-	1,380	1,440	-	2,330	-	3,020	-	1,290	1,360	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	43,190	1,720	1,330	1,393	85,670
November	42,640	1,540	1,360	1,421	84,580
December	45,000	1,540	1,380	1,452	89,260
Calendar year 1947	538,370	2,360	1,240	1,475	1,068,000
January	52,880	3,660	1,390	1,706	104,900
February	48,490	2,630	1,380	1,672	96,180
March	51,410	2,330	1,500	1,658	102,000
April	83,930	4,150	1,950	2,798	166,000
May	87,340	3,850	2,210	2,817	173,200
June	73,910	3,540	1,690	2,464	146,600
July	44,360	1,660	1,290	1,431	87,990
August	41,880	1,470	1,300	1,351	83,070
September	41,060	1,460	1,330	1,369	81,440
Water year 1947-48	656,090	4,150	1,290	1,793	1,301,000

Peak discharge (base, 2,500 sec.-ft.).- Jan. 9 (11:30 a.m.) 4,010 sec.-ft.; Feb. 23 (3 p.m.) 2,880 sec.-ft.; Apr. 3 (5 p.m.) 2,900 sec.-ft.; Apr. 22 (1 p.m.) 4,290 sec.-ft.; May 27 (6 a.m.) 3,940 sec.-ft.
h Computed from staff-gage reading.
Note.- No gage-height record Oct. 8-11, 21, Oct. 23 to Nov. 5, Nov. 7, 8, 10-13, Feb. 7-18; discharge computed on basis of recorded range in stage and records for Crooked River at Prineville and Deschutes River near Madras.

South Fork Beaver Creek near Paulina, Oreg.

Location.- Water-stage recorder, lat. 44°08', long. 119°45', in N½ sec. 5, T. 17 S., R. E., at Palmer Ranch, 11 miles east of Paulina. Prior to Sept. 16, 1948, staff gage a same site but at datum 0.08 foot lower.

Drainage area.- 90 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. Jun 1944 to September 1945 in files of Bureau of Reclamation.

Extremes.- Maximum discharge observed during year, 510 second-feet May 21 (gage height, 6.40 feet), from rating curve extended above 80 second-feet; no flow Oct. 1-11.
1944-48: Maximum discharge, about 900 second-feet Dec. 28 or 29, 1945, computed o basis of records for Beaver Creek near Paulina; maximum gage height observed, that of May 21, 1948; no flow at times.

Remarks.- Records poor. Staff gage read once daily. Most of summer flow diverted above station for irrigation and stock water. No regulation. Stage-discharge relation not defined by measurements above 80 second-feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	0	2.4	12	10	b3.3	d10	55	75	197	47	12	7.
2	0	2.4	14	24	b3.1	d9.0	75	75	125	47	12	6.
3	0	2.7	14	25	3.0	7.5	68	68	116	46	11	6.
4	0	2.7	12	25	3.2	8.0	61	82	112	45	11	6.
5	0	3.1	12	50	3.4	9.0	47	82	107	46	10	6.
6	0	3.1	12	d490	*3.5	9.5	23	81	98	47	10	6.
7	0	3.5	11	d174	2.8	8.5	25	82	90	47	10	6.
8	0	3.5	9.9	d107	b2.6	5.5	28	98	82	46	10	5.
9	9	3.1	9.6	d60	b3.0	3.5	37	88	78	45	10	5.
10	0	3.1	9.2	d29	b2.9	2.8	30	82	75	43	10	5.
11	0	3.1	9.2	d16	2.7	2.4	25	78	75	41	10	3.
12	1.9	3.1	8.4	29	b2.5	7.5	27	74	74	39	10	.
13	1.9	3.1	7.6	12	b2.7	7.5	33	71	72	36	11	.
14	1.9	3.5	6.4	6.4	b3.0	7.5	40	69	71	34	10	.
15	1.9	3.9	6.4	b6.0	b4.0	7.5	45	68	69	30	9.0	.
16	1.9	4.3	6.4	b5.5	b8.0	8.0	50	67	75	28	8.7	.
17	1.9	5.3	7.0	5.0	b20	8.5	88	71	81	28	8.4	1.
18	1.9	5.9	7.6	4.7	b25	7.5	82	217	85	25	8.2	2.
19	1.9	6.4	8.4	b4.3	16	6.7	75	480	82	23	7.9	3.
20	2.1	6.4	9.9	b4.2	14	5.9	68	139	81	21	7.7	2.
21	2.1	5.3	9.0	b5.0	188	6.7	75	510	62	18	7.5	2.
22	2.1	4.7	8.0	b5.3	47	7.5	82	197	68	16	8.0	2.
23	2.4	4.3	7.0	b5.5	41	9.5	90	170	61	16	8.5	3.
24	2.4	4.7	6.0	b5.0	29	9.5	78	152	57	16	9.0	6.
25	2.1	5.6	5.0	b4.2	14	8.5	68	143	54	15	9.5	7.
26	2.1	6.4	4.7	3.5	d50	8.0	68	212	50	14	9.2	8.
27	2.1	5.9	5.5	b3.0	d30	d75	75	197	47	14	9.0	8.
28	2.1	5.3	7.0	b3.1	d17	d53	107	161	47	13	8.8	8.
29	2.4	4.7	7.0	b3.3	d13	48	134	154	47	12	8.5	7.
30	2.4	4.7	6.0	b3.3	-	44	82	152	47	12	8.2	6.
31	2.4	-	5.2	b3.3	-	40	-	237	-	12	8.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff i acre-fee
October	41.9	2.4	0	1.35	8
November	126.2	6.4	2.4	4.21	250
December	263.4	14	4.7	8.50	522
Calendar year 1947	5,453.9	176	0	14.9	10,820
January	1,131.6	490	3.0	36.5	2,240
February	557.7	188	2.5	19.2	1,110
March	452.0	75	2.4	14.6	89
April	1,841	134	23	61.4	3,650
May	4,432	510	67	143	8,790
June	2,405	197	47	80.2	4,770
July	922	47	12	29.7	1,830
August	291.1	12	7.5	9.39	57
September	140.9	8.7	.7	4.70	279
Water year 1947-48	12,604.8	510	0	34.4	25,000

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed same as for period of no gage height record.
Note.- No gage-height record; Dec. 21 to Jan. 4, Jan. 17, 18, Feb. 3-5, 7, Mar. 29 to Apr. 3, Apr 9-15, 17, July 5, Aug. 8-12, 14, 20, 22-24, Aug. 26 to Sept. 1, Sept. 3-15; discharge computed on basis of weather records and records for Beaver Creek near Paulina.

Beaver Creek near Paulina, Oreg.

Location.- Water-stage recorder, lat. 44°10', long. 119°56', in NE¼ sec. 26, T. 16 S., R. 23 E., three-quarters of a mile downstream from Paulina Creek 1¼ miles downstream from Wolf Creek, and 3 miles northeast of Paulina.

Drainage area.- 425 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. October 1941 to September 1945 in files of Bureau of Reclamation.

Extremes.- Maximum discharge during year, 2,260 second-feet Jan. 7 (gage height, 6.31 feet), from rating curve extended above 560 second-feet on basis of discharge of Crooked River near Post; minimum, 0.2 second-foot Oct. 1, 2.

1941-48: Maximum discharge, 4,310 second-feet Dec. 28, 1945 (gage height, 10.2 feet), from rating curve extended above 450 second-feet on basis of discharge of Crooked River near Post; no flow Oct. 13-29, 1945.

Remarks.- Records good except those for periods of no gage-height record or shifting-control and those below 1 second-foot, all of which are fair. No regulation. Diversions for irrigation above station, and one on each bank diverting past station.

Rating table, water year 1947-48, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

0.1	0	0.5	12	1.0	47	2.0	278
.2	1.6	.6	17	1.2	70	3.0	665
.3	4.1	.7	23	1.4	107	4.5	1,350
.4	7.3	.8	30	1.6	156	5.8	2,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	6.0	49	32	36	109	309	239	211	42	9.4	4.1
2	2.0	6.3	53	70	30	101	378	211	170	36	14	4.1
3	3.4	6.7	46	73	29	77	341	208	214	30	12	4.1
4	3.4	6.7	44	72	32	67	268	298	248	26	9.8	3.8
5	3.4	6.3	45	85	34	70	220	305	202	34	8.6	1.8
6	3.4	6.7	45	614	29	77	196	298	167	53	7.7	.6
7	3.4	7.3	42	1,980	25	72	193	334	153	53	7.0	.5
8	3.4	8.6	40	791	29	75	193	330	143	45	6.0	.5
9	3.4	9.0	39	271	33	80	208	278	128	40	6.0	.6
10	3.4	9.0	32	176	32	66	245	236	107	41	6.0	.8
11	a3.4	9.4	33	135	26	58	223	193	135	45	6.0	1.1
12	a4.0	10	29	118	24	64	205	181	143	42	7.0	1.3
13	a4.0	12	32	78	25	65	220	164	130	41	6.3	1.1
14	a4.5	13	35	65	29	99	421	167	114	38	5.4	.6
15	a4.5	16	32	64	42	89	573	167	101	35	6.3	.8
16	a5.0	21	27	58	72	85	609	170	128	32	6.3	.8
17	a5.1	36	34	53	148	89	617	184	128	30	6.3	.8
18	5.1	66	54	50	223	103	581	236	125	29	6.3	1.0
19	5.1	48	69	42	190	85	473	288	123	26	6.0	1.3
20	5.4	41	66	42	116	70	489	529	112	25	6.0	1.3
21	5.1	32	48	51	241	72	529	433	128	22	6.0	3.8
22	5.1	22	41	53	665	118	473	613	109	19	6.3	4.7
23	5.1	19	39	55	288	143	413	529	93	18	6.7	4.7
24	5.1	19	34	53	153	156	352	341	77	14	7.3	4.7
25	5.1	21	28	43	133	196	298	326	67	16	7.0	4.7
26	5.1	25	26	32	278	151	268	323	60	17	7.0	5.4
27	5.1	36	30	31	252	190	245	537	55	15	7.3	5.7
28	5.1	35	33	31	151	271	223	381	53	14	6.3	6.0
29	5.7	32	36	32	116	295	239	281	47	9.4	6.3	6.7
30	6.0	31	32	36	-	285	271	236	43	9.4	6.3	6.3
31	6.0	-	26	32	-	262	-	230	-	10	5.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	134.1	6.0	0.3	4.33	266
November	617.0	66	6.0	20.6	1,220
December	1,219	69	26	39.3	2,420
Calendar year 1947	15,206.1	397	.3	41.7	30,150
January	5,318	1,980	31	172	10,550
February	3,481	665	24	120	6,900
March	3,740	295	58	121	7,420
April	10,273	617	193	342	20,380
May	9,246	613	164	298	18,340
June	3,714	248	43	124	7,370
July	906.8	53	9.4	29.3	1,800
August	220.6	14	5.4	7.12	438
September	83.7	6.7	.5	2.79	166
Water year 1947-48	38,953.2	1,980	.3	106	77,270

Peak discharge (base, 600 sec.-ft.).- Jan 7 (12 m.) 2,260 sec.-ft.; Feb. 22 (5:30 a.m.) 832 sec.-ft.; Apr. 17, 18 (11:30 p.m. to 4 a.m.) 688 sec.-ft.; May 22 (7 p.m.) 966 sec.-ft.; May 27 (6 p.m.) 786 sec.-ft.

a No gage-height record; discharge computed on basis of small recorded range in stage.

Note.- Shifting-control method used May 1 to June 26.

North Fork Beaver Creek near Paulina, Oreg.

Location.- Water-stage recorder, lat. 44°10', long. 119°43', in NW¼ sec. 22, T. 16 S., R. 25 E., 12 miles east of Paulina.

Drainage area.- 70 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. January 1942 to September 1945 in files of Bureau of Reclamation.

Extremes.- Maximum discharge during year, 550 second-feet Jan. 7 (gage height, 4.20 feet), from rating curve extended above 160 second-feet; minimum, 0.2 second-foot Aug. 14-21. 1942-48: Maximum discharge, 899 second-feet Dec. 28, 1945 (gage height, 5.90 feet), from rating curve extended above 110 second-feet; minimum, 0.1 second-foot July 22-23, 1944, July 27 to Aug. 6, 1945, July 6 to Aug. 20, Aug. 23-28, 1946.

Remarks.- Records good except those for periods of no gage-height record, which are fair, and those above 200 second-feet, which are poor. Several small dams above station stor· water for irrigation and stock watering. Most of summer flow diverted above station for irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.3	0.2	0.8	6.5	1.3	44
.4	.4	.9	12	1.4	57
.5	1.0	1.0	17	1.6	88
.6	2.0	1.1	24	2.6	253
.7	3.3	1.2	33	3.6	434

.Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.5	36	5.9	2.4	17	110	74	54	1.6	0.4	0.3
2	.4	.5	12	28	2.5	15	160	56	48	1.4	.4	.3
3	.4	.6	8.0	28	2.6	12	115	66	185	1.3	.4	.3
4	.4	.6	10	45	3.0	8.5	90	123	82	1.1	.4	.3
5	.4	.7	11	48	3.3	8.5	80	101	48	3.3	.3	.3
6	.4	.8	10	419	3.2	11	70	117	53	5.9	.3	.4
7	.4	.9	9.0	413	3.0	9.0	60	144	28	3.3	.3	.3
8	.4	1.1	9.0	204	3.0	8.5	65	109	40	2.5	.3	.3
9	.5	.9	9.0	88	2.8	10	75	80	28	2.0	.3	.4
10	.6	.9	5.5	56	2.6	6.5	85	60	26	1.8	.3	.4
11	.6	.9	7.0	56	2.8	6.2	75	47	42	1.7	.3	.4
12	.4	.8	4.3	27	2.9	6.2	70	47	28	1.5	.3	.3
13	.4	1.1	4.9	19	2.8	6.5	80	50	23	1.4	.3	.3
14	.4	1.3	7.0	14	2.6	8.5	150	52	18	1.1	.2	.3
15	.4	2.3	6.2	12	16	7.5	200	56	15	1.0	.2	.3
16	.4	11	3.6	9.5	16	7.7	231	60	26	.9	.2	.4
17	.4	31	23	7.5	44	8.2	210	83	20	.7	.2	.5
18	.4	29	66	5.9	78	7.4	170	88	17	.7	.2	.5
19	.4	14	54	4.6	48	6.7	157	212	15	.6	.2	.5
20	.4	7.5	19	4.6	13	6.0	180	180	15	.6	.2	.4
21	.5	3.6	16	5.9	65	6.7	200	155	19	.5	.2	.4
22	.4	2.1	12	5.9	229	8.0	154	323	13	.5	.3	.5
23	.4	1.6	7.0	6.5	66	9.5	134	158	9.0	.4	.3	.5
24	.4	1.6	5.2	6.2	23	9.3	102	125	6.5	.4	.4	.7
25	.4	1.8	3.9	5.2	23	8.6	80	112	4.9	.3	.3	.8
26	.4	4.9	3.0	4.9	123	8.0	69	217	3.6	.4	.3	.9
27	.4	8.5	3.3	2.4	62	20	62	300	2.8	.4	.3	1.1
28	.5	4.9	5.2	2.4	28	70	56	144	2.1	.4	.3	.8
29	.5	3.6	5.2	2.4	20	120	109	101	1.8	.4	.3	.8
30	.5	5.9	4.3	2.5	-	105	101	77	1.6	.4	.3	.8
31	.5	-	3.0	2.5	-	95	-	85	-	.4	.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	13.4	0.6	0.4	0.43	27
November	144.9	31	.5	4.83	287
December	382.6	66	3.0	12.3	759
Calendar year 1947	4,711.2	141	.1	12.9	9,340
January	1,541.8	419	2.4	49.7	3,060
February	893.5	229	2.4	30.8	1,770
March	637.0	120	6.0	20.5	1,260
April	3,500	231	56	117	6,940
May	3,602	323	47	116	7,140
June	875.3	185	1.6	29.2	1,740
July	38.9	5.9	.3	1.25	77
August	9.0	.4	.2	.29	18
September	14.5	1.1	.3	.48	29
Water year 1947-48	11,652.9	419	.2	31.8	23,110

Peak discharge (base, 400 sec.-ft.).- Jan. 7 (3 p.m.) 550 sec.-ft.; May 22 (2 a.m.) 508 sec.-ft.; May 27 (1 a.m.) 512 sec.-ft.; June 3 (2 a.m.) 502 sec.-ft.

Note.- No gage-height record Mar. 14 to Apr. 14, Aug. 8-12; discharge computed on basis of weather records, range in stage when available, and records for Beaver Creek near Paulina.

North Fork Crooked River above Deep Creek, Oreg.

Location.- Water-stage recorder, lat. 44°20', long. 120°05', in SW¼ sec. 21, T. 14 S., R. 22 E., three-quarters of a mile upstream from Deep Creek, 20 miles north of Paulina, and 38 miles east of Prineville.

Drainage area.- 159 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. November 1941 to September 1945 (incomplete) in files of Bureau of Reclamation.

Extremes.- Maximum discharge during year, 1,030 second-feet Apr. 16 (gage height, 3.24 feet); minimum, 1.5 second-feet Oct. 1, 2.

1941-48: Maximum discharge, 2,060 second-feet Apr. 7, 1943, from rating curve extended above 910 second-feet; maximum gage height, 8.01 feet (present datum) Jan. 1, 1943 (ice jam); minimum discharge, 0.5 second-foot Aug. 14, 15, 1942.

Remarks.- Records good except those below 10 second-feet, which are fair, and those for periods of ice effect or doubtful gage-height record, which are poor. No diversion above station. No regulation.

Revisions.- W 1094: Drainage area.

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.4	1.1	1.0	22	1.7	132
.5	2.4	1.2	41	1.8	161
.6	4.3	1.3	53	2.0	235
.7	7.1	1.4	68	2.2	330
.8	11	1.5	86	2.5	510
.9	16	1.6	107	3.1	925

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	8	d56	16	29	70	336	258	473	52	6.5	4
2	1.5	7	35	18	20	60	530	223	385	41	8	4
3	2	8	24	15	17	50	346	310	733	37	7	3.5
4	2	8.5	28	15	16	44	181	471	603	35	6.5	3.5
5	2	9	24	17	17	38	117	409	415	51	5.5	3.5
6	2	7.5	22	200	15	37	127	497	320	79	4.5	3
7	2	8.5	19	850	16	38	107	568	259	62	4	3
8	2	11	17	403	16	39	103	452	263	49	4	d3
9	2.5	14	16	203	16	38	135	358	207	40	5	3
10	3.5	d12	*14	114	15	38	132	305	199	35	6.5	3
11	5.5	9	13	86	16	36	114	276	273	30	7.5	3
12	4.5	8.5	12	70	14	33	114	290	253	27	5.5	3
13	3.5	11	11	76	13	35	185	352	363	22	5	3
14	3.5	11	14	62	*13	50	640	305	290	18	4.5	d2.5
15	3.5	13	19	48	12	37	808	315	215	16	4	d2.5
16	4	27	23	43	12	37	865	374	290	14	4	2.5
17	d4.5	38	28	38	15	38	801	471	192	12	4	3
18	d3.5	41	30	34	60	42	627	484	227	11	3.5	4
19	d3	30	23	31	150	40	682	536	253	10	3.5	5.5
20	3	d26	21	29	120	33	815	575	235	9	3.5	5
21	3.5	18	15	28	90	36	880	647	346	8.5	3	4.5
22	4.5	13	12	31	300	d73	668	594	227	8	4	5
23	4.5	12	14	35	280	d70	549	549	175	6.5	6.5	4.5
24	5	13	14	30	180	60	397	530	144	5.5	12	5.5
25	5	19	12	27	150	75	358	703	117	5.5	10	6.5
26	5	d27	12	25	190	62	330	717	101	5	8	8.5
27	4.5	d35	14	24	180	103	300	608	84	5	6.5	9
28	5.5	d33	d15	25	110	171	271	530	75	4.5	5	9.5
29	7	d35	d15	26	80	262	305	421	65	5.5	5	d9.5
30	11	d42	14	25	-	253	266	363	59	5.5	5	d9.5
31	12	-	12	24	-	195	-	661	-	6	4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	127	12	1.5	4.10	252
November	555	42	7	18.5	1,100
December	598	56	11	19.3	1,190
Calendar year 1947	15,918.5	-	1.5	43.6	31,570
January	2,668	850	15	86.1	5,290
February	2,162	300	12	74.6	4,290
March	2,193	262	33	70.7	4,350
April	12,089	880	103	403	23,980
May	14,152	717	223	457	28,070
June	7,866	738	59	262	15,600
July	715.5	79	4.5	23.1	1,420
August	171.5	12	3.0	5.53	340
September	139.5	9.5	2.5	4.65	277
Water year 1947-48	43,436.5	880	1.5	119	86,160

Peak discharge (base, 850 sec.-ft.).- Jan. 7 (7 a.m., 9 to 11 a.m., 2 p.m.) 1,020 sec.-ft.; Apr. 16 (3:30 a.m.) 1,030 sec.-ft.; Apr. 21 (3 and 7 a.m.) 962 sec.-ft.

* Winter discharge measurement made on this day.

d Doubtful gage-height record; discharge computed on basis of engineer's notes, weather records, and records for station below Deep Creek.

Note.- Stage-discharge relation affected by ice Dec. 7-18, Jan. 2, 3, 6, 7, Jan. 12 to Mar. 19.

North Fork Crooked River below Deep Creek, Oreg.

Location.- Water-stage recorder, lat. 44°19', long. 120°05', in SW¼ sec. 27, T. 14 S., R 22 E., a quarter of a mile downstream from Deep Creek, 14 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.- 264 square miles.

Records available.- September 1946 to September 1948.

Extremes.- Maximum discharge during year, 2,450 second-feet Apr. 20 (gage height, 6.52 feet), from rating curve extended above 1,300 second-feet by logarithmic plotting; minimum, 8 second-feet Oct. 1-7.

1946-48: Maximum discharge, that of Apr. 20, 1948; maximum gage height, 7.69 feet Feb. 12, 1947 (ice jam); minimum discharge, 7 second-feet at times in July, August, September 1947.

Remarks.- Records good except those for periods of ice effect, which are poor. No diversions above station. No regulation.

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.1	8	1.8	42	3.1	200	4.7	750
1.2	11	2.1	64	3.5	285	6.2	1,070
1.3	14	2.4	94	3.9	405	5.7	1,500
1.5	24	2.8	150	4.3	555	6.1	1,930

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8	18	102	b40	b40	106	503	531	792	81	20	1
2	8	17	74	b44	b35	94	756	483	706	71	20	1
3	8.5	17	68	b42	b29	77	549	752	1,420	66	20	1
4	8	17	65	b46	b40	70	334	1,010	1,020	61	20	1
5	8	18	53	b33	b42	65	236	1,050	712	107	18	1
6	8	19	b49	b350	b32	57	226	1,290	564	116	16	1
7	9	20	b46	b1,600	b39	56	206	1,220	450	88	15	1
8	10	29	b42	632	b45	58	192	876	458	73	14	1
9	13	32	b38	298	b42	58	220	680	343	63	18	1
10	18	28	*b39	208	b37	59	224	600	316	55	20	1
11	18	28	b34	165	b28	62	198	591	454	50	19	1
12	14	23	b31	152	b35	55	216	660	355	46	16	1
13	12	25	b29	113	b43	55	357	768	447	41	14	1
14	11	26	b35	b100	*b39	72	1,240	706	355	37	14	1
15	12	29	b40	b98	b35	61	1,710	744	300	33	14	1
16	15	48	b50	b90	b32	60	1,850	816	384	31	14	1
17	15	70	b50	b82	b33	62	1,610	924	278	28	13	1
18	13	75	b50	b75	b45	63	1,250	882	383	29	13	1
19	12	58	b47	b70	b220	60	1,510	1,060	374	28	13	1
20	12	50	b38	b65	b210	54	1,930	1,170	380	26	13	1
21	14	41	b34	b67	b200	61	1,790	1,370	507	24	13	1
22	14	b35	b35	b70	b700	119	1,300	1,210	349	22	21	1
23	14	b37	b38	b74	b560	98	1,030	1,040	275	20	31	1
24	13	b40	b34	b70	b330	95	780	986	226	20	31	1
25	13	45	b32	b64	b280	107	717	1,310	186	19	25	2
26	13	52	b38	b60	b270	87	680	1,280	160	18	22	2
27	13	56	b43	b57	244	145	609	1,010	138	18	19	2
28	14	57	b40	b62	141	244	614	870	119	19	18	2
29	19	58	b35	b70	116	340	680	706	102	20	17	2
30	26	75	b31	b52	-	331	578	726	92	18	16	2
31	22	-	b35	b42	-	303	-	1,090	-	20	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	407.5	26	8	13.1	80
November	1,141	75	17	38.0	2,26
December	1,375	102	29	44.4	2,73
Calendar year 1947	28,438.5	551	7	77.9	56,41
January	4,991	1,600	33	161	9,90
February	3,922	700	28	135	7,78
March	3,234	340	54	104	6,41
April	24,095	1,930	192	803	47,79
May	28,411	1,370	483	916	56,35
June	12,645	1,420	92	422	25,08
July	1,348	116	18	43.5	2,67
August	552	31	13	17.8	1,09
September	448	25	11	14.9	88
Water year 1947-48	82,569.5	1,930	8	226	163,80

Peak discharge (base, 1,400 sec.-ft.).- Jan. 7 (9 a.m.) 1,980 sec.-ft.; Apr. 15 (6 p.m.) 2,250 se ft.; Apr. 20 (7:30 p.m.) 2,450 sec.-ft.; May 6 (8:30 p.m.) 1,690 sec.-ft.; May 20 (12 p.m.) 1,530 sec.-ft.; May 30 (9:30 p.m.) 1,590 sec.-ft.; June 3 (1 p.m.) 2,230 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Metolius River near Grandview, Oreg.

Location.- Staff gage, lat. 44°37', long. 121°27', in NE¼ sec. 19, T. 11 S., R. 11 E., at Montgomery Ranch, 8 miles northeast of Grandview.

Drainage area.- 324 square miles.

Records available.- October 1921 to September 1948.

Average discharge.- 27 years, 1,398 second-feet.

Extremes.- Maximum discharge observed during year, 3,020 second-feet Jan. 7 (gage height, 1.66 feet); minimum observed, 1,200 second-feet Oct. 1, 2, Dec. 6-17, 22-31, Jan. 1, Feb. 6, 7, 11-13 (gage height, 0.30 foot).

1921-48: Maximum discharge, 5,780 second-feet Jan. 7, 1923 (gage height, 3.32 feet), from rating curve extended above 2,200 second-feet; minimum, 1,080 second-feet Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

Remarks.- Records good except those for period of no gage-height record, which are fair. Gage read once daily. No diversion or regulation above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.2	1,100	1.2	2,340
.4	1,310	1.5	2,780
.6	1,540	1.7	3,080
.9	1,920		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,200	1,310	1,240	1,200	1,270	1,610	1,380	1,400	1,870	1,610	1,400	1,310
2	1,200	1,290	1,240	1,420	1,240	1,610	1,380	a1,400	1,870	1,590	1,400	1,310
3	1,270	1,290	1,220	1,310	1,240	1,590	1,380	a1,420	1,870	1,590	1,380	1,310
4	1,270	1,290	1,220	1,290	1,240	1,540	1,380	a1,420	1,870	1,560	1,380	1,310
5	1,240	1,290	1,220	1,270	1,240	1,520	1,380	a1,420	1,840	1,560	1,380	1,310
6	1,220	1,290	1,200	1,610	1,200	1,520	1,380	a1,420	1,820	1,540	1,380	1,290
7	1,220	1,290	1,200	3,020	1,200	1,490	1,350	a1,440	1,870	1,540	1,380	1,290
8	1,220	1,290	1,200	2,340	1,240	1,490	1,350	a1,440	1,890	1,520	1,380	1,290
9	1,270	1,290	1,200	1,920	1,310	1,440	1,350	a1,440	1,890	1,520	1,380	1,290
10	1,270	1,290	1,200	1,820	1,270	1,420	1,330	a1,440	1,890	1,520	1,380	1,290
11	1,240	1,290	1,200	1,740	1,200	1,400	1,330	a1,440	1,870	1,520	1,350	1,290
12	1,220	1,290	1,200	1,660	1,200	1,400	1,330	a1,450	1,820	1,520	1,350	1,290
13	1,220	1,290	1,200	1,590	1,200	1,400	1,310	a1,450	1,790	1,520	1,350	1,290
14	1,220	1,310	1,200	1,540	1,220	1,400	1,350	a1,450	1,760	1,490	1,330	1,290
15	1,350	1,350	1,200	1,520	1,350	1,400	1,350	a1,450	1,760	1,490	1,330	1,290
16	1,690	1,310	1,200	1,490	1,290	1,400	1,350	a1,450	1,740	1,490	1,330	1,290
17	1,420	1,310	1,200	1,470	1,270	1,400	1,350	a1,470	1,740	1,490	1,330	1,290
18	1,710	1,310	1,240	1,420	1,270	1,400	1,350	a1,470	1,710	1,490	1,330	1,290
19	1,520	1,290	1,240	1,400	1,310	1,400	1,350	1,470	1,690	1,490	1,350	1,290
20	1,520	1,270	1,220	1,380	1,350	1,400	1,380	1,470	1,790	1,490	1,330	1,290
21	1,660	1,270	1,220	1,380	1,540	1,400	1,380	1,490	1,760	1,490	1,330	1,290
22	1,470	1,270	1,200	1,350	2,420	1,400	1,380	1,520	1,760	1,490	1,330	1,290
23	1,380	1,270	1,200	1,350	2,030	1,400	1,400	1,520	1,670	1,490	1,330	1,290
24	1,350	1,270	1,200	1,330	1,790	1,400	1,400	1,590	1,660	1,470	1,310	1,330
25	1,310	1,270	1,200	1,310	1,820	1,400	1,400	1,640	1,660	1,440	1,310	1,330
26	1,290	1,270	1,200	1,290	1,920	1,380	1,400	1,710	1,640	1,420	1,310	1,310
27	1,270	1,270	1,200	1,270	1,820	1,380	1,400	1,790	1,640	1,420	1,310	1,290
28	1,270	1,270	1,200	1,270	1,740	1,380	1,400	1,920	1,610	1,420	1,310	1,290
29	1,270	1,270	1,200	1,270	1,640	1,380	1,400	1,790	1,610	1,400	1,310	1,290
30	1,400	1,270	1,200	1,270	-	1,380	1,400	1,790	1,590	1,400	1,310	1,290
31	1,330	-	1,200	1,270	-	1,380	-	1,890	-	1,400	1,310	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	41,490	1,710	1,200	1,338	4.13	4.76	82,290
November	38,640	1,350	1,270	1,288	3.98	4.44	76,640
December	37,460	1,240	1,200	1,208	3.73	4.30	74,300
Calendar year 1947	490,360	1,760	1,200	1,343	4.15	56.29	972,600
January	46,770	3,020	1,200	1,509	4.66	5.37	92,770
February	41,830	2,420	1,200	1,442	4.45	4.80	82,970
March	44,510	1,610	1,380	1,436	4.43	5.11	88,280
April	41,070	1,400	1,310	1,369	4.23	4.71	81,460
May	47,460	1,920	1,400	1,531	4.73	5.45	94,140
June	52,950	1,890	1,590	1,765	5.45	6.08	105,000
July	46,380	1,610	1,400	1,496	4.62	5.32	91,990
August	41,690	1,400	1,310	1,345	4.15	4.79	82,690
September	38,900	1,330	1,290	1,297	4.00	4.47	77,160
Water year 1947-48	519,150	3,020	1,200	1,418	4.38	59.60	1,030,000

a No gage-height record; discharge computed on basis of records for McKenzie River at outlet of Clear Lake.

Lake Creek near Sisters, Oreg.

Location.- Water-stage recorder, lat. 44°26', long. 121°44', in SW¼ sec. 24, T. 13 S., E., a quarter of a mile downstream from Suttle Lake, 6 miles upstream from mouth, a miles northwest of Sisters. Altitude of gage, about 3,430 feet (from topographic m

Drainage area.- 20.5 square miles.

Records available.- 1911-13 (occasional readings during summers), April 1915 to Septem 1948.

Average discharge.- 32 years (1915-18, 1919-48), 48.4 second-feet.

Extremes.- Maximum discharge during year, 174 second-feet Jan. 10 (gage height, 2.47 f minimum, 17 second-feet Oct. 3 (gage height, 0.74 foot).

1911-13, 1915-48: Maximum discharge, 351 second-feet (revised) Dec. 16, 1946 (g height, 3.50 feet); minimum, 1.0 second-foot Nov. 4, 5, 1940; minimum daily, 8 secc feet Nov. 5, 1940, Oct. 6, 1942.

Revisions.- The figures of maximum discharge for the water years 1943 and 1947 h been revised to 300 second-feet Jan. 3, 1943 (gage height, 3.23 feet) and 351 secon feet Dec. 16, 1946 (gage height, 3.50 feet), respectively, superseding those publis in Water-Supply Papers 984 and 1094.

Remarks.- Records good except those for period of no gage-height record, which are poo No diversion above station; occasional regulation by storage in Suttle Lake.

Revisions.- Revised figures of discharge for high-water periods in water years 1943 ar 1947, superseding those published in Water-Supply Papers 984 and 1094, are given here

Day (water year)	Discharge (second-feet)	Day (water year)	D'scharge (second-feet)
1942-43		1946-47	
Jan. 2.....	254	Dec. 16.....	342
3.....	277	17.....	324
4.....	220	18.....	261
		19.....	198
1946-47			
Dec. 15.....	275		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1943.....	3,074	277	51	99.2	6,100
Water year 1942-43.....	20,900	277	8	57.3	41,460
Calendar year 1943.....	19,419	277	14	53.2	38,530
December 1946.....	3,620	342	40	117	7,180
Calendar year 1946.....	20,984	342	22	57.5	41,620
Water year 1946-47.....	18,569	342	22	50.9	36,830

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	26	40	40	44	42	102	50	68	142	42	39	
2	26	39	41	54	43	102	51	65	142	45	38	
3	27	38	42	54	43	94	51	68	140	43	34	
4	28	38	42	58	45	88	51	70	134	43	32	
5	27	38	42	59	48	81	52	70	130	49	33	
6	27	43	42	91	46	62	52	72	128	55	33	
7	27	47	43	128	47	63	51	74	126	55	35	
8	28	47	43	145	66	62	51	77	130	53	35	
9	27	44	50	168	73	64	52	77	129	51	33	
10	28	43	55	164	64	64	51	77	130	51	36	
11	29	42	52	159	52	64	51	77	132	50	39	
12	28	40	49	153	45	63	51	89	134	48	37	
13	27	41	47	141	44	60	49	91	132	48	33	
14	28	43	47	126	45	60	50	87	128	54	32	
15	29	52	45	115	53	60	49	78	123	67	32	
16	45	53	44	104	60	59	48	71	116	59	33	
17	55	53	47	97	59	58	49	81	108	54	33	
18	47	63	47	85	48	57	50	91	105	33	40	
19	40	68	46	74	50	57	45	91	99	33	42	
20	41	63	45	72	51	47	43	90	90	34	40	
21	42	56	43	70	70	45	47	89	84	43	39	
22	43	55	43	68	96	63	51	88	77	53	37	
23	44	55	42	66	88	59	55	89	75	47	37	
24	45	52	38	63	78	59	62	91	82	45	37	
25	45	51	38	60	81	57	77	94	84	41	36	
26	44	43	38	56	91	55	71	98	83	38	36	
27	43	37	40	55	90	51	70	117	77	33	32	
28	43	38	42	54	93	43	70	135	54	47	30	
29	43	39	42	54	94	43	69	139	38	45	33	
30	42	40	41	45	-	43	70	139	39	43	32	
31	40	-	41	40	-	45	-	142	-	41	33	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-
October.....	1,114	55	26	35.9	
November.....	1,401	68	37	46.7	
December.....	1,357	55	38	43.8	
Calendar year 1947	16,693	89	22	45.7	3
January.....	2,722	168	40	87.8	
February.....	1,805	96	42	62.2	
March.....	1,930	102	43	62.3	
April.....	1,639	77	43	54.6	
May.....	2,785	142	65	89.8	
June.....	3,191	142	38	106	
July.....	1,443	67	33	46.5	
August.....	1,091	42	30	35.2	
September.....	908	-	-	30.3	
Water year 1947-48	21,386	168	26	58.4	4

a No gage-height record; discharge computed on basis of records for Squaw Creek near Sisters.

White River near Wapinitia, Oreg.

Location.- Water-stage recorder, lat. 45°09', long. 121°30', in NE¼ sec. 11, T. 5 S., R. 10 E., 500 feet downstream from Crane Creek, 1 mile downstream from Clear Creek, and 12½ miles northwest of Wapinitia.

Drainage area.- 115 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. September 1941 to October 1943 and May 1944 to September 1945 in files of Bureau of Reclamation.

Extremes.- Maximum discharge during year, 2,370 second-feet Jan. 7 (gage height, 5.20 feet); minimum, 78 second-feet Oct. 8 (gage height, 1.29 feet).
1941-48: Maximum discharge, 3,620 second-feet Dec. 15, 1946 (gage height, 6.43 feet); minimum, 54 second-feet Oct. 9, 1942.

Remarks.- Records fair. No regulation; Wapinitia Irrigation Co. canal diverts from Frog Creek and Clear Creek, capacity about 25 second-feet; Crane Creek ditch diverts from Crane Creek.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	231	315	235	235	520	283	354	810	265	141	98
2	111	235	283	306	222	475	315	336	824	248	134	97
3	123	238	306	268	206	426	302	475	856	238	132	98
4	99	235	276	261	231	390	287	495	791	231	132	97
5	94	225	265	258	217	362	272	541	765	241	125	95
6	89	244	258	651	198	340	265	615	798	251	123	94
7	87	558	254	1,950	214	323	254	669	810	248	123	92
8	81	699	241	1,340	222	306	251	633	778	220	120	91
9	98	510	231	1,010	211	294	254	591	729	206	118	91
10	110	495	222	843	200	276	251	558	669	198	118	90
11	139	475	222	717	186	265	248	546	699	195	118	92
12	108	408	211	603	175	261	235	552	687	191	116	90
13	114	412	261	520	a200	261	231	541	657	184	116	89
14	128	390	268	480	a200	261	272	500	558	179	114	90
15	169	604	248	435	a320	251	302	495	603	175	125	90
16	265	729	235	398	a300	244	372	520	603	173	114	89
17	287	705	258	367	a320	238	430	530	510	166	112	87
18	372	723	294	340	306	235	470	525	440	164	116	87
19	280	597	283	323	280	228	500	525	430	164	114	85
20	311	510	268	306	268	220	541	558	430	162	112	85
21	283	450	258	291	426	238	580	621	416	160	108	85
22	228	390	248	287	1,090	291	597	705	376	156	110	97
23	214	349	238	302	784	258	591	741	354	154	108	102
24	191	319	231	294	621	251	568	798	340	150	106	105
25	177	315	220	276	574	241	568	902	327	145	110	105
26	171	332	211	261	869	228	515	1,030	311	143	105	112
27	169	327	214	258	735	228	470	1,110	315	169	104	120
28	177	319	231	258	639	244	435	1,120	315	158	102	105
29	182	298	211	261	563	276	403	974	294	139	101	98
30	248	311	206	258	-	302	376	882	283	134	101	94
31	217	-	203	244	-	280	-	824	-	135	99	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,413	372	81	175	10,740
November	12,632	729	225	421	25,060
December	7,670	315	203	247	15,210
Calendar year 1947	92,646	862	79	254	183,800
January	14,601	1,950	235	471	28,960
February	11,012	1,090	175	380	21,840
March	9,013	520	220	291	17,880
April	11,438	597	231	381	22,690
May	20,266	1,120	338	654	40,200
June	16,778	856	283	559	33,280
July	5,742	265	134	185	11,390
August	3,577	141	99	115	7,090
September	2,850	120	85	95.0	5,650
Water year 1947-48	120,992	1,950	81	331	240,000

Peak discharge (base, 850 sec.-ft.).- Nov. 15 (7 p.m.) 862 sec.-ft.; Jan. 7 (8 to 10 a.m.) 2,370 sec.-ft.; Feb. 22 (7:30 a.m.) 1,220 sec.-ft.; Feb. 26 (8 a.m.) 940 sec.-ft.; May 26 (9 p.m.) 1,190 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station near Tygh Valley.

White River below Tygh Valley, Oreg.

Location.- Water-stage recorder, lat. 45°14', long. 121°06', in NW¼ sec. 8, T. 4 S., R. 14 E., just below Pacific Power & Light Co.'s plant at White River Falls and 4½ miles east of Tygh Valley.

Drainage area.- 393 square miles.

Records available.- October 1917 to September 1948.

Average discharge.- 31 years, 407 second-feet.

Extremes.- Maximum discharge during year, 5,330 second-feet Jan. 7 (gage height, 7.90 feet); minimum, 54 second-feet Sept. 11 (gage height, 0.29 foot); minimum daily, 119 second-feet Sept. 14, 16, 20.

1917-48: Maximum discharge, 13,300 second-feet Jan. 6, 1923 (gage height, about 13.3 feet), from rating curve extended above 5,000 second-feet; minimum, 10 second-feet Dec. 11-14, 1919, Aug. 9, 1931; minimum daily, 70 second-feet Aug. 31, 1941.

Remarks.- Records good. Diversions above station for irrigation. Low-water flow partly regulated by power plant.

Cooperation.- Water-stage recorder inspected by employees of Pacific & Light Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 7 to May 26)

1.0	113	2.7	605	5.6	2,750
1.2	139	3.2	840	6.5	3,660
1.6	218	3.7	1,120	7.3	4,540
1.9	305	4.3	1,550		
2.3	445	4.9	2,070		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	138	296	489	363	394	1,010	585	569	1,140	329	179	
2	135	284	445	517	374	918	605	533	1,110	308	173	
3	184	290	477	517	342	815	605	610	1,140	302	171	
4	155	278	445	501	374	736	581	780	1,120	296	171	
5	150	260	437	457	370	695	553	780	1,040	293	169	
6	138	263	409	945	338	664	525	934	1,050	320	160	
7	136	533	405	4,540	356	632	489	1,050	1,080	326	164	
8	139	967	388	3,000	366	601	465	1,040	1,070	290	164	
9	149	745	374	1,970	360	597	485	967	1,000	275	157	
10	171	664	352	1,530	335	557	457	880	940	269	157	
11	232	686	363	1,110	305	541	445	830	1,010	260	157	
12	206	573	335	1,070	296	533	405	830	901	251	153	
13	171	565	374	918	326	a533	398	805	989	234	152	
14	159	545	477	800	323	a533	449	745	830	232	152	
15	169	718	405	736	785	533	553	722	765	223	169	
16	356	901	384	672	682	541	628	745	840	218	164	
17	346	805	398	623	795	557	722	745	695	213	155	
18	593	855	441	585	775	513	770	740	646	208	150	
19	417	726	485	549	682	481	815	745	610	206	157	
20	457	659	445	537	636	445	875	795	605	206	157	
21	445	585	429	521	984	461	978	880	610	194	152	
22	363	537	409	517	3,220	618	1,010	1,000	569	194	153	
23	332	493	388	549	2,120	565	1,000	1,080	529	190	155	
24	299	473	377	521	1,460	553	928	1,130	493	188	153	
25	272	453	370	497	1,280	593	918	1,210	473	177	157	
26	260	481	352	433	1,610	513	825	1,520	445	175	152	
27	251	485	366	402	1,450	485	750	1,690	417	186	147	
28	251	485	377	413	1,270	501	704	1,650	405	216	147	
29	260	477	366	437	1,110	529	654	1,440	370	190	142	
30	346	465	349	402	-	614	601	1,280	349	175	147	
31	302	-	342	391	-	593	-	1,170	-	173	145	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	7,982	593	135	257	15,
November	16,547	967	260	552	32,
December	12,453	489	335	402	24,
Calendar year 1947	145,725	1,920	105	399	289,
January	27,023	4,540	363	872	53,
February	23,718	3,220	296	818	47,
March	18,460	1,010	445	595	36,
April	19,778	1,010	398	659	39,
May	29,895	1,690	533	964	59,
June	23,241	1,140	349	775	46,
July	7,317	329	173	236	14,
August	4,891	179	142	158	9,
September	4,120	181	119	137	8,
Water year 1947-48	195,425	4,540	119	534	387,

Peak discharge (base, 1,200 sec.-ft.).- Jan. 7 (12:30 p.m.) 5,330 sec.-ft.; Feb. 15 (6:30 p.m.) 1,260 sec.-ft.; Feb. 22 (8 a.m.) 3,980 sec.-ft.; Feb. 26 (1 p.m.) 1,840 sec.-ft.; May 26 (9 p.m.) 2,520 sec.-ft.

a No gage-height record; discharge interpolated.

Clear Creek near Government Camp, Oreg.

Location.- Water-stage recorder, lat. 45°10', long. 121°41', in NW¼ sec. 4, T. 5 S., R. 9 E., 0.7 mile downstream from Clear Lake Outlet and 9 miles southeast of Government Camp. Datum of gage is 3,450.94 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.- 8.9 square miles.

Records available.- October 1946 to September 1948 in reports of Geological Survey; December 1940 to September 1941 in files of Oregon State engineer. November 1941 to September 1946 at site 0.7 mile upstream at Clear Lake Outlet in files of Bureau of Reclamation (records not equivalent).

Extremes.- Maximum discharge during year, 89 second-feet May 29 (gage height, 2.34 feet); minimum, 2.6 second-feet Oct. 4-10, 13, 14 (gage height, 1.34 feet).
1940-41, 1946-48: Maximum discharge, 150 second-feet Dec. 15, 1946; (gage height, 3.00 feet); minimum discharge observed, 1.6 second-feet Nov. 1, 1940 (gage height, 0.12 foot, datum then in use).

Remarks.- Records fair. No diversion or regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	5.3	17	13	16	24	18	28	82	21	11	6.2
2	3.0	5.8	16	18	15	24	19	27	a74	20	10	6.2
3	3.0	5.8	16	18	15	23	19	34	a78	19	9.4	6.8
4	2.8	5.8	16	17	15	22	18	38	a74	18	9.4	5.8
5	2.6	5.8	15	16	15	20	16	39	a74	18	8.7	5.8
6	2.6	6.2	14	32	14	19	15	40	a76	18	8.7	5.8
7	2.6	10	14	76	14	18	14	40	a79	20	8.7	5.3
8	2.6	14	14	74	16	18	13	40	a78	19	9.4	4.8
9	3.0	16	15	64	17	18	13	40	a74	19	9.4	4.4
10	4.0	16	14	60	16	17	14	38	a72	18	9.4	4.4
11	4.4	18	15	57	16	16	14	38	a74	18	9.4	4.4
12	3.0	18	14	50	14	16	13	39	a72	16	9.4	4.4
13	2.6	19	15	45	13	16	13	41	a70	16	9.4	4.4
14	2.6	20	16	41	13	16	18	41	a65	15	9.4	4.8
15	4.4	25	15	38	16	16	22	38	a64	14	10	4.8
16	5.3	26	14	34	16	15	26	39	a64	13	9.4	4.8
17	5.8	27	14	32	16	14	26	38	a58	12	10	4.8
18	4.8	30	16	a28	18	14	28	41	a50	12	10	4.8
19	4.4	28	17	a26	17	12	27	42	a52	12	9.4	4.8
20	5.8	27	15	a24	17	11	27	42	a54	12	9.4	4.8
21	5.3	25	14	a23	22	11	29	46	a53	12	9.4	4.8
22	4.4	23	13	a24	31	13	31	54	a47	12	9.4	5.3
23	4.4	22	12	25	27	12	32	55	a37	11	9.4	5.3
24	4.0	20	12	23	26	13	34	55	31	11	9.4	5.3
25	4.0	19	12	21	26	12	36	60	30	11	9.4	4.8
26	4.0	18	11	19	29	12	36	67	28	11	9.4	5.3
27	4.0	17	11	18	27	12	34	77	26	11	8.7	5.8
28	4.4	16	11	18	26	14	32	88	24	12	8.7	5.8
29	5.3	16	12	17	25	18	31	88	23	11	8.7	5.8
30	5.8	16	11	16	-	21	30	84	22	11	8.1	5.3
31	5.3	-	11	16	-	18	-	83	-	11	7.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	125.0	5.8	2.6	3.97	0.446	0.51	244
November	520.7	30	5.3	17.4	1.96	2.18	1,030
December	432	17	11	13.9	1.56	1.81	857
Calendar year 1947	5,337.6	36	2.6	14.6	1.64	22.31	10,580
January	983	76	13	31.7	3.56	4.11	1,950
February	548	31	13	18.9	2.12	2.29	1,090
March	505	24	11	16.3	1.83	2.11	1,000
April	698	36	13	23.3	2.62	2.92	1,380
May	1,520	88	27	49.0	5.51	6.35	3,010
June	1,705	82	22	56.8	6.38	7.12	3,380
July	454	21	11	14.6	1.64	1.90	900
August	288.0	11	7.5	9.29	1.04	1.20	571
September	155.8	6.8	4.4	5.19	.583	.65	309
Water year 1947-48	7,932.5	88	2.6	21.7	2.44	33.15	15,720

Peak discharge (base, 80 sec.-ft.).- Jan. 7 (3 to 5 p.m.) 85 sec.-ft.; May 29 (3:30 p.m.) 89 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Salmon River near Government Camp.

Fifteenmile Creek near Wrentham, Oreg.

Location.- Water-stage recorder, lat. 45°30', long. 121°02', in sec. 3, T. 1 S., R. 1 E., 0.1 mile below Dry Creek, 3 miles southwest of Wrentham, and 9½ miles southeas of The Dalles.

Drainage area.- 171 square miles.

Records available.- October 1946 to September 1948. December 1926 to May 1927 at sit miles downstream, in files of State engineer.

Extremes.- Maximum discharge during year, 871 second-feet Jan. 6 (gage height, 6.32 f from rating curve extended above 190 second-feet on basis of slope-area determinat of flow at gage height 5.58 feet; minimum, 1.0 second-foot Aug. 13, 14 (gage heigh 1.63 feet).
1946-48: Maximum discharge, that of Jan. 6, 1948; minimum, 0.8 second-foot Aug 1947.

Remarks.- Records good except those for periods of doubtful gage-height record, which fair. The town of Dufur diverts water from creek about 5 miles above station. Se small diversions for irrigation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

2.2	3.4	2.6	21	3.3	115
2.3	5.8	2.7	31	3.6	175
2.4	9.0	2.8	42	4.1	295
2.5	14	3.0	67		

Jan. 7 to Sept. 30

1.7	1.7	2.2	18	3.5	208
1.8	3.2	2.3	26	4.5	421
1.9	5.5	2.5	45	5.6	673
2.0	8.7	2.7	68		
2.1	12	3.0	114		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	5.6	18	26	21	45	160	100	57	d90	29	6.8
2	5.6	18	24	42	38	141	97	54	d84	27	5.8
3	5.6	18	25	53	35	125	96	54	d85	25	2.0
4	5.3	18	25	58	44	114	90	72	d90	24	1.7
5	5.1	18	24	54	37	107	85	72	d91	27	2.3
6	5.1	18	23	279	31	100	79	75	d90	37	2.6
7	5.1	17	23	652	37	92	73	75	d91	32	2.3
8	5.1	17	22	399	48	90	68	72	d91	26	2.2
9	5.3	17	21	286	50	92	75	69	d92	24	2.3
10	5.6	17	19	235	38	84	68	66	92	22	2.7
11	19	17	19	192	33	82	69	63	111	22	1.8
12	12	17	19	165	33	81	61	62	96	20	2.3
13	8.4	d19	19	139	40	82	57	61	157	18	1.6
14	7.1	d22	22	119	148	90	58	58	107	17	2.7
15	7.1	d34	21	106	408	94	73	54	96	14	4.1
16	14	d33	20	92	256	102	75	55	118	12	5.0
17	15	d30	22	85	212	120	86	56	85	12	4.8
18	28	d31	22	76	184	119	82	54	74	11	4.6
19	20	d28	26	69	160	111	78	54	68	11	5.5
20	42	d28	27	68	145	102	75	58	72	10	5.5
21	39	d28	26	67	229	102	82	58	67	9.8	5.3
22	24	d27	26	66	432	141	82	61	60	9.5	5.8
23	24	d27	24	75	328	130	81	63	56	9.5	6.8
24	17	d27	24	71	263	132	75	69	50	9.8	6.1
25	15	d24	23	64	233	188	73	78	46	9.1	6.1
26	14	20	22	48	240	141	71	d108	42	8.7	5.5
27	13	21	22	47	214	130	69	d123	37	9.5	5.5
28	14	21	21	54	194	119	68	d116	36	11	5.5
29	14	22	20	53	154	114	66	d116	33	10	5.3
30	16	23	19	53	-	111	62	d104	30	8.4	5.5
31	18	-	19	47	-	104	-	d96	-	7.1	4.6

Month	Second-foot-days	Maximum	Minimum	Mean	Runo acre-
October	434.0	42	5.1	14.0	
November	675	34	17	22.5	1
December	695	27	19	22.4	1
Calendar year 1947	10,646.8	186	1.2	29.2	21
January	3,835	652	21	124	7
February	4,309	432	31	149	8
March	3,500	188	81	113	6
April	2,274	100	57	75.8	4
May	2,233	123	54	72.0	4
June	2,337	157	30	77.9	4
July	522.4	37	7.1	16.9	1
August	130.6	6.8	1.6	4.21	
September	185.7	12	3.7	6.19	
Water year 1947-48	21,130.7	652	1.6	57.7	41

Peak discharge (base, 270 sec.-ft.).- Jan. 6 (12 p.m.) 871 sec.-ft.; Feb. 15 (7 a.m.) 764 se Feb. 22 (5 a.m.) 485 sec.-ft.
d Computed from doubtful gage-height record.

Eightmile Creek near Boyd, Oreg.

Location.- Water-stage recorder, lat. 45°31'10", long. 121°06'35", in SE¼ sec. 31, T. 1 N., R. 14 E., at county bridge crossing 2½ miles northwest of Boyd and 7 miles southeast of The Dalles.

Drainage area.- 56 square miles.

Records available.- October 1946 to September 1948.

Extremes.- Maximum discharge during year, 208 second-feet Jan. 7 (gage height, 5.35 feet); minimum, 1.6 second-feet Oct. 1-3.
1946-48: Maximum discharge, 380 second-feet June 7, 1947 (gage height, 6.55 feet); minimum, 0.8 second-foot Sept. 24, 1947.

Remarks.- Records good except those for periods of shifting control, ice effect, or no gage-height record, which are fair. No regulation; several small diversions for irrigation.

Rating tables, water year 1947-48, except periods of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 22						Feb. 23 to Sept. 30			
1.9	1.0	2.4	11	4.0	94	1.9	3.0	3.0	49
2.0	2.0	2.5	14	4.5	131	2.0	5.5	4.0	101
2.1	3.5	2.6	18	5.2	193	2.2	12	4.4	128
2.2	5.5	3.0	35			2.4	21		
2.3	8.0	3.3	51						

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	5.8	8.3	7.2	19	78	56	31	34	14	3.5	3.8
2	1.6	5.3	7.5	13	16	72	56	29	32	14	3.5	3.8
3	1.7	5.1	7.5	14	18	64	55	29	32	13	3.5	3.5
4	1.8	4.9	7.5	14	21	59	53	37	34	12	3.8	3.5
5	1.8	4.9	7.5	14	19	56	51	37	34	13	3.8	3.5
6	1.8	4.9	7.0	54	18	51	48	40	34	14	3.2	3.2
7	1.9	4.7	6.5	190	17	47	44	41	34	14	4.0	3.0
8	2.0	4.7	6.8	152	29	44	42	40	34	13	3.2	3.0
9	2.6	4.7	6.5	110	25	45	43	39	34	12	3.5	3.0
10	3.5	4.9	6.0	94	18	40	40	36	34	12	3.5	3.5
11	4.5	4.7	5.5	76	14	*40	37	34	40	11	4.0	3.2
12	3.5	4.5	6.2	65	16	38	35	33	39	11	4.2	3.2
13	3.4	5.1	6.2	54	31	38	34	33	45	10	4.0	3.5
14	2.9	7.2	8.3	46	40	40	36	31	44	10	4.5	3.2
15	3.4	8.6	7.5	42	52	40	40	29	38	9.7	4.5	3.2
16	5.3	7.5	7.2	36	40	42	44	29	40	8.6	4.2	3.2
17	5.5	6.8	7.2	31	*51	47	48	29	35	8.3	3.8	3.8
18	7.5	7.0	7.5	a29	54	47	48	27	33	8.0	4.0	3.8
19	5.8	6.8	8.9	a27	47	46	48	27	31	8.0	4.2	3.8
20	8.6	6.8	8.6	a25	44	44	48	28	31	8.0	4.2	3.5
21	7.5	6.8	8.6	a24	47	44	51	27	29	8.3	4.0	3.5
22	5.5	6.0	8.0	*24	130	58	51	27	26	6.2	4.2	3.8
23	4.9	5.5	8.0	26	126	58	48	27	25	5.0	4.8	4.5
24	4.9	6.0	7.8	26	109	60	45	27	23	4.8	5.0	6.2
25	4.5	6.0	7.5	24	100	66	44	29	22	4.5	5.0	6.6
26	4.5	6.0	7.2	20	110	58	42	30	20	4.5	4.8	6.2
27	4.9	6.0	7.0	19	100	56	43	36	19	4.5	4.2	6.6
28	5.3	6.5	7.0	b25	93	55	38	38	14	4.8	4.5	5.8
29	5.5	7.0	7.0	b24	84	55	36	38	15	4.5	4.2	5.2
30	6.0	7.5	7.0	b23	-	58	33	37	14	4.0	4.0	6.6
31	6.0	-	6.8	22	-	58	-	34	-	3.8	3.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	130.2	8.6	1.6	4.20	258
November	178.2	8.6	4.5	5.94	353
December	226.1	8.9	5.5	7.29	448
Calendar year 1947	5,094.9	110	1.0	14.0	10,120
January	1,350.2	190	7.2	43.6	2,680
February	1,488	130	14	51.3	2,950
March	1,604	78	38	51.7	3,180
April	1,337	56	33	44.6	2,650
May	1,009	41	27	32.5	2,000
June	919	45	14	30.6	1,820
July	278.5	14	3.8	8.98	552
August	125.6	5.0	3.2	4.05	249
September	123.2	6.6	3.0	4.11	244
Water year 1947-48	8,769.0	190	1.6	24.0	17,380

Peak discharge (base, 60 sec.-ft.).- Jan. 7 (11:30 a.m.) 208 sec.-ft.; Feb. 14 (6:30 p.m.) 108 sec.-ft.; Feb. 22 (9:30 a.m.) 160 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Fifteenmile Creek near Wrentham.

b Stage-discharge relation affected by ice.

Note.- Shifting-control method used Oct. 1-15, Feb. 16-22.

Klickitat River above West Fork, near Glenwood, Wash.

Location.- Water-stage recorder, lat. 46°15'40", long. 121°14'30", in S½ sec. 18, T. 9 R. 13 E., 1½ miles upstream from West Fork and 17 miles north of Glenwood.

Drainage area.- 151 square miles.

Records available.- November 1944 to September 1948.

Extremes.- Maximum discharge during year, 3,280 second-feet May 27 (gage height, 4.28 feet); minimum, 88 second-feet Oct. 2 (gage height, 1.17 feet).
1944-48: Maximum discharge, that of May 27, 1948; minimum, 48 second-feet Nov. 15, 1945 (gage height, 0.98 foot), but may have been less sometime during period of effect.

Remarks.- Records good except those for period of ice effect, which are poor. No diversion or regulation.

Rating table, water year 1947-48, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 7-26, July 29 to Sept. 29)

1.1	71	1.8	329	3.0	1,320
1.2	95	2.0	446	3.5	2,040
1.4	155	2.3	656	4.2	3,120
1.6	232	2.6	900		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	S
1	90	357	298	212	105	335	177	379	1,560	532	187	
2	113	319	273	250	105	319	184	374	1,550	478	180	
3	169	304	264	220	100	255	184	472	1,820	459	173	
4	129	269	250	212	105	241	177	504	1,890	434	169	
5	117	250	228	203	105	224	180	511	1,720	409	166	
6	112	246	212	216	100	216	173	696	1,740	403	162	
7	109	318	224	195	110	203	169	808	1,820	391	162	
8	112	432	216	199	115	199	162	744	1,720	357	162	
9	149	385	*203	203	115	195	166	712	1,710	340	166	
10	155	363	191	203	110	184	166	680	1,590	329	162	
11	136	335	203	207	115	180	166	648	1,820	324	159	
12	123	293	191	191	125	187	162	688	1,420	309	152	
13	117	288	224	180	125	195	159	720	1,200	304	149	
14	115	269	212	160	130	187	166	672	1,110	293	145	
15	174	260	195	150	135	180	159	688	990	293	166	
16	293	241	187	140	145	173	298	728	1,420	278	162	
17	368	255	224	125	184	169	357	752	1,140	278	152	
18	539	250	224	115	232	173	374	784	1,020	293	152	
19	883	220	199	110	216	173	434	833	963	273	145	
20	712	224	199	110	203	184	511	1,130	972	260	142	
21	539	207	191	110	199	180	641	1,440	927	255	139	
22	409	195	184	120	250	177	672	1,660	833	241	142	
23	351	195	184	130	232	155	648	1,720	768	232	155	
24	304	195	212	120	220	155	604	1,820	728	228	142	
25	269	224	199	110	228	152	546	1,960	696	207	136	
26	264	391	191	*104	400	145	498	2,120	672	203	133	
27	260	397	195	100	397	149	459	3,040	634	207	129	
28	255	351	203	100	374	159	428	2,960	626	216	126	
29	241	319	195	100	363	184	403	2,420	618	207	123	
30	250	304	180	100	-	187	379	1,820	604	191	120	
31	293	-	195	105	-	184	-	1,640	-	187	120	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-
October	8,150	883	90	263	1.74	2.01	16
November	8,716	492	195	291	1.93	2.15	17
December	6,546	298	180	211	1.40	1.61	12
Calendar year 1947	122,714	1,360	78	336	2.23	30.23	24
January	4,800	250	100	155	1.03	1.18	9
February	5,343	400	100	184	1.22	1.32	10
March	5,999	335	145	194	1.28	1.48	11
April	9,802	672	159	327	2.17	2.41	19
May	36,123	3,040	374	1,165	7.72	8.90	71
June	36,281	1,890	604	1,209	8.01	8.94	71
July	9,411	532	187	304	2.01	2.32	18
August	4,678	187	120	151	1.00	1.15	9
September	3,191	142	93	106	.702	.79	6
Water year 1947-48	139,040	3,040	90	380	2.52	34.26	275

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Jan. 13 to Feb. 15.

Klickitat River near Glenwood, Wash.

Location.- Water-stage recorder, lat. 46°05'30", long. 121°15'30", in SE¼ sec. 14, T. 7 N., R. 12 E., half a mile downstream from Dairy Creek, 5 miles north of Glenwood, and 7 miles upstream from Trout Creek. Datum of gage is about 1,703 feet above mean sea level, datum of 1929.

Drainage area.- 360 square miles.

Records available.- December 1910 to September 1948 (1920-28 incomplete). October 1909 to December 1910 at site 1 mile upstream.

Average discharge.- 31 years (1909-20, 1928-48), 807 second-feet.

Extremes.- Maximum discharge during year, 4,710 second-feet May 26 (gage height, 7.01 feet); minimum, 360 second-feet Sept. 21 (gage height, 2.66 feet).
1909-48: Maximum discharge, 9,870 second-feet Dec. 22, 1933 (gage height, 7.9 feet, present datum), from rating curve extended above 2,000 second-feet; minimum, 204 second-feet Nov. 28, 1931.

Remarks.- Records good. All low-water flow of Hellroaring Creek, a tributary of Big Muddy Creek, is diverted for irrigation. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	412	959	788	736	568	879	672	951	2,240	1,420	707	447
2	460	935	765	773	542	832	686	935	2,360	1,320	686	453
3	622	887	751	693	529	795	693	1,180	2,740	1,240	664	460
4	536	840	722	679	542	780	686	1,280	2,800	1,240	643	441
5	478	802	686	657	536	765	679	1,240	2,740	1,150	616	423
6	453	773	657	722	491	751	664	1,520	2,940	1,140	609	435
7	435	825	643	855	522	736	650	1,720	3,060	1,130	588	423
8	447	1,130	636	818	542	729	636	1,620	3,130	1,060	582	423
9	516	1,110	622	729	536	722	657	1,570	3,130	1,020	588	429
10	555	999	588	729	522	693	643	1,520	3,060	999	568	423
11	522	975	602	693	484	672	636	1,470	3,340	999	568	435
12	491	895	588	650	491	664	616	1,520	2,870	983	562	423
13	484	855	636	602	522	664	609	1,620	2,540	959	548	417
14	491	825	643	602	529	643	629	1,520	2,420	951	542	400
15	629	802	609	609	542	636	679	1,520	2,240	943	582	394
16	887	765	602	598	536	629	855	1,570	2,870	935	548	382
17	951	736	664	582	629	616	943	1,620	2,540	911	522	376
18	1,370	788	693	575	744	616	975	1,670	2,240	975	548	376
19	1,890	744	679	568	679	616	1,060	1,780	2,120	895	522	371
20	2,000	714	643	575	650	595	1,160	2,120	2,120	887	491	371
21	1,620	686	629	582	657	629	1,320	2,480	2,120	879	491	365
22	1,280	643	609	602	810	707	1,420	2,800	1,940	855	484	376
23	1,090	643	602	643	744	636	1,370	3,000	1,840	818	510	382
24	967	636	650	636	707	636	1,320	3,130	1,720	773	497	382
25	887	636	629	609	744	622	1,280	3,410	1,670	751	522	376
26	871	788	609	536	1,060	602	1,190	3,830	1,620	744	497	412
27	840	911	616	522	1,020	602	1,110	3,410	1,570	758	478	453
28	825	887	636	542	959	616	1,070	3,060	1,570	736	478	453
29	788	832	622	568	911	650	1,020	2,740	1,570	722	484	435
30	810	795	595	588	-	664	975	2,480	1,570	722	491	423
31	855	-	602	562	-	664	-	2,360	-	707	460	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	25,462	2,000	412	821	2.28	2.63	50,500
November	24,816	1,130	636	827	2.30	2.56	49,220
December	20,016	788	588	646	1.79	2.07	39,700
Calendar year 1947	310,062	2,360	400	849	2.36	32.03	615,000
January	19,825	855	522	640	1.78	2.05	39,320
February	18,748	1,060	484	646	1.79	1.94	37,190
March	21,061	879	595	679	1.89	2.18	41,770
April	26,903	1,420	609	897	2.49	2.78	53,360
May	62,646	3,830	935	2,021	5.61	6.47	124,300
June	70,690	3,340	1,570	2,356	6.54	7.30	140,200
July	29,622	1,420	707	956	2.66	3.06	58,750
August	17,076	707	460	551	1.53	1.76	33,870
September	12,359	460	365	412	1.14	1.28	24,510
Water year 1947-48	349,224	3,830	365	954	2.65	36.08	692,700

Peak discharge (base, 1,700 sec.-ft.).- Oct. 19-20 (10 p.m. to 3 a.m.) 2,180 sec.-ft.; May 26 (11 p.m.) 4,710 sec.-ft.; June 11 (12 m.) 3,690 sec.-ft.

Klickitat River near Pitt, Wash.

Location.- Water-stage recorder, lat. 45°45', long. 120°12', in SW¼ sec. 8, T. 3 N., E., 3½ miles south of Pitt, 5 miles upstream from Silvias Creek, and 7 miles upst from mouth at Lyle. Altitude of gage is 285 feet (from river-profile map).

Drainage area.- 1,170 square miles.

Records available.- October 1935 to September 1948. July 1909 to January 1912 at si 7 miles upstream, published as Klickitat River at Klick'tat. October 1928 to Sep 1935, 3½ miles upstream, published as Klickitat River at Pitt.

Average discharge.- 22 years (1909-11, 1928-48), 1,442 second-feet.

Extremes.- Maximum discharge during year, 13,900 second-feet Jan. 7 (gage height, 10 feet), from rating curve extended above 5,300 second-feet; minimum, 684 second-fe Oct. 1, 2 (gage height, 3.71 feet).

1909-12, 1928-48: Maximum discharge observed, 21,000 second-feet Dec. 22, 193 (gage height, 12.5 feet, site and datum then in use), from rating curve extended 3,000 second-feet; minimum discharge, 466 second-feet Feb. 4, 1937.

Remarks.- Records excellent except those for periods of shifting control, and those 6,000 second-feet, which are fair. Small diversions above station for irrigation regulation.

Revisions (water year).- W 794: 1934.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	718	1,420	1,150	1,220	1,210	2,940	2,160	1,790	3,950	1,850	1,090
2	726	1,340	1,130	2,100	1,170	2,640	2,230	1,730	3,950	1,730	1,070
3	1,000	1,250	1,140	1,910	1,050	2,430	2,230	1,910	4,220	1,670	1,040
4	910	1,170	1,090	1,850	1,150	2,300	2,160	2,430	4,400	1,610	1,030
5	800	1,100	1,050	1,670	1,100	2,160	2,100	2,300	4,130	1,560	980
6	743	1,060	1,000	4,250	940	2,100	2,040	2,570	4,220	1,560	970
7	726	1,100	1,020	10,600	940	1,970	1,910	2,860	4,310	1,500	950
8	734	1,430	1,020	5,480	1,080	1,910	1,790	2,790	4,220	1,440	920
9	810	1,440	1,000	3,860	1,080	1,910	1,790	2,720	4,130	1,440	920
10	920	1,310	950	3,340	1,010	1,790	1,790	2,640	3,860	1,380	910
11	850	1,290	960	3,100	890	1,730	1,730	2,570	3,950	1,390	900
12	770	1,190	950	2,720	880	1,670	1,670	2,570	3,770	1,360	900
13	752	1,190	990	2,560	960	1,670	1,670	2,720	3,260	1,360	880
14	743	1,170	1,130	2,160	1,010	1,610	1,610	2,570	3,020	1,360	860
15	840	1,300	1,030	2,040	2,580	1,560	1,670	2,500	2,860	1,320	900
16	1,430	1,240	1,000	1,910	2,040	1,560	1,850	2,570	3,430	1,310	910
17	1,380	1,220	1,100	1,790	2,430	1,500	2,100	2,640	3,340	1,300	870
18	1,970	1,270	1,200	1,730	2,500	1,440	2,160	2,640	2,940	1,360	870
19	2,300	1,190	1,270	1,670	2,230	1,440	2,230	2,640	2,720	1,320	860
20	2,790	1,130	1,200	1,560	2,100	1,400	2,300	2,940	2,640	1,290	810
21	2,300	1,120	1,170	1,560	2,560	1,500	2,500	3,430	2,640	1,280	800
22	1,790	1,040	1,150	1,610	5,480	2,300	2,640	3,770	2,500	1,250	800
23	1,560	1,010	1,210	1,670	3,860	2,100	2,640	3,950	2,360	1,210	830
24	1,350	1,000	1,140	1,670	3,180	2,100	2,500	4,040	2,230	1,180	840
25	1,240	1,000	1,140	1,560	3,100	2,500	2,500	4,130	2,160	1,150	870
26	1,200	1,120	1,100	1,360	4,600	2,300	2,300	4,400	2,100	1,130	870
27	1,150	1,310	1,100	1,210	4,040	2,160	2,160	6,100	2,040	1,140	840
28	1,140	1,270	1,130	1,260	3,600	2,160	2,040	5,890	2,040	1,130	830
29	1,140	1,200	1,100	1,280	3,180	2,230	1,970	5,280	1,970	1,100	830
30	1,210	1,160	1,060	1,290	-	2,230	1,850	4,500	1,970	1,100	820
31	1,250	-	1,080	1,220	-	2,230	-	4,130	-	1,090	820

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre
October	37,242	2,790	718	1,201	1.03	1.18	7
November	36,040	1,440	1,000	1,201	1.03	1.15	7
December	33,760	1,270	950	1,089	.931	1.07	6
Calendar year 1947	538,422	3,770	660	1,475	1.26	17.12	1,06
January	73,010	10,600	1,210	2,355	2.01	2.32	14
February	61,950	5,480	880	2,136	1.83	1.97	12
March	61,540	2,940	1,400	1,985	1.70	1.96	12
April	62,290	2,640	1,610	2,076	1.77	1.98	12
May	99,720	6,100	1,730	3,217	2.75	3.17	19
June	95,330	4,400	1,970	3,178	2.72	3.03	18
July	41,870	1,850	1,090	1,351	1.15	1.33	8
August	27,790	1,090	800	896	.766	.88	5
September	22,054	810	700	735	.628	.70	4
Water year 1947-48	652,596	10,600	700	1,783	1.52	20.74	1,29

Peak discharge (base, 4,000 sec.-ft.).- Jan. 7 (6 a.m.) 13,900 sec.-ft.; Feb. 22 (4 a.m.) 6, sec.-ft.; Feb. 26 (7 a.m.) 4,980 sec.-ft.; May 27 (9:30 a.m.) 6,750 sec.-ft.

Note.- Shifting-control method used Oct. 20 to Dec. 9, Jan. 6 to Feb. 10, Apr. 7 to May 26, 22 to Sept. 30.

West Fork Klickitat River near Glenwood, Wash.

Location.- Water-stage recorder, lat. 46°15'30", long. 121°16'30", in SW¼ sec. 14, T. 9 N., R. 12 E., at road bridge 2 miles upstream from mouth and 17 miles north of Glenwood.
Drainage area.- 87 square miles.
Records available.- November 1944 to November 1948 (discontinued). June to November 1910 at site just below confluence of Little Muddy Creek with Fish Lake stream; August to November 1916 at site 1 mile above mouth.
Extremes.- 1947-48: Maximum discharge during water year, 1,560 second-feet May 26 (gage height, 4.23 feet); minimum, 186 second-feet Sept. 19-21.
1948: Minimum discharge during period October to November, 169 second-feet Nov. 8.
1910, 1916, 1944-48: Maximum discharge, that of May 26, 1948; minimum not determined, occurred sometime during period Dec. 11-25, 1944.
Remarks.- Records fair. No diversion or regulation.

Discharge, in second-feet, 1947-48

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	358	335	278	226	313	237	266	1,000	507	270	218
2	222	348	326	304	222	300	237	257	1,030	468	266	214
3	226	335	317	283	222	287	237	331	1,100	445	268	218
4	214	313	300	278	222	278	233	335	1,100	431	253	210
5	203	291	278	270	222	274	230	344	1,080	412	241	206
6	200	295	274	278	222	270	226	403	1,080	412	241	206
7	200	403	274	309	230	266	222	421	1,130	408	233	206
8	200	565	270	295	226	262	222	417	1,130	394	233	210
9	222	507	270	274	226	257	222	403	1,100	385	230	210
10	214	459	262	274	222	253	218	389	1,100	371	226	210
11	203	440	257	270	218	249	218	385	1,180	366	222	210
12	196	389	253	262	226	249	214	408	1,050	358	218	206
13	196	376	274	253	214	249	214	431	922	353	214	206
14	192	358	274	253	218	245	214	412	846	344	210	206
15	237	344	270	249	222	241	226	408	794	340	233	200
16	266	317	266	245	226	241	241	435	974	340	214	196
17	394	331	291	245	253	241	249	454	896	358	226	192
18	454	348	309	241	278	241	266	468	794	362	249	189
19	669	331	300	241	249	241	283	497	719	344	245	189
20	669	313	283	241	241	237	304	565	744	344	237	189
21	575	295	270	241	249	241	344	669	794	331	237	186
22	454	278	266	245	291	253	366	769	744	326	233	192
23	376	274	266	253	266	245	366	820	669	309	233	192
24	335	274	270	249	253	241	358	871	619	300	245	192
25	300	278	270	241	270	237	344	948	585	291	245	189
26	287	340	266	233	380	233	326	1,080	570	287	241	206
27	278	376	266	230	353	233	313	1,450	555	295	237	214
28	278	371	270	233	335	233	300	1,340	546	287	233	203
29	278	348	266	233	322	237	291	1,210	550	283	233	200
30	287	331	262	230	-	237	278	1,080	536	278	230	192
31	335	-	262	226	-	237	-	1,000	-	274	222	-

1948

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	189	186	9	245	182	17	186	210	25	186	a300
2	186	192	10	226	182	18	182	203	26	186	a260
3	196	196	11	214	182	19	182	203	27	182	a250
4	291	196	12	210	182	20	178	200	28	182	a265
5	257	196	13	206	182	21	178	196	29	178	a240
6	262	192	14	200	210	22	178	218	30	186	a230
7	283	189	15	192	210	23	178	a260	31	186	-
8	274	182	16	189	214	24	196	a350			

a No gage-height record; discharge computed on basis of records for Klickitat River near Glenwood.

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October 1947	9,360	669	192	302	3.47	4.00	18,570
November	10,586	565	274	353	4.06	4.53	21,000
December	8,617	335	253	278	3.20	3.68	17,090
Calendar year 1947	117,011	719	192	321	3.69	50.02	232,100
January 1948	7,957	309	226	257	2.95	3.40	15,780
February	7,304	380	214	252	2.90	3.12	14,490
March	7,821	313	233	252	2.90	3.34	15,510
April	7,999	366	214	267	3.07	3.42	15,870
May	19,266	1,450	257	621	7.14	8.24	38,210
June	25,937	1,180	536	865	9.94	11.09	51,450
July	11,003	507	274	355	4.08	4.70	21,820
August	7,316	270	210	236	2.71	3.13	14,510
September	6,057	218	186	202	2.32	2.59	12,010
Water year 1947-48	129,223	1,450	186	353	4.06	55.24	256,300
October 1948	6,364	291	178	205	2.36	2.72	12,620
November	6,458	350	182	215	2.47	2.76	12,810

Big Muddy Creek near Glenwood, Wash.

Location.- Water-stage recorder, lat. 46°09'00", long. 121°17'30", in W½ sec. 27, T. 8 R. 12 E., 200 feet downstream from road bridge, 1 1/8 miles upstream from Cougar Cre 1¾ miles upstream from mouth, and 9½ miles north of Glenwood.

Drainage area.- 22.5 square miles.

Records available.- November 1944 to September 1948 (fragmentary). August to November 1916 at site 3 miles above mouth; November 1916 to September 1918 at site just abov mouth of Cougar Creek.

Extremes.- Maximum discharge during year, 1,180 second-feet June 8; maximum gage heigh 5.75 feet June 8; minimum, 18 second-feet Sept. 26-28.
1916-18, 1944-48: Maximum discharge not determined, probably occurred sometime during flood of 1917; minimum, that of Sept. 26-28, 1948.

Remarks.- Records good except those for periods of shifting control, and those above 3 second-feet, which are fair, and those for periods of no gage-height record, which poor. Possibly as much as 120 second-feet diverted during period April to Septembe for irrigation and stock water. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	53	138	69	67	56	81	54	74	448	241	136	
2	156	118	67	71	54	78	54	72	479	215	125	
3	194	112	71	66	54	74	52	102	555	212	115	
4	116	106	66	64	52	71	51	90	595	197	100	
5	90	102	66	62	52	69	50	98	675	183	100	
6	72	100	62	79	51	67	48	166	780	179	105	
7	63	108	64	87	51	66	46	140	892	173	100	
8	60	108	62	74	50	64	46	129	996	156	100	
9	74	98	59	71	50	62	48	127	826	150	95	
10	60	96	59	71	50	60	48	122	355	171	95	
11	54	92	59	69	50	59	45	118	363	175	95	
12	54	88	57	67	48	57	45	125	303	173	90	
13	54	88	66	62	48	56	45	127	298	181	90	
14	55	88	57	62	48	54	46	114	296	188	90	
15	172	87	57	62	48	52	62	114	268	199	100	
16	188	81	66	59	52	52	83	118	288	197	90	
17	256	66	71	59	66	51	78	125	253	188	70	
18	427	79	66	57	67	51	71	120	243	190	80	
19	365	74	62	57	52	50	78	127	248	179	80	
20	252	76	59	56	52	48	85	149	243	177	75	
21	198	72	57	56	62	56	96	163	243	177	75	
22	166	71	56	72	74	57	96	168	231	175	75	
23	149	69	60	76	60	50	92	185	238	148	70	
24	133	69	69	66	57	48	92	202	236	128	75	
25	129	76	60	60	81	46	90	227	231	130	79	
26	133	88	59	54	131	45	87	260	231	134	61	
27	122	79	64	56	100	46	85	511	243	134	44	
28	120	72	62	57	87	50	83	555	253	108	50	
29	114	71	57	57	83	51	79	495	303	115	55	
30	112	72	57	59	-	50	76	448	276	132	70	
31	138	-	57	57	-	51	-	441	-	138	49	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-f
October	4,329	427	53	140	8
November	2,644	138	66	88.1	5
December	1,923	71	56	62.0	3
Calendar year 1947	39,635	427	40	109	78
January	1,992	87	54	64.3	3
February	1,786	131	48	61.6	3
March	1,772	81	45	57.2	3
April	2,011	96	45	67.0	3
May	6,012	555	72	194	11
June	11,889	996	231	396	23
July	5,243	241	108	169	10
August	2,634	136	44	85.0	5
September	1,072	57	18	35.7	2
Water year 1947-48	43,307	996	18	118	85

f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Aug. 4-24; discharge computed on baais of records for West Fork K tat River near Glenwood. Shifting-control method used Oct. 1-18.

Indian Ford Springs No. 1 near Glenwood, Wash.

Location.- Water-stage recorder, lat. 46°02'30", long. 121°10'45", sec. 4, T. 6 N., R. 13 E., 200 feet above mouth and 5¼ miles northeast of Glenwood.
Records available.- October 1946 to November 1948 (discontinued).
Extremes.- Maximum discharge during period October 1947 to November 1948, 21.3 second-feet Feb. 28 to Mar. 2 (gage height, 1.12 feet); minimum, 14.2 second-feet June 8-14, 19-26, June 30 to July 4.
1946-48: Maximum discharge, that of Mar. 2, 1948; minimum, 13.7 second-feet June 29, 1947.
Remarks.- Records poor. No diversion or regulation.

Rating table, Oct. 1, 1947, to Nov. 23, 1948 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 1 to July 16)

1.01	14.2	1.07	17.9
1.03	15.3	1.09	19.2
1.05	16.5	1.12	21.3

Discharge, in second-feet, 1947-48

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15.9	16.5	15.9	15.9	17.2	21.3	16.5	15.3	14.7	14.2	15.3	15.3
2	15.9	15.9	15.9	15.9	17.2	21.3	16.5	15.3	14.7	14.2	15.3	15.3
3	16.5	16.5	15.9	15.9	17.2	20.6	16.5	15.3	14.7	14.2	15.3	15.3
4	16.5	15.9	15.9	15.9	17.2	20.6	17.2	15.3	14.7	14.2	15.3	15.3
5	16.5	15.3	15.9	15.9	17.2	19.9	17.2	15.3	14.7	14.7	15.9	15.3
6	16.5	15.3	15.9	17.2	17.2	19.9	17.2	15.3	14.7	14.7	15.9	15.3
7	16.5	15.3	15.9	19.2	17.2	19.9	16.5	14.7	14.7	14.7	15.9	15.3
8	16.5	15.3	15.9	19.2	17.2	19.2	16.5	14.7	14.2	14.7	15.9	15.3
9	17.2	15.3	15.9	19.9	17.2	19.2	16.5	14.7	14.2	14.7	16.5	15.3
10	17.2	15.9	15.9	19.9	16.5	19.2	16.5	14.7	14.2	14.7	16.5	15.3
11	17.2	15.9	15.9	19.2	16.5	18.5	16.5	14.7	14.2	14.7	15.3	15.3
12	17.2	15.9	15.9	18.5	16.5	18.5	16.5	14.7	14.2	14.7	15.3	15.9
13	17.2	15.9	15.9	17.8	16.5	18.5	16.5	14.7	14.2	14.7	15.3	15.9
14	17.2	15.9	15.9	17.8	16.5	18.5	16.5	14.7	14.2	14.7	14.7	15.9
15	16.5	15.9	15.9	17.2	16.5	18.5	15.9	14.7	14.7	14.7	14.7	15.9
16	16.5	15.9	15.9	17.2	16.5	18.5	15.9	14.7	14.7	15.3	14.7	15.9
17	16.5	15.9	15.9	17.2	16.5	17.8	15.9	15.3	14.7	15.9	14.7	15.9
18	16.5	15.9	16.5	17.2	17.2	17.8	15.9	15.3	14.7	15.9	14.7	15.9
19	16.5	15.9	16.5	17.2	17.2	17.8	15.9	15.3	14.2	15.9	15.3	15.9
20	16.5	15.3	16.5	17.2	17.8	17.8	15.3	15.3	14.2	15.9	15.3	a15.9
21	16.5	15.3	16.5	16.5	18.5	17.2	15.3	15.3	14.2	15.3	15.3	a16.0
22	16.5	15.3	16.5	16.5	18.5	17.2	15.3	15.3	14.2	15.9	15.3	a16.0
23	15.9	15.9	16.5	16.5	19.2	17.2	15.3	15.3	14.2	15.9	15.9	a16.0
24	15.9	15.9	15.9	16.5	19.9	17.8	15.3	15.3	14.2	15.9	15.9	a16.1
25	16.5	15.9	15.9	16.5	19.9	17.8	15.3	15.3	14.2	15.9	15.9	a16.1
26	16.5	15.9	15.9	16.5	19.9	17.8	15.9	15.3	14.2	15.3	15.3	a16.1
27	16.5	15.9	15.9	15.9	20.6	18.5	15.9	15.9	14.7	15.3	15.3	a16.2
28	16.5	15.9	15.9	15.9	20.6	18.5	15.9	15.3	14.7	14.7	15.3	a16.2
29	16.5	15.9	15.9	16.5	21.3	18.5	15.9	15.3	14.7	14.7	15.3	a16.2
30	16.5	15.9	15.9	16.5	-	18.5	15.9	15.3	14.2	14.7	15.3	a16.3
31	16.5	-	15.9	17.2	-	18.5	-	14.7	-	14.7	15.3	-

a No gage-height record; discharge interpolated.

1948

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	a16.3	17.2	9	16.5	16.5	17	17.2	15.9	25	16.5	-
2	a16.3	17.2	10	16.5	16.5	18	17.2	15.9	26	17.2	-
3	a16.4	17.2	11	16.5	15.9	19	17.2	15.9	27	17.2	-
4	a16.4	17.2	12	16.5	15.9	20	16.5	15.9	28	17.2	-
5	a16.4	17.2	13	16.5	15.9	21	16.5	15.9	29	17.2	-
6	a16.5	17.2	14	16.5	15.9	22	16.5	15.9	30	17.2	-
7	16.5	17.2	15	16.5	15.9	23	16.5	15.9	31	17.2	-
8	16.5	17.2	16	17.2	15.9	24	16.5	-			

a No gage-height record; discharge interpolated.

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October 1947	513.3	17.2	15.9	16.6	1,020
November	473.4	16.5	15.3	15.8	939
December	496.5	16.5	15.9	16.0	985
Calendar year 1947	5,920.6	17.8	13.7	16.2	11,740
January 1948	532.4	19.9	15.9	17.2	1,060
February	517.4	21.3	16.5	17.8	1,030
March	580.8	21.3	17.2	18.7	1,150
April	483.9	17.2	15.3	16.1	960
May	468.3	15.9	14.7	15.1	929
June	433.0	14.7	14.2	14.4	859
July	465.7	15.9	14.2	15.0	924
August	477.9	16.5	14.7	15.4	948
September	472.6	16.3	15.3	15.8	937
Water year 1947-48	5,915.2	21.3	14.2	16.2	11,740
October 1948	517.8	17.2	16.3	16.7	1,030
November 1-23	377.3	17.2	15.9	16.4	748

Little Klickitat River near Goldendale, Wash.

Location.- Water-stage recorder, lat. 45°51', long. 120°48', in NW¼ sec. 10, T. 4 N., R. 16 E., 2½ miles northeast of Goldendale and 13 miles upstream from mouth.

Records available.- October 1910 to June 1912, October 1946 to September 1948.

Extremes.- Maximum discharge during year, 1,760 second-feet Jan. 7 (gage height, 5.55 feet), from rating curve extended above 665 second-feet; minimum, 1.7 second-feet S 11 (gage height, 1.17 feet).
1910-12, 1946-48: Maximum discharge, that of Jan. 7, 1948; minimum, 0.6 second- Aug. 28, 1947 (gage height, 1.13 feet).

Remarks.- Records excellent except those below 5 second-feet and those for periods of shifting control, which are fair, and those for periods of ice effect or no gage-he record, which are poor. Probably small diversions for domestic use and irrigation regulation.

Rating tables, water year 1947-48, except periods of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
1.1	0.4	2.1	40	3.3	267	1.1	0.9	2.0	43	3.4	32
1.3	2.1	2.3	62	3.6	372	1.3	3.8	2.3	77	3.8	48
1.5	6.0	2.5	89	4.0	550	1.5	10	2.6	125	4.2	68
1.7	13	2.7	121			1.7	20	3.0	210	4.8	1,06
1.9	24	3.0	184								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	2.0	26	20	49	70	198	152	78	85	19	4.8	
2	2.0	23	19	172	65	174	154	76	80	18	6.8	
3	2.3	23	20	111	60	161	152	97	81	17	5.4	
4	2.4	22	19	109	55	148	146	105	78	16	7.1	
5	2.3	21	18	94	50	138	138	105	77	17	5.9	
6	2.1	20	17	536	50	131	129	118	77	19	5.6	
7	2.0	19	18	1,010	50	125	120	120	77	18	5.1	
8	2.4	20	18	410	50	116	107	112	73	17	4.8	
9	5.1	18	19	271	50	109	107	105	72	15	4.6	
10	9.6	17	16	198	50	99	101	105	68	14	4.6	
11	7.0	16	17	169	50	94	97	101	64	14	4.6	
12	5.1	15	16	142	55	91	93	104	58	13	4.3	
13	4.2	18	28	121	60	96	87	104	56	12	4.1	
14	3.5	18	30	120	67	a100	88	99	50	11	3.6	
15	14	27	27	104	74	a100	101	96	47	10	4.3	
16	30	24	28	94	81	a100	131	97	62	9.6	4.6	
17	34	26	37	*87	*148	a95	140	99	49	9.3	3.8	
18	52	27	43	80	165	a90	140	94	41	8.9	3.6	
19	33	25	43	73	142	a85	140	94	38	8.9	3.6	
20	73	24	41	69	129	a77	144	94	38	8.9	3.4	
21	57	23	41	67	243	a150	148	99	36	8.2	3.4	
22	38	22	38	70	572	a245	146	101	32	7.5	3.4	
23	31	21	35	88	323	167	136	102	31	7.1	3.8	
24	25	21	35	78	248	165	129	102	29	7.1	4.3	
25	22	21	33	67	275	171	123	104	28	6.4	5.4	
26	20	22	31	60	480	154	111	107	26	6.1	4.3	
27	19	21	31	55	344	146	104	125	24	5.9	3.6	
28	19	20	33	55	279	146	97	121	22	6.8	3.4	
29	19	19	31	55	225	154	91	107	21	6.1	2.7	
30	28	20	28	60	-	154	83	94	19	5.6	2.5	
31	26	-	28	65	-	154	-	90	-	4.8	2.5	

Month	Second-foot-days	Maximum	Minimum	Mean	Runof acre-
October	592.0	73	2.0	19.1	1
November	639	27	15	21.3	1
December	858	43	16	27.7	1
Calendar year 1947	14,217.3	310	.7	39.0	28
January	4,739	1,010	49	153	9
February	4,510	572	50	156	8
March	4,133	245	77	133	8
April	3,635	154	83	121	7
May	3,155	125	76	102	6
June	1,539	85	19	51.3	3
July	347.2	19	4.8	11.2	
August	133.9	7.1	2.5	4.32	
September	95.3	8.6	1.8	3.18	
Water year 1947-48	24,376.4	1,010	1.8	66.6	48

Peak discharge (base, 500 sec.-ft.).- Jan. 7 (12:15 a.m., 5 a.m.) 1,760 sec.-ft.; Feb. 22 (2 a 990 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather recor and records for station near Wahkiacus.

Note.- Shifting-control method used Jan. 7 to June 13. Stage-discharge relation affected by i Jan. 26 to Feb. 13.

Little Klickitat River near Wahkiacus, Wash.

Location.- Staff gage, lat. 45°50'30", long. 121°03'30", in SE¼ sec. 9, T. 4 N., R. 14 E., half a mile downstream from Bowman Creek, three-quarters of a mile upstream from mouth, and 2 miles northeast of Wahkiacus.

Records available.- November 1944 to September 1948.

Extremes.- Maximum discharge observed during year, 3,980 second-feet about Jan. 7 (gage height, 9.4 feet, from high-water mark), from rating curve extended above 650 second-feet by velocity-area studies; minimum observed, 24 second-feet Oct. 5-8.
1944-48: Maximum discharge observed, that of Jan. 7, 1948; minimum observed, 17 second-feet Aug. 3-6, 11, 16-27, Aug. 29 to Sept. 3, 1945, Aug. 30, 1947.

Remarks.- Records good except those for periods of shifting-control, which are fair, and those for periods of ice effect or no gage-height record, which are poor. Gage read once daily, twice daily during periods of rapidly changing stage. Some small diversions above station for irrigation. No regulation.

Rating table, water year 1947-48, except periods of shifting control or ice effect
(gage height, in feet, and discharge, in second-feet)

2.1	25	3.5	295	6.0	1,410
2.3	43	4.0	490	7.0	2,030
2.6	80	4.5	690	8.0	2,780
3.0	150	5.0	900		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	66	60	230	105	570	312	215	200	74	34	30
2	27	66	61	570	104	510	330	200	200	72	33	29
3	25	61	61	278	102	430	312	215	200	66	33	31
4	25	59	59	260	95	430	295	215	200	65	33	30
5	24	59	56	330	86	370	295	215	175	64	35	30
6	24	54	54	1,250	84	330	278	215	175	64	37	29
7	24	54	53	2,540	80	260	278	215	175	64	35	29
8	24	52	61	a600	77	245	245	215	175	61	34	28
9	25	52	64	a320	74	215	245	215	175	60	33	29
10	25	52	59	a250	74	200	245	230	172	60	33	29
11	25	61	55	a220	72	200	230	230	172	56	33	29
12	26	104	54	a210	69	188	200	230	162	58	33	26
13	27	112	69	a190	74	175	200	230	152	56	32	27
14	27	140	95	a180	89	175	200	230	158	53	31	27
15	41	175	69	a180	430	175	200	230	162	51	31	28
16	72	130	65	a175	470	175	215	230	230	48	31	26
17	105	125	69	a175	450	172	245	230	162	45	31	27
18	112	98	80	a170	430	165	260	245	128	42	30	27
19	121	79	95	168	312	160	278	245	125	42	30	26
20	123	74	89	170	172	155	278	260	119	a40	31	26
21	126	67	82	165	278	510	295	260	117	a40	33	27
22	80	64	80	160	1,830	690	295	260	114	37	37	27
23	72	64	86	142	1,530	610	295	260	109	a35	37	27
24	66	61	83	134	g770	430	260	278	105	a35	36	27
25	61	61	82	123	900	610	260	278	100	a35	37	29
26	59	60	77	105	1,300	470	245	295	94	a35	a35	35
27	58	59	79	89	1,150	330	245	312	90	a35	33	44
28	58	61	77	86	770	330	245	312	86	35	33	38
29	54	62	74	92	650	312	230	278	80	33	31	33
30	64	64	73	95	-	312	215	245	73	33	31	33
31	a65	-	74	102	-	312	-	215	-	33	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,692	126	24	54.6	3,360
November	2,296	175	52	76.5	4,550
December	2,195	95	53	70.8	4,350
Calendar year 1947	39,392	740	17	108	78,130
January	9,759	2,540	86	315	19,360
February	12,627	1,830	69	435	25,050
March	10,216	690	155	330	20,260
April	7,726	330	200	258	15,320
May	7,503	312	200	242	14,880
June	4,385	230	73	146	8,700
July	1,527	74	33	49.3	3,030
August	1,027	37	30	33.1	2,040
September	883	44	26	29.4	1,750
Water year 1947-48	61,836	2,540	24	169	122,600

a No gage-height record; discharge interpolated, or computed on basis of records for station near Goldendale.
Note.- Shifting-control method used Jan. 19 to Feb. 15, June 20 to Sept. 30.

Hood River near Hood River, Oreg.

Location.- Water-stage recorder, lat. 45°42', long. 121°31', in SE¼ sec. 36, T. 3 N., R 10 E., at Powerdale, a quarter of a mile upstream from Pacific Power & Light Co.'s plant and three-quarters of a mile south of town of Hood River. Datum of gage is 106.23 feet above mean sea level, datum of 1929.

Drainage area.- 329 square miles.

Records available.- March 1913 to September 1948.

Average discharge.- 35 years, 1,040 second-feet (including flow of Pacific Power & Ligh Co.'s conduit).

Extremes.- Maximum discharge during year (river only), 12,000 second-feet Jan. 7 (gage height, 7.60 feet); minimum, 45 second-feet Sept. 4, 10; minimum daily (including dis charge of Pacific Power & Light Co.'s conduit), 324 second-feet Sept. 19.
1913-48: Maximum discharge, 34,000 second-feet Jan. 6, 1923 (gage height, 11.1 feet, present datum, site then in use), no diversion by power conduit; minimum, 3 se ond-feet Aug. 9, 1926; minimum daily (including discharge of Pacific Power & Light Co conduit), 165 second-feet Aug. 5, 1941.

Remarks.- Records good except those for periods of no gage-height record, which are fair Daily discharge regulated by pondage at sawmill at Dee and by Pacific Power & Light Co.'s conduit, which diverts water around gage.

Cooperation.- Water-stage recorder inspected by employees of Pacific Power & Light Co.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
0.7	56	1.7	275	3.3	1,380	0.5	45	1.7	312	3.9	2,200
.9	83	2.0	390	3.9	2,150	.7	69	2.0	445	4.5	3,180
1.1	117	2.3	530	4.7	3,550	.9	101	2.3	610	5.0	4,230
1.4	185	2.7	810			1.1	139	2.7	900	6.0	6,700
						1.4	212	3.3	1,450	6.5	8,200

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	a74	834	453	1,130	384	1,460	701	574	1,080	324	a96	5
2	a233	786	399	2,930	357	1,340	785	539	1,090	249	a84	5
3	1,120	738	485	1,940	337	1,150	757	1,270	1,190	215	a76	5
4	374	653	417	1,490	345	1,020	687	1,430	1,080	198	a77	4
5	182	554	370	1,170	320	940	617	1,400	1,050	198	a88	4
6	115	584	433	3,440	282	876	562	1,550	1,160	308	a100	5
7	75	1,560	334	8,170	290	806	512	1,480	1,270	308	a82	5
8	68	2,270	318	4,410	397	750	485	1,280	1,280	209	a70	5
9	215	1,350	326	2,820	388	750	500	1,140	1,170	178	a60	4
10	261	1,150	300	2,360	312	666	490	1,020	1,050	171	a54	4
11	572	1,160	354	1,930	262	624	480	932	1,240	185	a58	5
12	300	917	326	1,560	262	598	734	948	1,110	159	a61	5
13	222	1,030	616	1,350	285	580	892	972	1,120	135	54	5
14	180	1,070	882	1,170	301	568	980	884	895	110	50	5
15	828	1,610	709	1,060	1,040	517	1,070	820	819	94	62	5
16	2,150	1,710	597	948	998	512	1,250	884	939	81	56	6
17	2,740	1,620	926	868	1,530	490	1,230	939	759	94	59	6
18	3,440	1,780	1,390	785	1,880	495	900	873	649	112	62	6
19	2,990	1,350	1,360	708	1,380	485	884	838	607	103	61	16
20	3,160	1,110	1,020	666	1,120	455	916	871	668	92	59	9
21	2,120	899	858	631	2,170	614	998	967	839	84	57	8
22	1,420	754	786	645	5,750	1,600	1,110	1,080	645	66	59	8
23	1,180	653	653	708	3,240	1,060	1,250	1,080	550	82	52	8
24	890	590	625	659	2,140	916	1,210	1,170	485	a65	53	15
25	709	560	548	592	1,900	836	1,320	1,310	426	a60	55	10
26	667	632	500	512	4,300	722	1,050	1,490	388	a56	54	21
27	642	578	480	475	2,820	673	900	1,590	375	135	52	23
28	554	525	604	445	2,240	666	799	1,630	384	175	59	17
29	520	648	525	440	1,640	750	708	1,340	397	84	74	10
30	971	602	466	426	-	806	624	1,160	402	66	62	a6
31	786	-	448	393	-	729	-	1,120	-	65	54	-

Month	Observed				Pacific Power & Light Co.'s conduit near Hood River (acre-feet)	River and conduit combined			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runo in inch
	Maximum	Minimum	Mean				Mean	Per square mile	
October	3,440	68	957	58,830	28,570	87,400	1,421		
November	2,270	525	1,009	60,050	27,210	87,260	1,468		
December	1,390	300	597	36,710	29,550	66,260	1,078		
Calendar year 1947	4,680	42	587	425,200	325,100	750,300	1,036		
January	8,170	393	1,511	92,890	27,860	120,800	1,964		
February	5,750	262	1,333	76,660	26,350	103,000	1,791		
March	1,600	455	789	48,500	29,590	78,090	1,270		
April	1,320	480	847	50,380	23,420	73,800	1,240		
May	1,630	539	1,116	68,590	28,290	96,880	1,576		
June	1,280	375	837	49,820	25,420	75,240	1,264		
July	324	56	144	8,850	29,320	38,170	621		
August	100	50	65	3,970	24,850	28,820	469		
September	230	47	84	4,980	21,030	26,010	437		
Water year 1947-48	8,170	47	772	560,200	321,500	881,700	1,215		

Peak discharge (base, 4,200 sec.-ft.).- Oct. 17 (11:30 p.m.) 4,850 sec.-ft.; Jan. 7 (7 a.m.) 12,0 sec.-ft.; Feb. 22 (4 a.m.) 6,880 sec.-ft.; Feb. 26 (8 a.m.) 4,980 sec.-ft.

a No gage-height record; discharge computed on basis of records for Pacific Power & Light Co.'s c duit and West Fork Hood River near Dee.

West Fork Hood River near Dee, Oreg.

Location.- Water-stage recorder, lat. 45°36', long. 121°38', in SE¼ sec. 1, T. 1 N., R. 9 E., a quarter of a mile upstream from Dead Point Creek, half a mile upstream from mouth, and 1 mile northwest of Dee. Datum of gage is 802.1 feet above mean sea level, datum of 1929.

Drainage area.- 96 square miles.

Records available.- September 1913 to February 1916 (incomplete), June 1932 to September 1948.

Average discharge.- 16 years (1932-48), 512 second-feet.

Extremes.- Maximum discharge during year, 9,480 second-feet Jan. 7 (gage height, 10.6 feet), from rating curve extended above 5,000 second-feet; minimum, 148 second-feet Sept. 21 (gage height, 1.46 feet).
1913-14, 1932-48: Maximum discharge, 12,900 second-feet Dec. 22, 1933 (gage height, 12.4 feet), from rating curve extended above 5,000 second-feet; minimum, 93 second-feet Aug. 22, 1941 (gage height, 1.37 feet).

Remarks.- Records good. Diversions above station for irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.4	135	4.0	1,220
1.7	204	5.0	1,940
2.1	319	6.0	2,830
2.5	460	7.0	3,900
3.0	665	8.3	5,640

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	710	433	1,230	362	853	572	512	755	313	241	174
2	463	690	415	2,320	345	765	612	492	755	294	236	174
3	723	665	460	1,470	332	680	608	1,060	765	285	225	186
4	359	620	418	1,110	332	616	556	1,090	675	282	225	174
5	282	560	393	897	329	580	528	1,050	665	307	212	172
6	241	629	376	2,490	307	544	492	1,190	725	322	217	165
7	225	1,580	376	5,640	307	520	468	1,090	745	313	214	165
8	225	1,960	362	2,450	362	496	445	941	705	285	209	165
9	319	1,120	372	1,580	349	480	452	831	642	276	202	165
10	345	1,030	345	1,250	316	452	460	730	572	276	202	163
11	552	1,010	397	1,060	304	433	460	680	634	276	199	165
12	383	804	393	897	297	418	430	685	572	261	196	163
13	329	930	634	765	297	415	418	705	540	255	196	158
14	294	902	745	690	329	411	476	656	492	250	194	168
15	769	1,420	647	624	715	393	532	616	464	250	204	165
16	1,810	1,370	592	572	788	393	656	652	452	250	196	156
17	2,440	1,420	886	540	1,180	379	705	675	426	252	186	154
18	2,600	1,430	1,300	508	1,520	397	755	638	400	255	194	152
19	2,450	1,090	1,170	476	1,010	379	705	612	386	250	192	152
20	2,330	875	880	449	814	376	725	616	422	247	189	152
21	1,500	720	750	437	2,180	550	792	680	508	238	184	152
22	1,020	620	675	452	4,160	1,140	897	725	430	238	184	214
23	864	560	608	492	1,890	750	1,030	735	393	244	189	225
24	670	520	588	488	1,270	642	1,020	792	379	233	192	258
25	568	512	532	452	1,150	600	1,030	919	362	222	194	241
26	540	532	508	418	2,730	548	853	1,020	355	225	186	307
27	488	508	508	404	1,700	528	725	1,010	352	304	182	332
28	500	468	576	390	1,210	528	652	1,060	345	288	179	270
29	524	441	532	386	952	600	592	831	345	252	179	241
30	720	430	496	379	-	629	552	730	339	238	186	222
31	642	-	472	366	-	584	-	735	-	238	182	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	25,333	2,600	158	817	50,250
November	26,126	1,960	430	871	51,820
December	17,839	1,300	345	575	35,380
Calendar year 1947	193,408	3,600	139	530	383,600
January	31,682	5,640	366	1,022	62,840
February	27,837	4,160	297	960	55,210
March	17,079	1,140	376	551	33,880
April	19,198	1,030	418	640	38,080
May	24,758	1,190	492	799	49,110
June	15,600	765	339	520	30,940
July	8,219	322	222	265	16,300
August	6,166	241	179	199	12,230
September	5,750	332	152	192	11,400
Water year 1947-48	225,587	5,640	152	616	447,400

Peak discharge (base, 4,100 sec.-ft.).- Oct. 17 (9 p.m.) 4,360 sec.-ft.; Jan. 7 (about 4 a.m.) 9,480 sec.-ft.; Feb. 22 (1:30 a.m.) 6,780 sec.-ft.

Pacific Power & Light Co.'s conduit near Hood River, Oreg.

Location.- Venturi meter and electrical output meter, lat. 45°42', long. 121°30', in NE¼ sec. 36, T. 3 N., R. 10 E., at Pacific Power & Light Co.'s plant on Hood River, half mile southeast of town of Hood River.

Records available.- October 1922 to September 1948. October 1913 to September 1914 and January 1916 to July 1922 at site in tailrace of former plant.

Average discharge.- 26 years (1922-48), 369 second-feet.

Extremes.- Maximum daily discharge during year, 496 second-feet Feb. 1; no flow at times when power plant was shut down.
1913-14, 1916-48: Maximum discharge observed, 510 second-feet Dec. 30, 1932; no flow at times.

Remarks.- Records excellent. Discharge computed from relation between flow in conduit a output of power plant, based on discharge measurements. Pacific Power & Light Co.'s conduit diverts from Hood River in SE¼ sec. 11, T. 2 N., R. 10 E., just below Neal Cr Water is diverted around station on Hood River near town of Hood River and returned t river in NE¼ sec. 36, T. 3 N., R. 10 E.

Cooperation.- Hourly readings of venturi meter and record of daily electrical output fur nished by Pacific Power & Light Co.

Revisions (water years).- W 864: 1937.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	426	490	479	487	496	486	487	479	417	462	484	3
2	447	493	488	442	493	478	485	480	419	464	476	3
3	463	479	486	473	492	466	482	475	418	463	464	3
4	477	488	487	476	481	479	480	472	419	464	463	3
5	490	488	487	478	492	475	488	475	419	463	432	3
6	480	486	381	446	481	472	489	475	420	466	420	3
7	487	472	493	287	463	472	488	475	418	471	418	3
8	480	448	486	357	468	482	486	481	413	474	410	3
9	489	480	485	396	467	482	489	487	409	480	400	3
10	478	478	483	279	478	483	489	472	411	482	406	3
11	472	472	488	455	480	484	491	480	412	487	392	3
12	476	470	492	455	457	467	166	478	410	482	379	2
13	473	465	485	441	474	485	0	480	411	480	375	2
14	473	447	463	466	477	483	0	481	426	479	364	3
15	458	459	459	464	473	481	0	481	424	488	416	3
16	442	458	483	462	462	485	0	480	424	490	392	3
17	437	451	475	460	458	484	72	479	421	491	360	2
18	425	454	469	463	443	485	479	474	420	493	397	2
19	233	465	475	466	457	480	463	472	420	490	391	1
20	475	462	485	468	479	486	479	458	422	490	382	2
21	472	462	488	465	429	473	484	452	421	486	374	2
22	472	465	486	462	329	465	482	427	420	484	381	3
23	488	465	485	464	420	478	480	446	418	478	394	4
24	490	462	476	489	444	485	481	441	445	478	404	4
25	492	464	483	492	474	485	472	436	452	467	439	4
26	457	462	490	489	458	485	479	432	456	449	412	4
27	493	463	494	491	463	492	478	423	461	470	392	4
28	492	462	493	492	309	494	478	418	462	474	374	4
29	489	288	492	493	490	493	479	416	465	480	352	4
30	486	319	491	494	-	487	480	419	463	478	390	4
31	491	-	491	495	-	486	-	417	-	480	395	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-fe
October	14,403	493	233	465	28,5
November	13,717	493	288	457	27,2
December	14,898	493	381	481	29,5
Calendar year 1947	163,918	497	233	449	325,1
January	14,047	495	279	453	27,8
February	13,287	496	309	458	26,3
March	14,918	494	465	481	29,5
April	11,806	491	0	394	23,4
May	14,261	487	416	460	28,2
June	12,816	465	409	427	25,4
July	14,783	493	449	477	29,3
August	12,528	484	352	404	24,8
September	10,605	485	155	354	21,0
Water year 1947-48	162,069	496	0	443	321,5

White Salmon River near Underwood, Wash.

Location.- Water-stage recorder, lat. 45°45'00", long. 121°31'30", in NW¼ sec. 14, T. 3 N., R. 10 E., 1,000 feet downstream from Northwestern Electric Co.'s Condit power plant and 2 miles north of Underwood and mouth.

Drainage area.- 384 square miles.

Records available.- March 1915 to September 1930, September 1935 to September 1948. October 1912 to February 1913 at site at Condit Dam, 1 mile upstream.

Average discharge.- 28 years (1915-30, 1935-48), 1,025 second-feet.

Extremes.- Maximum discharge during year, 6,430 second-feet Jan. 7 (gage height, 8.40 feet); minimum, 94 second-feet Sept. 4 (gage height, 2.00 feet); minimum daily, 496 second-feet Sept. 6.

1915-30, 1935-48: Maximum discharge, 9,700 second-feet Dec. 29, 1917 (gage height, 9.5 feet, datum then in use, relation to present datum unknown); practically no flow at times when power plant is shut down.

Remarks.- Records excellent except those for period of no gage-height record, which are good. Many diversions near Trout Lake for irrigation. Flow regulated by power plant.

Revisions (water years).- W 484: 1915-17.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	1,130	946	1,080	1,050	1,950	1,280	1,260	1,830	1,110	739	659
2	570	1,180	896	1,870	1,090	1,800	1,250	1,230	1,780	1,030	818	750
3	670	1,060	882	1,770	1,040	1,670	1,270	1,350	1,860	1,040	775	697
4	675	1,020	874	1,650	1,060	1,560	1,240	1,690	1,850	1,010	788	568
5	635	975	998	1,490	996	1,500	1,250	1,760	1,830	1,000	748	763
6	600	950	834	2,320	996	1,440	1,240	1,980	1,770	996	754	496
7	540	970	790	4,610	958	1,390	1,190	2,090	1,800	1,030	723	696
8	565	1,140	828	3,440	939	1,350	1,150	1,960	1,810	1,080	769	670
9	705	1,280	806	2,720	1,040	1,340	1,140	1,840	1,840	1,030	720	642
10	720	1,230	821	2,360	982	1,310	1,160	1,790	1,830	994	784	578
11	745	1,160	767	2,190	1,000	1,300	1,140	1,720	1,890	1,000	742	704
12	655	1,180	806	1,950	911	1,210	1,130	1,700	2,000	905	770	610
13	640	1,090	836	1,770	912	1,220	1,120	1,770	1,880	957	744	672
14	585	1,050	911	1,640	952	1,220	1,110	1,780	1,800	920	708	642
15	830	1,070	942	1,530	1,270	1,170	1,110	1,710	1,660	912	792	630
16	965	1,080	863	1,450	1,230	1,160	1,140	1,690	1,820	944	790	631
17	1,260	1,050	944	1,380	1,620	1,160	1,200	1,700	1,770	847	785	613
18	1,690	1,100	1,060	1,320	1,850	1,160	1,230	1,690	1,630	868	812	602
19	1,800	1,120	1,170	1,300	1,710	1,140	1,260	1,720	1,540	873	752	615
20	2,120	1,040	1,160	1,300	1,580	1,110	1,290	1,690	1,530	864	754	651
21	1,750	990	1,080	1,290	1,740	1,110	1,340	1,800	1,560	956	744	584
22	1,500	974	1,060	1,210	3,000	1,490	1,450	1,900	1,490	836	739	646
23	1,340	885	994	1,180	2,640	1,490	1,460	1,990	1,410	801	776	658
24	1,240	940	1,020	1,280	2,280	1,420	1,470	2,020	1,460	842	786	764
25	1,040	878	1,060	1,230	2,120	1,410	1,500	2,110	1,280	799	748	706
26	1,010	914	1,010	1,180	2,660	1,350	1,460	2,260	1,280	803	752	786
27	960	994	1,010	1,170	2,650	1,330	1,410	2,330	1,280	792	672	768
28	910	874	1,020	1,100	2,380	1,320	1,400	2,330	1,270	822	772	732
29	925	948	1,100	1,080	2,100	1,330	1,350	2,270	1,130	782	648	681
30	945	820	1,020	1,100	-	1,320	1,260	2,040	1,060	776	736	843
31	1,070	-	1,020	1,100	-	1,260	-	1,900	-	792	658	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	30,210	2,120	540	975	59,920
November	31,092	1,280	820	1,036	61,670
December	29,428	1,170	767	949	58,370
Calendar year 1947	384,245	2,700	496	1,053	762,100
January	52,060	4,610	1,080	1,679	103,300
February	44,756	3,000	911	1,543	88,770
March	41,990	1,950	1,110	1,355	83,290
April	38,000	1,500	1,110	1,267	75,370
May	57,070	2,330	1,230	1,841	113,200
June	48,940	2,000	1,060	1,631	97,070
July	28,211	1,110	776	910	55,960
August	23,298	818	648	752	46,210
September	20,057	843	496	669	39,780
Water year 1947-48	445,112	4,610	496	1,216	882,900

Note.- No gage-height record Oct. 1 to Nov. 20; discharge computed on basis of record of power output.

Little White Salmon River near Willard, Wash.

Location.- Staff gage, lat. 45°48'00", long. 121°38'30", in SW¼ sec. 26, T. 4 N., R. 9 E., 300 feet upstream from Moss Creek and 1½ miles north of Willard.

Drainage area.- 40.6 square miles.

Records available.- November 1944 to September 1948.

Extremes.- Maximum discharge observed during year, 2,390 second-feet (supersedes figure published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin) Jan. 7 (gage height, 7.16 feet, from observer's notes); minimum observed, 14 second-feet Oct. 1.
1944-48: Maximum discharge observed, that of Jan. 7, 1948; minimum observed, 11 second-feet Sept. 1-6, 1947.

Remarks.- Records good except those above 1,000 second-feet, which are fair. Gage read once daily. No diversion or regulation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
0.9	13	1.7	97	3.5	586	0.7	10	1.7	139	4.0	820
1.1	23	2.0	160	4.0	770	.9	24	2.0	200	5.0	1,230
1.3	39	2.5	280	5.0	1,200	1.1	46	2.5	325	6.0	1,720
1.5	63	3.0	425			1.3	73	3.0	475	7.0	2,270
						1.5	104	3.5	640		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	14	156	74	321	114	353	168	126	91	46	24	
2	23	140	69	830	112	312	168	119	86	45	23	
3	23	136	74	603	106	272	166	200	86	45	22	
4	15	136	68	472	104	237	154	298	86	44	22	
5	17	107	65	394	102	216	148	356	85	44	22	
6	16	101	62	1,060	99	193	145	397	82	46	22	
7	15	107	62	2,090	91	170	135	370	73	46	22	
8	24	128	62	1,180	101	166	125	312	72	44	22	
9	42	117	63	782	104	158	139	260	70	42	22	
10	47	113	59	606	96	150	154	237	69	41	21	
11	58	107	62	491	91	139	156	209	73	41	21	
12	41	97	59	412	88	132	150	193	72	40	20	
13	33	109	68	347	86	130	147	196	70	39	20	
14	34	105	117	298	85	121	147	185	66	38	19	
15	79	121	113	262	252	118	152	174	65	36	19	
16	164	125	103	230	223	116	185	162	70	34	24	
17	296	142	151	209	428	114	189	152	65	34	27	
18	410	182	224	198	573	116	178	148	63	33	20	
19	391	178	307	174	459	109	172	139	60	33	19	
20	440	162	254	162	362	107	170	134	62	33	19	
21	315	147	210	152	459	160	176	134	59	32	19	
22	232	132	196	147	1,020	491	182	132	58	31	19	
23	191	119	182	147	692	359	182	128	56	31	19	
24	153	109	164	154	524	280	174	121	54	31	19	
25	128	99	160	152	507	237	196	119	52	29	19	
26	113	93	145	141	820	207	182	119	52	30	19	
27	99	90	138	139	657	191	158	118	51	29	19	
28	101	84	151	130	524	191	156	112	50	29	18	
29	90	81	145	126	428	189	147	107	49	28	17	
30	115	77	138	123	-	198	139	98	47	28	17	
31	156	-	130	118	-	182	-	91	-	25	16	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fee
October	3,875	440	14	125	3.08	3.55	7,69
November	3,600	182	77	120	2.96	3.30	7,14
December	3,875	307	59	125	3.08	3.55	7,69
Calendar year 1947	40,627	1,100	11	111	2.73	37.22	80,59
January	12,641	2,090	118	408	10.0	11.58	25,07
February	9,307	1,020	85	321	7.91	8.53	18,46
March	6,114	491	107	197	4.85	5.60	12,13
April	4,840	196	125	161	3.97	4.43	9,60
May	5,646	397	91	182	4.48	5.17	11,20
June	1,994	91	47	66.5	1.64	1.83	3,96
July	1,127	46	25	36.4	.897	1.03	2,24
August	631	27	16	20.4	.502	.58	1,25
September	546	34	15	18.2	.448	.50	1,08
Water year 1947-48	54,196	2,090	14	148	3.65	49.65	107,50

Little White Salmon River at Willard, Wash.

Location.- Water-stage recorder, lat. 45°47'00", long. 121°37'30", in NW¼ sec. 1, T. 3 N., R. 9 E., a quarter of a mile downstream from Lava Creek, at Willard.

Drainage area.- 117 square miles.

Records available.- December 1944 to September 1948. November 1903 to August 1906 (fragmentary).

Extremes.- Maximum discharge during year, 3,070 second-feet Jan. 7 (gage height, 8.68 feet), from rating curve extended above 2,500 second-feet; minimum, 10 second-feet Oct. 7. 1903-6, 1944-48: Maximum discharge, 4,140 second-feet Dec. 15, 1946 (gage height, 9.50 feet), from rating curve extended above 2,500 second-feet; minimum, 8.3 second-feet Oct. 26, 1946.

Remarks.- Records fair. Small diversion for water supply. Other diversions for irrigation and for industrial and hatchery purposes. No regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.2	11	2.3	84	4.0	363
1.4	19	2.6	120	5.0	594
1.6	29	3.0	175	6.0	860
1.8	42	3.3	223	7.0	1,340
2.0	57	3.6	280	8.4	2,700

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	418	a355	608	396	771	486	440	452	440	260	103
2	14	407	a350	1,410	385	717	486	440	452	440	241	101
3	17	407	a350	1,100	374	666	475	558	452	429	250	99
4	16	385	a350	890	363	642	475	666	452	429	241	a95
5	14	374	a340	771	352	642	464	691	452	429	236	a92
6	12	363	a330	1,100	352	618	452	771	452	429	230	a88
7	11	374	a325	2,700	363	594	440	744	452	429	223	84
8	15	396	a320	2,030	374	570	440	691	440	418	216	81
9	32	396	a315	1,410	363	546	452	642	452	407	209	78
10	39	396	a310	1,150	342	522	464	618	452	396	204	76
11	48	385	a310	1,000	332	510	475	582	452	396	200	73
12	35	374	a310	860	332	498	464	570	464	385	193	71
13	26	385	a340	771	321	498	452	570	464	374	190	69
14	22	396	396	744	342	464	452	558	464	374	184	67
15	70	418	385	691	396	452	452	546	464	363	180	65
16	187	429	385	666	522	440	475	546	475	363	175	63
17	418	452	418	618	744	429	486	534	464	352	171	59
18	570	498	498	606	890	429	464	522	464	352	165	58
19	522	498	618	570	771	418	452	522	464	342	160	56
20	666	475	570	558	666	407	452	510	464	342	154	54
21	510	464	522	522	724	470	452	498	464	332	150	52
22	396	452	498	510	1,640	898	464	498	464	332	146	59
23	363	429	475	498	1,210	717	464	486	464	321	140	65
24	332	418	475	498	920	642	464	486	464	310	137	72
25	332	418	464	486	860	582	486	475	464	310	134	62
26	332	407	452	464	1,340	546	475	475	464	300	130	70
27	332	396	452	452	1,150	522	464	475	464	300	126	70
28	332	a380	452	440	960	510	464	475	464	280	121	61
29	342	a370	452	429	830	522	452	464	452	290	117	55
30	385	a360	440	418	-	522	452	452	452	280	112	49
31	418	-	440	407	-	498	-	452	-	270	107	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,819	666	11	220	13,530
November	12,320	498	360	411	24,440
December	12,697	618	310	410	25,180
Calendar year 1947	129,538	1,830	11	355	256,900
January	25,377	2,700	407	819	50,330
February	18,614	1,640	321	642	36,920
March	17,262	898	407	557	34,240
April	13,895	486	440	463	27,560
May	16,957	771	440	547	33,630
June	13,763	475	440	459	27,300
July	11,214	440	270	362	22,240
August	5,502	260	107	177	10,910
September	2,147	103	49	71.6	4,260
Water year 1947-48	156,567	2,700	11	428	310,500

a No gage-height record; discharge computed on basis of recorded range in stage and records for Trout Creek near Carson and Falls Creek near Carson, and interpolated.

Wind River above Trout Creek, near Carson, Wash.

Location.- Staff gage, lat. 45°48'30", long. 121°54'30", in NE¼ sec. 26, T. 4 N., R. 7 E., three-quarters of a mile upstream from mouth of Trout Creek and 7 miles northwes of Carson.

Drainage area.- 108 square miles.

Records available.- October 1944 to September 1948.

Extremes.- Maximum discharge observed during year, 5,300 second-feet Jan. 7 (gage heigh 12.20 feet); minimum observed, 72 second-feet Oct. 1, 2.
1944-48: Maximum discharge, 8,880 second-feet Feb. 8, 1945 (gage height, 15.5 feet, from high-water mark), from rating curve extended above 5,000 second-feet; mir mum observed, 52 second-feet Oct. 27-30, 1945.

Remarks.- Records good. Gage read twice daily. Very small regulation by fish hatchery dam above station. No diversion above station which is not returned to stream.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.4	65	3.5	334	8.0	2,000
1.7	88	4.0	444	9.0	2,680
2.0	116	5.0	707	10.0	3,380
2.5	172	6.0	1,020	11.0	4,200
3.0	243	7.0	1,460	12.0	5,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	72	885	420	1,140	354	920	571	597	679	243	132	
2	97	795	397	2,240	334	825	624	545	651	243	132	
3	172	795	420	1,660	314	735	651	1,020	651	227	132	
4	126	707	397	1,360	314	679	824	1,260	597	212	126	
5	111	651	375	1,140	314	624	597	1,260	571	212	126	
6	106	624	354	2,000	295	571	571	1,660	571	260	126	
7	102	920	354	4,560	260	545	519	1,460	597	243	126	
8	121	1,220	334	2,930	334	519	494	1,220	571	227	121	
9	260	955	334	2,000	314	494	545	1,020	545	212	116	
10	295	855	314	1,610	295	469	597	920	519	198	116	
11	397	795	334	1,310	260	444	624	825	571	185	116	
12	277	735	334	1,060	260	420	597	825	519	185	116	
13	227	735	444	955	260	420	571	885	519	185	116	
14	185	735	571	855	260	397	597	825	469	172	116	
15	494	920	545	765	519	375	651	765	420	172	126	
16	1,140	955	545	707	519	375	795	765	545	172	121	
17	1,460	990	885	651	765	354	795	765	444	160	116	
18	2,180	1,020	1,100	597	1,100	375	795	735	397	160	111	
19	2,440	920	1,220	571	885	354	735	707	375	160	111	
20	2,240	825	955	519	765	354	765	707	375	160	111	
21	1,560	735	825	494	885	545	825	707	397	160	106	
22	1,060	651	765	494	2,000	1,310	1,060	735	354	148	106	
23	920	597	707	494	1,510	885	1,100	707	334	148	106	
24	765	545	825	494	1,140	765	1,100	735	334	148	108	
25	651	519	735	469	1,180	679	1,140	795	314	142	106	
26	597	519	679	444	2,370	624	990	825	314	137	108	
27	519	494	651	420	1,760	597	855	855	295	148	102	
28	571	469	765	397	1,260	597	765	885	295	160	97	
29	519	444	707	375	1,020	651	679	765	277	148	97	
30	651	420	651	375	-	651	624	679	260	142	102	
31	765	-	624	354	-	597	-	679	-	137	97	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	21,060	2,440	72	679	6.29	7.25	41,7
November	22,430	1,220	420	748	6.93	7.73	44,4
December	18,566	1,220	314	599	5.55	6.39	36,8
Calendar year 1947	167,551	2,440	68	459	4.25	57.70	332,3
January	33,440	4,560	354	1,079	9.99	11.52	66,3
February	21,846	2,370	260	753	6.97	7.52	43,3
March	18,150	1,310	354	585	5.42	6.25	36,0
April	21,856	1,140	494	729	6.75	7.53	43,3
May	27,133	1,660	545	875	8.10	9.34	53,8
June	13,760	679	260	459	4.25	4.74	27,2
July	5,606	260	137	181	1.68	1.93	11,1
August	3,544	132	97	114	1.06	1.22	7,0
September	3,003	172	80	100	.926	1.03	5,9
Water year 1947-48	210,394	4,560	72	575	5.32	72.45	417,3

Wind River near Carson, Wash.

Location.- Water-stage recorder, lat. 45°44'10", long. 121°48'10", in SW¼NE¼ sec. 21, T. 3 N., R. 8 E., three-quarters of a mile upstream from Little Wind River, 1 mile northeast of Carson, and 2½ miles upstream from mouth. Discharge measurements made just downstream from mouth of Little Wind River.

Drainage area.- 225 square miles, including that of Little Wind River.

Records available.- December 1934 to September 1948 (includes flow of Little Wind River).

Average discharge.- 13 years, 1,030 second-feet.

Extremes.- Maximum discharge during year, 13,500 second-feet Jan. 7 (gage height, 15.26 feet), from rating curve extended above 5,000 second-feet on basis of velocity-area studies; minimum, 177 second-feet Sept. 20, 21 (gage height, 3.04 feet).
1934-48: Maximum discharge, 16,700 second-feet Dec. 29, 1937 (gage height, 17.30 feet), from rating curve extended above 5,000 second-feet on basis of velocity-area studies; minimum, 136 second-feet Nov. 29, Dec. 1, 1936 (gage height, 2.21 feet).

Remarks.- Records good. Flow occasionally affected by pondage at Forest Service power plant on Trout Creek. No diversion above station.

Revisions.- W 964: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

3.0	171	4.5	510	7.0	1,670	11.0	5,620
3.3	222	5.0	680	8.0	2,400	12.0	7,050
3.6	282	5.5	870	9.0	3,290	13.0	8,720
4.0	376	6.0	1,100	10.0	4,370	14.1	10,800

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.
1	184	2,090	810	2,930	680	2,090	1,250	1,180	1,220	468	293	204
2	286	1,880	790	6,020	645	1,810	1,340	1,100	1,180	455	282	204
3	592	1,740	830	4,140	628	1,550	1,490	2,360	1,180	442	282	206
4	442	1,550	770	3,290	628	1,400	1,370	3,290	1,080	428	278	204
5	351	1,430	750	2,640	592	1,280	1,280	3,000	1,020	428	278	204
6	316	1,100	715	4,770	558	1,180	1,220	3,590	1,000	482	276	196
7	316	2,040	715	10,700	558	1,100	1,190	3,290	1,020	482	272	190
8	364	2,910	698	6,450	562	1,050	1,120	2,640	1,000	442	265	199
9	698	2,240	715	4,370	680	1,000	1,250	2,240	950	415	257	189
10	870	1,880	680	3,590	610	930	1,460	1,880	910	402	253	187
11	1,220	1,810	715	3,090	558	890	1,490	1,670	975	402	255	182
12	850	1,550	680	2,640	540	850	1,370	1,610	930	389	253	185
13	662	1,610	950	2,160	540	850	1,280	1,740	890	376	243	189
14	558	1,670	1,430	1,880	592	830	1,280	1,670	810	376	253	189
15	1,480	2,240	1,310	1,610	1,000	790	1,430	1,550	750	364	263	192
16	3,190	2,480	1,250	1,460	1,570	770	1,740	1,490	850	351	261	190
17	4,240	2,320	1,950	1,310	2,560	750	1,880	1,550	770	351	247	190
18	5,230	2,320	2,720	1,200	3,090	790	1,810	1,430	715	339	243	187
19	5,360	2,020	3,090	1,120	2,480	790	1,670	1,370	680	339	243	184
20	5,230	1,740	2,320	1,050	1,950	790	1,670	1,340	680	339	239	179
21	3,590	1,550	1,880	1,000	2,480	1,310	1,810	1,370	715	327	235	177
22	2,580	1,370	1,740	950	5,750	3,920	2,240	1,370	662	327	233	209
23	2,090	1,220	1,610	950	3,920	2,480	2,560	1,310	628	316	228	316
24	1,670	1,120	1,670	950	2,820	1,880	2,560	1,340	592	316	226	327
25	1,400	1,050	1,550	910	2,820	1,610	2,640	1,460	575	304	228	265
26	1,220	1,000	1,430	870	5,750	1,430	2,240	1,490	558	304	228	265
27	1,120	950	1,370	830	4,140	1,310	1,880	1,550	540	316	224	415
28	1,190	910	1,550	790	3,000	1,310	1,610	1,610	525	339	213	339
29	1,120	850	1,490	750	2,400	1,400	1,430	1,430	510	316	211	304
30	1,400	830	1,370	732	-	1,430	1,250	1,250	496	304	215	267
31	1 740	-	1,280	715	-	1,340	-	1,200	-	304	211	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	51,529	5,360	184	1,662	7.39	8.52	102,200
November	49,470	2,910	830	1,649	7.33	8.18	98,120
December	40,828	3,090	680	1,317	5.85	6.75	80,980
Calendar year 1947	380,707	5,890	177	1,043	4.64	62.94	755,000
January	75,867	10,700	715	2,447	10.9	12.54	150,500
February	54,201	5,750	540	1,869	8.31	8.96	107,500
March	40,910	3,920	750	1,320	5.87	6.76	81,140
April	48,800	2,640	1,120	1,627	7.23	8.07	96,790
May	55,370	3,590	1,100	1,786	7.94	9.15	109,800
June	24,411	1,220	496	814	3.62	4.03	48,420
July	11,543	482	304	372	1.65	1.91	22,900
August	7,688	293	211	248	1.10	1.27	15,250
September	6,724	415	177	224	.996	1.11	13,340
Water year 1947-48	467,341	10,700	177	1,277	5.68	77.25	926,900

Peak discharge (base, 5,700 sec.-ft.).- Oct. 17 (10 p.m.) 7,370 sec.-ft.; Jan. 2 (1 a.m.) 7,530 sec.-ft.; Jan. 7 (6 a.m.) 13,500 sec.-ft.; Feb. 22 (5 a.m.) 6,450 sec.-ft.; Feb. 26 (9 a.m.) 6,310 sec.-ft.

Falls Creek near Carson, Wash.

Location.- Water-stage recorder lat. 45°54'30", long. 121°56'30", in SW¼ sec. 21, T. 5 N., R. 7 E., a third of a mile upstream from mouth and 14 miles northwest of Carson.
Drainage area.- 24.3 square miles.
Records available.- December 1944 to November 1948 (discontinued).
Extremes.- 1947-48: Maximum discharge during water year, 570 second-feet Jan. 7 (gage height, 4.12 feet), from rating curve extended above 350 second-feet; minimum, 12 second-feet Oct. 1 (gage height, 1.72 feet).
1948: Maximum discharge during period October to November not determined, occurred sometime during period of no gage-height record Nov. 22-30; minimum, 22 second-feet Oct. 3, 30.
1944-48: Maximum discharge, 710 second-feet Dec. 15, 1946 (gage height, 4.38 feet) from rating curve extended above 350 second-feet. A discharge of 8.7 second-feet was measured Oct. 29, 1944.
Remarks.- Records good except those above 300 second-feet and those for periods of ice effect or no gage-height record, which are fair. No diversion or regulation above station.

Discharge, in second-feet, 1947-48

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.5	129	66	172	67	136	78	96	160	66	34	24
2	29	114	63	282	64	124	88	90	157	62	34	24
3	32	116	68	214	b60	112	96	196	160	60	33	25
4	24	101	62	188	b55	103	88	214	151	57	33	24
5	20	96	60	160	b50	99	83	224	149	58	32	24
6	19	96	57	282	b48	94	80	262	154	67	32	23
7	19.5	120	56	503	b45	90	76	236	162	62	32	22
8	29	136	54	370	b45	88	74	205	160	57	31	22
9	46	109	53	285	b50	85	82	185	157	53	31	22
10	45	112	51	249	53	80	87	170	146	51	31	21
11	51	107	51	218	b46	77	85	157	182	51	30	20
12	36	97	49	190	b43	74	78	165	165	48	29	20
13	32	107	67	173	b45	74	77	182	162	46	29	20
14	29	107	74	157	51	72	83	170	139	45	29	22
15	86	134	66	144	78	68	88	157	132	44	32	24
16	136	132	64	*136	69	67	97	160	154	42	31	22
17	210	141	109	127	94	66	109	162	129	41	29	22
18	285	136	162	118	112	64	112	151	122	41	29	21
19	318	124	168	112	97	63	112	146	116	40	29	20
20	315	114	134	103	88	61	114	154	114	39	28	19.
21	221	103	114	101	113	91	124	154	116	38	27	19.
22	165	94	105	97	221	160	165	146	105	37	27	27
23	146	88	101	97	*179	114	176	146	97	36	27	34
24	112	83	112	94	139	103	180	157	90	36	27	31
25	96	78	96	90	137	94	176	170	87	35	27	27
26	85	78	88	83	255	87	154	179	82	34	26	32
27	77	74	90	80	208	83	134	182	80	42	25	38
28	88	68	103	78	173	83	122	202	76	42	25	31
29	80	66	94	76	149	83	114	185	72	37	25	28
30	112	64	85	72	-	82	103	170	68	36	25	25
31	122	-	83	70	-	80	-	168	-	34	25	-

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.

1948

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	24	33	9	39	36	17	25	109	25	25	a150
2	23	42	10	35	36	18	25	87	26	25	a120
3	24	63	11	34	34	19	25	85	27	24	a100
4	52	53	12	31	34	20	24	87	28	23	a135
5	47	51	13	30	34	21	24	76	29	23	a140
6	50	46	14	29	80	22	23	a75	30	24	a120
7	61	42	15	28	87	23	23	a110	31	29	-
8	45	38	16	27	128	24	26	a180			

a No gage-height record; discharge computed on basis of records for Panther Creek near Carson.

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October 1947	3,079.0	318	13.5	99.3	4.09	4.71	6,110
November	3,124	141	64	104	4.28	4.78	6,200
December	2,605	168	49	84.0	3.46	3.99	5,170
Calendar year 1947	28,066.5	318	13	76.9	3.16	42.95	55,670
January 1948	5,121	503	70	165	6.79	7.84	10,160
February	2,834	255	43	97.7	4.02	4.34	5,620
March	2,757	160	61	88.9	3.66	4.22	5,470
April	3,235	180	74	108	4.44	4.95	6,420
May	5,341	262	90	172	7.08	8.17	10,590
June	3,844	182	68	128	5.27	5.88	7,620
July	1,437	67	34	46.4	1.91	2.20	2,850
August	904	34	25	29.2	1.20	1.38	1,790
September	734.0	38	19.5	24.5	1.01	1.12	1,460
Water year 1947-48	35,015.0	503	13.5	95.7	3.94	53.58	69,460
October 1948	947	61	23	30.5	1.26	1.45	1,880
November	2,411	180	33	80.4	3.31	3.69	4,780

Trout Creek near Carson, Wash.

Location.- Water-stage recorder, lat. 45°48'00", long. 121°55'00", in SW¼ sec. 26, T. 4 N., R. 7 E., a quarter of a mile upstream from Martha Creek, half a mile upstream from mouth, and 7 miles northwest of Carson.
Drainage area.- 30.3 square miles.
Records available.- December 1944 to December 1948 (discontinued).
Extremes.- 1947-48: Maximum discharge during water year, 2,030 second-feet Jan. 7 (gage height, 7.59 feet), from rating curve extended above 950 second-feet; minimum, 3.7 second-feet Sept. 10 (gage height, 1.25 feet).
1948: Maximum discharge during period October to December, 1,400 second-feet Nov. 24 (gage height, 6.55 feet); minimum, 24 second-feet Oct. 3 (gage height, 1.95 feet).
1944-48: Maximum discharge, 3,040 second-feet Feb. 7, 1945 (gage height, 9.10 feet), from rating curve extended above 950 second-feet; minimum, 3.0 second-feet Oct. 1, 1945 (gage height 1.25 feet).
Remarks.- Records good except those for periods of ice effect or no gage-height record, and those above 1,000 second-feet or below 10 second-feet, which are fair. Some regulation at Forest Service power plant. No diversion above station.

Discharge, in second-feet, 1947-48

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14.5	438	110	674	82	317	222	201	224	45	19	10
2	14.5	470	103	1,180	76	272	265	178	207	43	18	9.8
3	79	356	127	714	b70	228	293	567	201	43	17.5	10
4	156	331	111	532	b66	199	259	636	183	41	16.5	10
5	110	290	106	409	b60	176	232	583	168	41	16.5	9.8
6	85	305	100	794	b55	159	209	735	161	46	16	9.3
7	102	566	103	1,670	b56	145	189	600	157	50	16	9.1
8	110	735	99	1,000	117	136	178	453	152	43	15	8.9
9	546	484	107	618	95	133	230	368	143	40	14.5	8.7
10	339	423	98	516	77	120	268	319	133	37	14.5	6.7
11	453	395	107	438	71	*111	261	284	130	36	14.5	5.8
12	307	343	109	356	b71	106	232	290	120	34	14	7.4
13	228	356	212	290	b70	106	213	314	110	32	13.5	7.6
14	178	343	312	243	93	93	226	307	99	31	13.5	8
15	568	484	305	211	263	95	261	279	90	30	16	9.6
16	920	484	281	183	295	95	343	274	85	89	15	8.9
17	1,320	484	438	163	a450	93	395	277	79	28	14.5	8.2
18	1,290	468	516	145	a630	98	356	257	75	27	13.5	8
19	1,320	382	583	130	a400	94	343	239	70	26	13.5	7.8
20	1,060	331	409	*122	a320	91	331	224	70	26	13.5	7.6
21	714	277	331	114	498	244	368	230	76	25	13	7.6
22	500	235	331	110	1,150	618	500	232	70	24	12	14.5
23	409	203	297	116	655	368	600	222	65	24	12	47
24	317	178	319	119	453	293	566	230	62	22	12	42
25	265	157	290	114	535	252	532	252	59	22	12	28
26	136	147	259	106	1,170	213	409	241	57	21	11.5	31
27	203	135	248	99	655	197	343	265	54	26	11.5	96
28	228	123	305	b95	453	191	293	274	52	28	11	53
29	220	114	286	b91	356	220	250	246	49	24	10.5	42
30	309	110	250	b88	-	243	215	220	47	22	10.5	35
31	382	-	228	b85	-	235	-	215	-	20	10.5	-

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for nearby streams.
b Stage-discharge relation affected by ice.

1948

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1	30	65	423	9	176	125	701	17	58	438	-	25	43	846	-
2	26	112	778	10	133	110	970	18	54	331	-	26	40	566	-
3	27	317	516	11	113	99	846	19	51	319	-	27	37	409	-
4	163	272	382	12	98	91	920	20	47	423	-	28	35	692	-
5	155	277	319	13	88	93	-	21	44	343	-	29	33	532	-
6	260	226	270	14	78	273	-	22	42	331	-	30	34	468	-
7	382	179	349	15	70	395	-	23	40	541	-	31	54	-	-
8	257	145	368	16	63	516	-	24	49	1,080	-				

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October 1947	12,883	1,320	14.5	416	13.7	15.81	25,550
November	10,147	735	110	338	11.2	12.45	20,130
December	7,480	583	98	241	7.95	9.18	14,840
Calendar year 1947	69,290.2	1,320	6.2	190	6.27	85.04	137,400
January 1948	11,525	1,670	85	372	12.3	14.15	22,860
February	9,342	1,170	55	322	10.6	11.47	18,530
March	5,941	618	91	192	6.34	7.29	11,780
April	9,382	600	178	313	10.3	11.52	18,610
May	10,012	735	178	323	10.7	12.29	19,860
June	3,248	224	47	108	3.56	3.99	6,440
July	986	50	20	31.8	1.05	1.21	1,960
August	431.5	19	10.5	13.9	.459	.53	856
September	567.3	96	5.8	18.9	.624	.70	1,130
Water year 1947-48	81,944.8	1,670	5.8	224	7.39	100.59	162,500
October 1948	2,780	382	26	89.7	2.96	3.41	5,510
November	10,614	1,080	65	354	11.7	13.03	21,050
December 1-12	6,842	970	270	570	18.8	8.40	13,570

Panther Creek near Carson, Wash.

Location.- Water-stage recorder, lat. 45°48'00", long. 121°52'00", in SW¼ sec. 25, T. N. 7½ E., a third of a mile upstream from Cedar Creek and 6 miles north of Carson.

Drainage area.- 30.1 square miles.

Records available.- December 1944 to September 1948.

Extremes.- Maximum discharge during year, 2,230 second-feet Jan. 7 (gage height, 5.1 f from high-water mark in well); minimum, 50 second-feet Oct. 1.
1944-48: Maximum discharge, that of Jan. 7, 1948; minimum, 47 second-feet Aug. to Sept. 2, 1945 (gage height, 0.90 foot).
Discharge of 40 second-feet was measured Oct. 30, 1944.

Remarks.- Records good except those above 2,000 second-feet, which are fair. No diver or regulation above station.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	50	251	113	428	117	257	178	148	117	89	72	
2	67	236	111	915	113	222	185	141	113	89	72	
3	77	211	113	556	111	198	206	286	113	87	72	
4	64	190	110	424	110	180	198	402	110	87	72	
5	59	171	108	361	108	166	185	398	110	89	72	
6	56	159	104	747	104	157	173	475	108	91	70	
7	58	183	102	f1,680	102	148	163	424	108	89	70	
8	67	245	100	882	110	143	157	326	108	87	68	
9	106	231	102	551	108	139	175	257	106	86	68	
10	111	203	102	428	104	133	201	214	104	84	68	
11	137	183	106	371	100	127	208	190	113	82	68	
12	98	168	111	322	98	123	195	185	110	82	67	
13	82	173	138	272	98	123	175	183	106	82	67	
14	75	183	203	236	108	119	175	180	104	80	67	
15	198	269	188	208	208	117	198	171	102	80	67	
16	354	319	183	193	232	115	245	168	104	79	67	
17	593	294	266	180	428	113	257	171	102	79	67	
18	648	291	354	168	563	115	245	163	100	77	64	
19	637	257	420	159	413	117	219	157	100	77	64	
20	706	222	322	152	300	115	214	148	100	77	64	
21	435	193	251	146	371	208	231	150	100	77	64	
22	310	173	222	143	1,020	645	251	150	98	75	64	
23	245	159	206	143	615	358	272	146	96	75	62	
24	193	148	201	146	405	269	288	146	96	75	62	
25	166	139	190	143	409	225	310	148	95	74	62	
26	148	133	180	139	1,090	195	275	146	95	74	62	
27	137	127	171	135	610	180	228	141	93	74	60	
28	137	123	180	131	395	188	198	148	91	75	59	
29	135	119	185	129	306	208	178	137	91	74	59	
30	159	117	178	125	-	206	159	127	91	74	59	
31	219	-	171	121	-	193	-	127	-	74	58	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-f
October	6,527	706	50	211	7.01	8.06	12,
November	5,870	319	117	193	6.51	7.25	11,
December	5,491	420	100	177	5.88	6.78	10,
Calendar year 1947	53,835	820	50	147	4.88	66.50	106,
January	10,734	1,680	121	346	11.5	13.26	21,
February	8,856	1,090	98	305	10.1	10.94	17,
March	5,802	645	113	187	6.21	7.17	11,
April	6,342	310	157	211	7.01	7.84	12,
May	6,353	475	127	205	6.81	7.85	12
June	3,084	117	91	103	3.42	3.81	6
July	2,494	91	74	80.5	2.67	3.08	4
August	2,037	72	58	65.7	2.18	2.52	4,
September	1,852	82	56	61.7	2.05	2.29	3,
Water year 1947-48	65,442	1,680	50	179	5.95	80.85	129,

f Computed from graph based on high-water mark.

Sandy River near Marmot, Oreg.

Location.- Water-stage recorder, lat. 45°23', long. 122°08', in NE¼ sec. 24, T. 2 S., R. 5 E., 1 mile southwest of Marmot, 1½ miles upstream from Sandy River Dam of Portland General Electric Co., and 5 miles downstream from Salmon River.
Drainage area.- 262 square miles.
Records available.- August 1911 to December 1915, July 1919 to September 1948. Equivalent records for period January 1916 to June 1919 obtained by combining records for Sandy River below near Marmot with records for Sandy River Canal near Marmot.
Average discharge.- 37 years, 1,309 second-feet.
Extremes.- Maximum discharge during year, 19,300 second-feet Jan. 7 (gage height, 14.08 feet), from rating curve extended above 6,000 second-feet; minimum, 310 second-feet Sept. 19 (gage height, 3.15 feet).
1911-48: Maximum discharge, 29,200 second-feet Jan. 6, 1923 (gage height, 17.5 feet, site and datum then in use), by computation of flow over dam; minimum, 205 second-feet Sept. 21-24, 1940.
Remarks.- Records excellent except those for periods of no gage-height record or shifting control, which are fair. No diversion or regulation above station.
Cooperation.- Water-stage recorder inspected by employee of Portland General Electric Co.
Revisions.- W 594: Drainage area.

Rating table, water year 1947-48, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

3.1	290	5.0	1,470	9.5	8,230
3.4	425	6.0	2,450	11.0	11,600
3.8	635	7.0	3,700	12.0	14,000
4.4	1,010	8.0	5,300		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	318	1,930	1,290	1,900	a700	2,010	1,560	1,290	2,080	893	725	380
2	992	1,860	1,200	4,180	a700	1,830	1,650	1,230	2,120	828	618	385
3	1,370	1,830	1,420	2,810	713	1,590	1,610	2,650	2,230	803	591	420
4	671	1,640	1,280	2,260	719	1,430	1,450	3,010	1,950	785	580	385
5	558	1,490	1,160	1,880	689	1,330	1,330	2,830	1,830	779	536	370
6	a450	1,960	1,090	7,180	641	1,290	1,220	3,370	1,900	854	525	370
7	a480	8,900	1,110	13,800	653	1,240	1,120	3,130	1,940	867	515	366
8	420	7,620	1,070	6,120	785	1,170	1,040	2,640	1,880	749	510	352
9	a540	4,290	1,140	3,810	755	1,140	1,030	2,350	1,740	701	495	352
10	a800	3,920	1,060	2,980	695	1,040	1,050	2,080	1,560	695	495	357
11	a1,500	4,060	1,220	2,480	647	1,000	1,030	1,960	1,660	695	495	357
12	a1,100	3,320	1,230	2,120	624	964	964	2,020	1,470	659	475	348
13	a900	3,620	2,020	1,830	635	984	926	2,060	1,470	647	470	344
14	749	3,480	2,430	1,640	659	997	1,230	1,860	1,290	630	450	357
15	1,520	5,950	1,840	1,490	1,210	984	1,770	1,780	1,210	630	510	344
16	5,140	5,660	1,590	1,370	1,370	984	2,260	1,980	1,250	630	465	330
17	a6,000	4,480	2,100	1,270	1,940	978	2,210	2,020	1,120	635	450	322
18	a7,200	4,630	2,950	1,190	2,570	1,010	2,400	1,900	1,060	630	450	322
19	a6,500	3,600	2,890	1,120	1,920	984	2,240	1,750	1,010	613	460	318
20	a5,000	2,830	2,130	1,070	1,580	958	2,330	1,810	1,190	613	450	318
21	a3,500	2,260	1,780	1,010	6,340	1,180	2,480	2,030	1,800	602	435	318
22	a2,500	1,900	1,580	990	9,500	2,420	2,550	2,110	1,450	591	435	455
23	2,060	1,680	1,400	1,040	4,430	1,750	2,640	2,130	990	602	455	505
24	1,700	1,500	1,310	1,050	2,930	1,540	2,500	2,410	1,190	564	465	465
25	1,410	1,410	1,250	990	2,630	1,450	2,640	2,840	1,110	536	465	435
26	1,310	1,430	1,200	932	7,360	1,300	2,230	2,970	1,050	530	440	613
27	1,150	1,410	1,220	900	4,240	1,290	1,900	2,950	1,010	803	420	848
28	1,110	1,350	1,370	880	2,920	1,540	1,700	3,160	1,000	893	415	659
29	1,090	1,260	1,290	860	2,260	1,970	1,530	2,560	1,000	719	425	542
30	2,200	1,230	1,170	a800	-	2,130	1,380	2,230	971	647	435	480
31	1,570	-	1,120	a750	-	1,740	-	2,110	-	624	405	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	61,808	7,200	318	1,994	7.61	8.77	122,600
November	92,500	8,900	1,230	3,083	11.8	13.13	183,500
December	46,910	2,950	1,060	1,513	5.77	6.66	93,040
Calendar year 1947	504,023	8,900	310	1,381	5.27	71.55	999,700
January	72,702	13,800	750	2,345	8.95	10.32	144,200
February	62,815	9,500	624	2,166	8.27	8.92	124,600
March	42,223	2,420	958	1,362	5.20	5.99	83,750
April	51,970	2,640	926	1,732	6.61	7.38	103,100
May	71,220	3,370	1,230	2,297	8.77	10.11	141,300
June	43,531	2,230	971	1,451	5.54	6.18	86,340
July	21,447	893	530	692	2.64	3.04	42,540
August	15,060	725	405	486	1.85	2.14	29,870
September	12,417	848	318	414	1.58	1.76	24,630
Water year 1947-48	594,603	13,800	318	1,625	6.20	84.40	1,179,000

Peak discharge (base, 7,700 sec.-ft.).- Oct. 18 (time and discharge unknown); Nov. 7 (7 p.m.) 11,000 sec.-ft.; Nov. 15 (6:30 p.m.) 8,020 sec.-ft.; Jan. 7 (7 a.m.) 19,300 sec.-ft.; Feb. 22 (2 a.m.) 15,700 sec.-ft.; Feb. 26 (7 a.m.) 9,080 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for station below Bull Run River, near Bull Run.
Note.- Shifting-control method used Oct. 23 to Nov. 6.

Sandy River below Bull Run River, near Bull Run, Oreg.

Location.- Water-stage recorder, lat. 45°27', long. 122°15', in NW¼ sec. 30, T. 1 S., R 5 E., 1 mile downstream from Bull River and 2 miles northwest of Bull Run. Altitude of gage, 202 feet (from river-profile map).
Drainage area.- 440 square miles.
Records available.- October 1929 to September 1948. April 1910 to September 1914 at si three-quarters of a mile upstream.
Average discharge.- 22 years (1910-11, 1912-14, 1929-48), 2,208 second-feet.
Extremes.- Maximum discharge during year, 36,300 second-feet Jan. 7 (gage height, 15.60 feet), from rating curve extended above 18,000 second-feet; minimum, 109 second-feet Sept. 11 (gage height, 0.97 foot); minimum daily, 118 second-feet Sept. 11.
1910-14, 1929-48: Maximum discharge, 58,000 second-feet Mar. 31, 1931 (gage heig 20.6 feet), from rating curve extended above 18,000 second-feet; minimum, 53 second-feet Oct. 4, 1931 (gage height, 0.53 foot); minimum daily, 93 second-feet Oct. 7, 19
Remarks.- Records good. No diversion above station for irrigation; about 60,000 acre-f annually diverted from Bull Run River by Portland Water Bureau. Flow slightly regulated by Bull Run Lake and Lake Ben Morrow Reservoir of Portland Water Bureau; considerable diurnal fluctuation by Bull Run power plant of Portland General Electric Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet

0.9	95	2.7	840	7.0	6,050
1.0	115	3.4	1,300	8.0	8,350
1.1	140	4.0	1,810	9.5	12,700
1.5	275	5.0	2,840	11.5	19,900
2.0	485	6.0	4,200	13.4	27,300

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	557	4,250	1,800	3,760	727	3,500	2,760	2,120	,130	1,150	645	
2	1,050	3,880	1,720	9,720	1,090	3,220	2,900	1,990	,030	1,060	908	
3	2,080	3,840	2,020	6,090	1,020	2,770	3,010	4,210	3,160	1,030	837	
4	1,100	3,670	1,880	4,150	1,040	2,480	2,500	5,920	2,770	996	820	
5	840	3,470	1,730	3,570	1,020	2,290	2,440	5,400	2,530	990	787	
6	927	4,310	1,640	13,000	939	2,140	2,220	6,730	2,560	1,170	758	
7	917	16,300	1,300	27,100	828	1,750	2,040	6,090	2,590	1,200	460	
8	879	16,000	1,680	12,000	746	2,000	1,880	4,790	2,490	1,030	290	
9	1,010	7,710	1,850	7,050	1,230	1,970	1,950	4,170	2,310	966	678	
10	1,230	6,870	1,800	5,140	1,100	1,810	1,720	3,520	2,110	930	666	
11	3,170	7,300	2,020	3,980	1,010	1,740	1,620	3,180	2,320	900	650	
12	1,900	6,200	2,160	3,650	960	1,630	1,830	3,210	2,150	864	659	
13	1,590	6,300	3,180	3,100	975	1,540	1,730	3,520	2,090	816	638	
14	1,310	6,710	4,550	2,730	881	1,340	1,960	3,160	1,810	780	665	
15	2,440	11,000	4,060	2,480	1,880	1,710	2,730	2,880	1,650	770	242	
16	9,580	10,500	3,220	2,250	2,590	1,740	3,720	3,120	1,710	770	764	
17	9,440	8,000	4,820	2,040	4,040	1,720	3,450	3,160	1,530	687	841	
18	13,400	8,080	6,410	1,550	4,880	1,810	3,800	3,010	1,430	633	792	
19	11,100	6,710	6,220	1,820	3,950	1,810	3,620	2,730	1,350	721	586	
20	11,200	5,080	4,350	1,700	3,060	1,730	3,610	2,690	1,640	678	701	
21	7,490	3,830	2,970	1,610	12,700	1,750	3,920	3,020	2,940	589	293	
22	4,990	3,140	3,090	1,540	20,600	4,770	4,150	3,080	2,330	618	198	
23	3,830	2,450	2,620	1,480	8,770	3,590	4,970	3,040	1,970	758	823	
24	3,080	2,370	2,360	1,440	5,380	3,070	4,740	3,380	1,760	796	790	
25	2,310	2,150	1,860	1,110	4,830	2,990	5,100	3,960	1,620	370	639	
26	2,000	2,160	2,000	1,400	15,400	2,650	4,140	4,170	1,520	474	682	
27	3,220	1,900	1,810	1,340	8,120	2,310	3,360	4,180	1,430	1,010	758	1,
28	2,620	1,910	2,410	1,290	5,250	2,580	2,960	4,750	1,350	1,200	225	1,
29	2,100	1,830	2,320	1,280	3,700	3,250	2,620	3,960	1,290	1,160	180	1,
30	3,910	1,400	2,070	1,250	-	3,580	2,340	3,300	1,230	1,140	824	
31	3,230	-	1,990	990	-	3,110	-	3,120	-	808	815	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	114,500	13,400	557	3,694	8.40	9.68	227,
November	169,320	16,300	1,400	5,644	12.8	14.31	335,
December	83,910	6,410	1,300	2,707	6.15	7.09	166,
Calendar year 1947	856,026	16,300	111	2,345	5.33	72.36	1,698,
January	131,610	27,100	990	4,245	9.65	11.12	261,
February	118,716	20,600	727	4,094	9.30	10.03	235,
March	74,350	4,770	1,340	2,398	5.45	6.28	147,
April	89,790	5,100	1,620	2,993	6.80	7.59	178,
May	115,560	6,730	1,990	3,728	8.47	9.77	229,
June	61,800	3,160	1,230	2,060	4.68	5.22	122,
July	27,064	1,200	370	873	1.98	2.29	53,
August	19,614	908	180	633	1.44	1.66	38,
September	18,181	1,410	118	606	1.38	1.54	36,
Water year 1947-48	1,024,415	27,100	118	2,769	6.36	86.58	2,032,

Peak discharge (base, 17,000 sec.-ft.).- Nov. 7 (12:30 p.m.) 23,000 sec.-ft.; Jan. 7 (7:30 a.m. 36,300 sec.-ft.; Feb. 22 (2:30 a.m.) 29,300 sec.-ft.; Feb. 26 (7:30 a.m.) 19,800 sec.-ft.

Salmon River near Government Camp, Oreg.

Location.- Water-stage recorder, lat. 45°16', long. 121°43', in sec. 31, T. 3 S., R. 9 E., near lower end of Red Top Meadows, 4 miles southeast of Government Camp. Datum of gage is 3,446.45 feet above mean sea level, datum of 1929.

Drainage area.- 8.7 square miles.

Records available.- May 1910 to May 1912, April 1926 to September 1948.

Average discharge.- 23 years (1910-11, 1926-48), 41.0 second-feet.

Extremes.- Maximum discharge during year, 306 second-feet Jan. 7 (gage height, 2.61 feet); minimum, 18 second-feet Oct. 1 (gage height, 0.36 foot).
1910-12, 1926-48: Maximum discharge, 650 second-feet Dec. 22, 1933 (gage height, 3.61 feet); minimum, 12 second-feet Nov. 21, 1929, Oct. 19, 1930, Nov. 2, 10-12, Nov. 28 to Dec. 4, 1936.

Remarks.- Records good. No diversion or regulation above station.

Revisions.- W 769: Drainage area.

Rating table, water year 1947-48, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 31 to June 17)

0.3	15	1.1	69
.4	20	1.4	98
.6	32	1.8	150
.8	45	2.2	220

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	38	59	45	33	47	37	45	96	60	48	25
2	38	41	53	47	32	45	39	46	106	58	40	25
3	30	42	59	41	b32	42	36	69	110	56	38	26
4	22	37	50	39	31	40	33	63	99	54	38	25
5	21	34	47	39	30	39	31	72	99	55	37	24
6	20	49	46	108	b30	39	31	81	110	64	36	24
7	20	181	45	220	30	37	30	74	119	62	36	23
8	21	141	44	91	30	37	29	67	115	51	35	22
9	30	82	43	69	30	36	29	63	110	48	34	22
10	31	104	42	60	29	35	30	64	101	46	34	22
11	47	87	42	55	28	35	29	64	105	44	33	22
12	30	68	42	51	b28	34	29	66	102	44	32	22
13	26	68	57	48	28	34	30	64	98	42	32	22
14	24	59	50	46	29	34	38	58	88	42	33	22
15	54	145	44	45	32	33	45	64	89	42	37	22
16	67	101	43	43	35	33	53	67	88	42	31	22
17	79	106	55	42	40	32	54	67	80	41	32	23
18	72	102	52	41	42	32	62	64	75	41	33	24
19	61	75	46	40	34	32	61	67	76	42	33	22
20	64	65	44	39	32	31	65	76	92	42	31	22
21	53	58	42	38	62	39	68	80	94	41	30	22
22	42	53	41	39	96	46	66	88	80	39	30	31
23	42	51	40	*48	53	36	64	90	75	41	30	28
24	36	49	40	44	45	35	60	99	73	40	31	29
25	34	51	39	39	54	34	64	111	70	39	30	27
26	33	56	39	38	107	33	54	122	67	38	28	33
27	33	56	39	38	64	*34	49	116	66	57	28	38
28	37	54	42	35	54	36	47	132	66	50	27	28
29	42	51	39	34	49	43	46	105	65	42	27	25
30	44	55	38	33	-	42	44	96	63	39	27	24
31	37	-	37	33	-	37	-	95	-	53	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,208	79	18	39.0	4.48	5.16	2,400
November	2,159	181	34	72.0	8.28	9.23	4,280
December	1,399	59	37	45.1	5.18	5.98	2,770
Calendar year 1947	16,483	181	18	45.2	5.20	70.46	32,700
January	1,626	220	33	52.5	6.03	6.95	3,230
February	1,219	107	28	42.0	4.83	5.21	2,420
March	1,142	47	31	36.8	4.23	4.88	2,270
April	1,353	68	29	45.1	5.18	5.78	2,680
May	2,435	132	45	78.5	9.02	10.41	4,830
June	2,677	119	63	89.2	10.3	11.44	5,310
July	1,455	64	38	46.9	5.39	6.22	2,890
August	1,017	48	26	32.8	3.77	4.35	2,020
September	746	38	22	24.9	2.86	2.19	1,480
Water year 1947-48	18,436	220	18	50.4	5.79	78.80	36,580

Peak discharge (base, 150 sec.-ft.).- Nov. 7 (8 a.m.) 234 sec.-ft.; Nov. 15 (4 p.m.) 220 sec.-ft.; Jan. 7 (5 a.m.) 306 sec.-ft.; Feb. 22 (1 a.m.) 156 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Salmon River below Linney Creek, Oreg.

Location.- Water-stage recorder, lat. 45°13', long. 121°52', 200 feet downstream from Linney Creek, 9 miles southeast of Welches, and 11 miles downstream from station nea Government Camp.

Drainage area.- 54 square miles.

Records available.- October 1927 to September 1948.

Average discharge.- 21 years, 201 second-feet.

Extremes.- Maximum discharge during year, 1,940 second-feet Jan. 7 (gage height, 4.51 feet); minimum, 54 second-feet Oct. 1.
1927-48: Maximum discharge, 4,070 second-feet Mar. 31, 1931 (gage height, 5.81 feet), from rating curve extended above 1,500 second-feet; minimum, 37 second-feet Nov. 2, 1936 (gage height, 0.22 foot).

Remarks.- Records good except those for periods of no gage-height record, which are fai No diversion or regulation above station.

Revisions (water years).- W 769: 1928, 1931(M).

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6				Jan. 7 to Sept. 30			
0.4	52	1.5	283	0.5	60	1.6	312
.6	78	2.0	466	.7	87	2.0	465
.9	127	2.5	685	.9	118	2.5	685
1.2	193	3.0	960	1.1	159	3.0	960
				1.3	213	4.1	1,660

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	a55	215	276	244	150	368	238	294	550	190	169	
2	a85	223	244	347	144	330	270	288	541	182	120	
3	a140	220	286	280	137	294	257	425	554	176	113	
4	a85	212	247	250	144	270	235	457	513	172	112	
5	a65	201	229	226	139	254	219	477	481	179	108	
6	a60	244	220	604	124	238	204	541	481	204	107	
7	a55	762	220	1,610	133	225	193	550	481	204	104	
8	a60	948	209	978	141	213	184	521	469	174	102	
9	a70	645	204	660	133	204	187	493	435	164	99	
10	a100	617	193	533	128	193	190	473	414	159	99	
11	a250	612	201	445	120	184	184	473	425	155	99	
12	a150	501	193	376	115	179	172	489	402	150	94	
13	a120	497	263	330	124	179	174	489	395	144	94	
14	a100	458	290	302	124	179	251	457	345	141	94	
15	a250	768	238	277	159	169	319	469	353	135	104	
16	a500	715	226	254	159	166	391	493	353	133	94	
17	a450	675	266	235	204	159	410	493	308	131	93	
18	a500	700	318	222	254	159	457	473	291	129	94	
19	a450	572	311	210	207	155	465	469	280	129	94	
20	a400	493	260	198	184	152	497	489	302	129	92	
21	a350	421	241	193	426	174	533	521	338	124	88	
22	a300	372	232	193	856	264	558	541	291	120	90	
23	a250	336	212	213	525	204	554	554	264	120	90	1
24	a200	311	209	216	417	190	533	608	251	116	92	
25	188	294	196	193	406	179	525	680	238	115	88	
26	183	290	188	165	774	166	449	740	232	113	84	
27	176	283	188	169	558	174	398	740	222	144	83	1
28	188	270	206	164	465	198	364	818	213	159	81	al
29	198	250	191	164	398	247	330	665	207	128	80	a
30	276	263	181	164	-	270	312	604	198	102	80	a
31	206	-	179	152	-	235	-	572	-	126	80	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	6,460	500	55	208	3.85	4.45	12,
November	13,368	948	201	446	8.26	9.21	26,
December	7,117	318	179	230	4.26	4.90	14,
Calendar year 1947	78,237	948	54	214	3.96	53.89	155,
January	10,568	1,610	152	341	6.31	7.28	20,
February	7,848	856	115	271	5.02	5.40	15,
March	6,571	368	152	212	3.93	4.53	13.
April	10,053	558	172	335	6.20	6.92	19,
May	16,356	818	288	528	9.78	11.26	32,
June	10,825	554	198	361	6.69	7.46	21,
July	4,547	204	102	147	2.72	3.13	9,
August	3,021	169	80	97.5	1.81	2.08	5,
September	2,371	124	69	79.0	1.46	1.63	4,
Water year 1947-48	99,105	1,610	55	271	5.02	68.25	196,

Peak discharge (base, 710 sec.-ft.).- Nov. 8 (5 a.m.) 1,080 sec.-ft.; Nov. 15 (6 p.m.) 1,040 se ft.; Jan. 7 (7 a.m.) 1,940 sec.-ft.; Feb. 22 (3:30 a.m.) 1,150 sec.-ft.; Feb. 26 (7 a.m.) 918 sec ft.; May 28 (8 a.m.) 889 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for stations near Brightwood and near Government Camp.

Salmon River above Boulder Creek, near Brightwood, Oreg.

Location.- Water-stage recorder, lat. 45°22', long. 122°01', in SW¼SE¼ sec. 25, T. 2 S., R. 6 E., 1 mile upstream from Boulder Creek, 1¼ miles south of Brightwood, and 2½ miles upstream from mouth. Datum of gage is 1,089.2 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).
Drainage area.- 106 square miles.
Records available.- August 1936 to September 1948. October 1912 to March 1913 (gage heights only) at site at fish hatchery below Boulder Creek. August 1913 to September 1914, July 1920 to September 1921, April 1925 to September 1936 at sites at or near Welches, about 5 miles above present site.
Average discharge.- 12 years (1936-48), 423 second-feet.
Extremes.- Maximum discharge during year, 7,600 second-feet Jan. 7 (gage height, 6.40 feet), from rating curve extended above 4,100 second-feet; minimum, 89 second-feet Oct. 1 (gage height, 0.49 foot).
1913-14, 1920-21, 1925-48: Maximum discharge, 13,000 second-feet Mar. 31, 1931 (gage height, 9.80 feet at Welches), from rating curve extended above 4,800 second-feet; minimum, 59 second-feet Nov. 30, Dec. 1, 1936, Sept. 25, 26, 1940.
Remarks.- Records good, except those for periods of no gage-height record, which are fair. No diversion or regulation above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1		Oct. 2 to Sept. 30					
0.5	91	0.5	82	1.2	310	3.0	1,680
		.6	104	1.6	520	3.5	2,370
		.8	158	2.0	760	4.0	3,180
		1.0	226	2.4	1,070	5.2	5,280

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	617	465	690	274	740	570	514	788	270	238	a110
2	262	635	432	1,390	261	683	599	498	767	257	177	a110
3	355	617	531	921	242	605	587	985	809	253	164	a120
4	187	605	465	740	257	553	536	1,110	740	246	158	a110
5	146	575	421	641	242	514	487	985	683	257	155	a105
6	124	822	400	2,600	219	498	454	1,110	683	288	152	a105
7	116	2,630	405	5,230	226	482	416	1,050	689	296	146	a105
8	119	2,340	395	2,250	270	448	395	921	665	253	144	a100
9	152	1,400	410	1,390	261	438	390	860	629	238	141	a100
10	213	1,310	a400	1,080	234	405	400	774	581	230	141	a100
11	747	1,420	a420	905	219	385	400	740	599	222	138	a100
12	400	1,090	a410	781	204	370	375	767	548	215	135	a100
13	265	1,220	a650	677	215	370	350	788	564	208	132	a100
14	212	1,170	a700	611	219	380	465	734	492	197	135	a100
15	638	2,240	a550	553	465	370	665	702	465	194	146	a105
16	1,530	1,690	a500	520	574	370	852	774	487	187	135	a105
17	1,380	1,490	a700	487	760	365	830	774	432	184	129	a105
18	1,720	1,490	a1,000	454	1,050	380	852	740	405	180	132	a115
19	1,530	1,140	a750	426	714	370	816	702	385	180	132	a110
20	1,520	905	a580	405	575	355	875	721	395	180	129	a110
21	1,030	760	a520	385	2,840	479	937	788	570	177	129	a110
22	747	665	a490	380	3,810	969	945	795	504	174	129	a140
23	635	593	a460	400	1,520	659	985	809	443	171	129	a180
24	520	536	a440	410	994	564	945	898	400	171	132	155
25	443	509	a430	375	1,050	526	977	1,020	380	161	129	144
26	410	514	438	330	2,790	470	845	1,080	360	158	124	177
27	385	504	454	315	1,440	470	721	1,070	335	219	119	242
28	400	482	498	306	1,020	587	659	1,130	320	261	116	171
29	481	448	465	306	809	767	599	961	301	204	114	144
30	721	448	421	296	-	802	553	852	288	180	114	126
31	548	-	400	278	-	641	-	809	-	171	112	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	18,027	1,720	91	582	5.49	6.32	35,760
November	30,865	2,630	448	1,029	9.71	10.83	61,220
December	15,600	1,000	395	503	4.75	5.47	30,940
Calendar year 1947	162,246	2,630	87	445	4.20	56.93	321,800
January	26,532	5,230	278	856	8.08	9.31	52,630
February	23,754	3,810	204	819	7.73	8.33	47,120
March	16,015	969	355	517	4.88	5.62	31,770
April	19,480	985	350	649	6.12	6.83	38,640
May	26,461	1,130	498	854	8.06	9.28	52,480
June	15,707	809	288	524	4.94	5.51	31,150
July	6,582	296	158	212	2.00	2.31	13,060
August	4,306	238	112	139	1.31	1.51	8,540
September	3,704	242	100	123	1.16	1.30	7,350
Water year 1947-48	207,033	5,230	91	566	5.34	72.62	410,700

Peak discharge (base, 2,900 sec.-ft.).- Nov. 7 (7:30 a.m.) 3,210 sec.-ft.; Jan. 7 (6 a.m.) 7,600 sec.-ft.; Feb. 22 (1 a.m.) 6,360 sec.-ft.; Feb. 26 (4:30 a.m.) 3,690 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for stations below Linney Creek and near Government Camp.

Lake Ben Morrow Reservoir near Bull Run, Oreg.

Location.- Water-stage recorder, lat. 45°29', long. 122°05', in SW¼ sec. 16, T. 1 S., R. 6 E., at Bear Creek Dam of city of Portland, 8½ miles northeast of Bull Run. Datum of gage is at mean sea level (levels by Portland Water Bureau).

Records available.- October 1928 to September 1948.

Extremes.- Maximum contents during year, 30,080 acre-feet Jan. 7 (elevation, 1,043.87 feet); minimum, 21,540 acre-feet Oct. 2 (elevation, 1,021.06 feet).
1928-48: Maximum contents, 31,600 acre-feet Mar. 31, 1931 (elevation, 1,047.40 feet); minimum after first filling in May 1929, 17,270 acre-feet Sept. 26, 1940 (elevation, 1,007.78 feet).

Remarks.- Records good. Lake Ben Morrow Reservoir is formed by concrete dam known as Bear Creek Dam on Bull Run River, completed in March 1929 for water supply of city of Portland. Capacity of reservoir, 26,930 acre-feet at crest of spillway (elevation 1,036 feet); dead storage, 213 acre-feet at elevation 890 feet (center of outlet valves).

Cooperation.- Water-stage recorder inspected and capacity table furnished by Portland Water Bureau.

Revisions (water years).- W 814: 1935(M).

Monthly elevation and contents, water year October 1947 to September 1948

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	1,021.30	21,620	-
Oct. 31	1,037.81	27,640	+6,020
Nov. 30	g1,036.90	27,280	-360
Dec. 31	1,037.57	27,540	+260
Calendar year 1947	-	-	+270
Jan. 31	1,036.70	27,200	-340
Feb. 29	1,037.57	27,540	+340
Mar. 31	1,037.40	27,480	-60
Apr. 30	1,037.16	27,380	-100
May 31	1,037.42	27,480	+100
June 30	1,036.73	27,210	-270
July 31	1,036.24	27,020	-190
Aug. 31	1,033.03	25,800	-1,220
Sept.30	1,035.57	26,770	+970
Water year 1947-48	-	-	+5,150

† Elevation at 12 p.m.
g Computed from graph based on observer's once-daily staff-gage readings.

Bull Run River below Lake Ben Morrow Reservoir, Oreg.

Location.- Water-stage recorder above crest of spillway, and scales indicating number of turns outlet needle valves are open, lat. 45°29', long. 122°05', in SW¼ sec. 16, T. 1 S., R. 6 E., at Bear Creek Dam on Bull Run River, 500 feet downstream from Bear Creek, 1,000 feet upstream from Fivemile Creek, and 8½ miles northeast of Bull Run. Datum of gage is at mean sea level (levels by Portland Water Bureau).
Drainage area.- 74 square miles.
Records available.- October 1934 to September 1948. October 1929 to September 1934 at site half a mile downstream.
Average discharge.- 19 years, 558 second-feet (adjusted).
Extremes.- Maximum discharge during year, 8,840 second-feet Jan. 7 (elevation, 1,043.87 feet); minimum daily, 131 second-feet Aug. 22-24, 26-31, Sept. 2-7.
1929-48: Maximum discharge at dam, 16,100 second-feet Mar. 31, 1931 (elevation, 1,047.40 feet with one valve open 30 turns); no flow part of Oct. 27, 1939.
Remarks.- Records good except those for period based on staff-gage readings, which are fair. Daily discharge determined by combining discharge through valves near base of dam and that over crest of spillway (elevation, 1,036 feet). No diversion above station. Flow regulated by Bull Run Lake and Lake Ben Morrow Reservoir; adjustment applied for storage in Lake Ben Morrow only; flow from Bull Run Lake is not artificially regulated but reaches river through surface and underground channels.
Cooperation.- Water-stage recorder inspected and record of valve openings furnished by Portland Water Bureau.
Revisions (water years).- W 904: Drainage area, 1931(M).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	142	1,120	g310	1,650	205	704	600	451	620	215	162	134
2	139	1,190	g310	3,520	196	690	697	407	597	205	155	131
3	145	1,220	410	1,840	182	571	792	1,100	607	196	148	131
4	235	1,060	360	1,230	177	470	634	1,610	536	192	143	131
5	381	877	332	882	169	432	548	1,580	484	187	138	131
6	338	1,370	310	3,680	160	425	490	2,050	477	210	136	131
7	282	g5,400	321	4,390	160	419	386	1,670	477	223	136	131
8	269	g4,170	310	2,420	210	377	389	1,230	456	205	132	142
9	360	g1,550	365	1,430	245	371	413	984	434	187	132	151
10	496	g1,280	357	1,060	215	357	503	808	395	174	132	156
11	1,270	g2,050	444	908	190	321	555	704	458	174	135	156
12	792	g1,550	522	784	178	316	484	665	464	160	132	156
13	548	g1,460	942	614	178	316	438	866	419	156	132	156
14	444	g1,750	1,390	539	192	316	461	768	365	155	132	156
15	1,190	g2,920	1,160	484	792	316	669	690	326	177	132	159
16	3,330	g2,480	857	432	908	321	942	711	313	176	132	154
17	3,300	g1,800	1,610	377	1,460	319	984	739	294	172	132	154
18	3,870	g1,900	2,080	354	1,550	326	959	662	271	159	135	154
19	4,140	g1,370	1,580	321	1,080	326	857	597	255	142	132	154
20	2,880	g925	1,080	310	746	316	816	568	282	132	132	154
21	1,930	g690	784	285	3,650	413	885	620	562	135	132	153
22	1,230	g620	760	277	5,340	1,410	1,090	655	477	152	131	156
23	959	g522	620	271	2,060	908	1,550	641	416	159	131	154
24	683	g458	558	277	1,210	693	1,400	711	365	159	131	154
25	555	g425	503	260	1,180	607	1,440	808	328	159	134	154
26	548	g398	470	230	4,330	542	1,060	827	310	159	131	154
27	470	g365	458	220	1,910	503	792	832	288	142	131	156
28	522	g365	655	228	1,190	542	665	1,050	260	135	131	157
29	545	g310	641	225	848	669	588	882	250	181	131	162
30	984	g310	536	235	-	739	509	669	238	198	131	159
31	882	-	499	215	-	665	-	648	-	179	131	-

Month	Observed: Discharge in second-feet: Maximum	Observed: Discharge in second-feet: Minimum	Observed: Discharge in second-feet: Mean	Observed: Runoff in acre-feet	Change in contents of Lake Ben Morrow Reservoir (acre-feet)	Adjusted for change in reservoir contents: Runoff in acre-feet	Adjusted for change in reservoir contents: Discharge in second-feet: Mean	Adjusted for change in reservoir contents: Discharge in second-feet: Per square mile	Adjusted for change in reservoir contents: Runoff in inches
October	4,140	139	1,092	67,160	+6,020	73,180	1,190	16.1	18.54
November	5,400	310	1,397	83,120	-360	82,760	1,391	18.8	20.97
December	2,080	310	695	42,710	+260	42,970	699	9.45	10.89
Calendar year 1947	5,400	106	618	447,680	+270	447,950	619	8.36	113.50
January	4,390	215	966	59,400	-340	59,060	961	13.0	14.96
February	5,340	160	1,066	61,310	+340	61,650	1,072	14.5	15.62
March	1,410	316	506	31,140	-60	31,080	505	6.82	7.88
April	1,550	386	753	44,820	-100	44,720	752	10.2	11.33
May	2,050	407	878	53,960	+100	54,060	879	11.9	13.70
June	620	238	401	23,850	-270	23,580	396	5.35	5.97
July	223	132	173	10,620	-190	10,430	170	2.30	2.64
August	162	131	135	8,300	-1,220	7,080	115	1.55	1.79
September	162	131	149	8,890	+970	9,860	166	2.24	2.50
Water year 1947-48	5,400	131	682	495,280	+5,150	500,430	689	9.31	126.79

Peak discharge (base, 4,800 sec.-ft.).- Nov. 7 (3 p.m.) 5,870 sec.-ft.; Jan. 7 (5 a.m.) 8,840 sec.-ft.; Feb. 22 (1 a.m.) 8,450 sec.-ft.; Feb. 26 (6 a.m.) 5,700 sec.-ft.
g Computed from graph based on dam-tender's daily staff-gage readings.

Bull Run River near Bull Run, Oreg.

Location.- Water-stage recorder, lat. 45°27', long. 122°07', in SE¼ sec. 25, T. 1 S., R 5 E., 1½ miles upstream from intake of pipe line for water supply of city of Portlan and 5 miles east of Bull Run.
Drainage area.- 102 square miles.
Records available.- January 1895 to September 1948.
Average discharge.- 41 years (1907-48), 733 second-feet (adjusted, 1929-48).
Extremes.- Maximum discharge during year, 10,800 second-feet Jan. 7 (gage height, 9.37 feet); minimum, 147 second-feet Sept. 6-8.
1895-1948: Maximum discharge, 20,600 second-feet Mar. 31, 1931 (gage height, 13. feet), by computation of flow over dam; minimum, 63 second-feet Aug. 13-16, 1926.
Remarks.- Records excellent except those for period of no gage-height record, which are good. No diversion above station. Flow regulated by Bull Run Lake and Lake Ben Morrow Reservoir; adjustment applied only for storage in Lake Ben Morrow Reservoir; flo from Bull Run Lake is not artificially regulated but reaches river through surface a underground channels.
Cooperation.- Water-stage recorder inspected by Portland Water Bureau.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6					Jan. 7 to Sept. 30				
0.9	150	2.2	570	4.8	2,670	0.8	135	2.2	587	5.0	2,9
1.1	196	2.7	815	5.5	3,620	1.1	201	2.8	900	6.0	4,3
1.4	275	3.3	1,190	6.3	4,880	1.4	285	3.5	1,400	7.8	7,6
1.8	410	4.0	1,800			1.8	419	4.2	2,020		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	154	1,410	403	1,970	267	926	785	569	732	255	204	1
2	286	1,500	384	4,290	252	858	900	525	682	242	191	1
3	342	1,520	498	2,250	235	717	1,020	1,220	672	235	184	1
4	308	1,300	474	1,540	247	639	840	1,940	611	222	179	1
5	478	1,150	422	1,160	235	574	727	1,830	542	219	175	1
6	422	1,660	395	4,500	214	560	648	2,410	521	270	173	1
7	352	6,220	426	7,610	217	538	574	1,980	521	279	170	1
8	331	5,270	418	3,500	279	503	525	1,480	499	255	168	1
9	462	2,470	506	1,820	324	499	556	1,210	470	222	166	1
10	602	2,430	490	1,370	279	457	629	972	430	209	162	1
11	1,410	2,560	606	1,180	247	427	682	840	508	199	162	1
12	954	1,820	680	1,020	233	402	615	840	491	194	162	1
13	690	1,910	1,050	840	233	430	551	1,010	449	184	159	1
14	554	a2,100	1,670	707	264	430	629	900	398	179	159	1
15	1,470	a3,400	1,370	634	972	442	835	796	360	191	164	1
16	4,170	a2,800	1,040	564	1,130	449	1,090	823	353	199	162	1
17	3,980	a2,200	1,910	508	1,710	442	1,150	840	330	194	159	1
18	4,830	a2,300	2,510	470	1,850	457	1,150	774	311	191	157	1
19	4,730	a1,600	2,020	423	1,270	453	1,010	707	291	184	159	1
20	3,840	1,250	1,280	402	1,020	442	978	668	366	173	157	1
21	2,490	990	1,010	381	4,940	560	1,050	722	663	170	155	1
22	1,580	804	954	357	6,700	1,600	1,280	737	560	173	155	2
23	1,180	685	804	360	2,680	1,140	1,700	717	491	179	153	2
24	900	597	710	374	1,600	906	1,700	785	430	182	159	2
25	725	534	633	364	1,520	829	1,720	894	394	179	162	2
26	705	522	584	334	5,340	722	1,280	913	367	182	157	2
27	615	486	579	304	2,470	687	991	900	340	219	155	3
28	660	458	755	298	1,500	732	835	1,130	304	204	155	3
29	705	414	720	298	1,080	858	727	978	295	222	153	3
30	1,250	402	665	298	-	932	634	801	276	233	155	2
31	1,110	-	638	273	-	870	-	743	-	219	153	

Month	Observed				Change in contents of Lake Ben Morrow Reservoir (acre-feet)	Adjusted for change in reservoir contents			Run i inc
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		
	Maximum	Minimum	Mean				Mean	Per square mile	
October	4,830	154	1,364	83,870	+6,020	89,890	1,462	14.3	16.
November	6,220	402	1,759	104,700	-360	104,340	1,753	17.2	19.
December	2,510	384	858	52,770	+260	53,030	862	8.45	9.
Calendar year 1947	6,220	146	763	552,200	+270	552,470	763	7.48	101.
January	7,610	273	1,303	80,130	-340	79,790	1,298	12.7	14.
February	6,700	214	1,355	77,970	+340	78,310	1,361	13.3	14.
March	1,800	402	681	40,620	-60	40,560	660	6.47	7.
April	1,720	525	927	55,160	-100	55,060	925	9.07	10.
May	2,410	525	1,021	62,780	+100	62,880	1,023	10.0	11.
June	732	276	455	27,090	-270	26,820	451	4.42	4.
July	279	170	208	12,810	-190	12,620	205	2.01	2.
August	204	153	164	10,080	-1,220	8,860	144	1.41	1.
September	347	147	191	11,380	+970	12,350	208	2.04	2.
Water year 1947-48	7,610	147	853	619,360	+5,150	624,510	860	8.43	114.

Peak discharge (base, 5,400 sec.-ft.).- Oct. 18 (4 a.m.) 6,060 sec.-ft.; Nov. 7 (10 a.m.) 7,800 ft.; Jan. 7 (5 a.m.) 10,800 sec.-ft.; Apr. 22 (1 a.m.) 10,100 sec.-ft.; Apr. 26 (6 a.m.) 6,830 sec
a No gage-height record; discharge computed on basis of records of Portland Water Bureau at dive sion dam downstream and records for station below Lake Ben Morrow Reservoir.

Little Sandy River near Bull Run, Oreg.

Location.- Water-stage recorder, lat. 45°25', long. 122°10', in NE¼ sec. 10, T. 2 S., R. 5 E., three-eighths of a mile upstream from Portland General Electric Co.'s dam and tunnel from Sandy River and 3 miles east of Bull Run. Datum of gage is 710.51 feet above mean sea level, adjustment of 1924 (levels by Portland General Electric Co.).
Drainage area.- 23 square miles.
Records available.- May 1911 to April 1913 (fragmentary), July 1919 to September 1948.
Average discharge.- 29 years (1919-48), 137 second-feet.
Extremes.- Maximum discharge during year, 2,520 second-feet Nov. 7 (gage height, 6.85 feet); minimum, 16 second-feet Sept. 21 (gage height, 1.92 feet).
1911-13, 1919-48: Maximum discharge, 3,950 second-feet Nov. 20, 1921 (gage height, 9.18 feet), from rating curve extended above 2,000 second-feet; minimum, 8 second-feet Aug. 20, Sept. 16, 17, 1940.
Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversion or regulation above station.
Cooperation.- Water-stage recorder graph furnished by Portland General Electric Co.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 6

2.0	18	2.7	85	4.0	425
2.1	24	3.0	135	4.4	615
2.3	39	3.3	200	4.8	855
2.5	60	3.6	280		

Nov. 7 to Sept. 30

1.9	15	2.7	95	4.5	675
2.0	20	3.0	150	5.2	1,100
2.1	27	3.3	218	6.0	1,700
2.2	35	3.7	335		
2.4	56	4.1	480		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	340	103	344	61	211	204	136	126	a50	73	24
2	229	322	91	610	58	196	232	128	185	a45	46	25
3	258	332	144	363	58	163	232	a300	182	a43	43	35
4	113	274	111	296	56	146	196	a350	152	a42	41	27
5	84	232	95	242	52	134	169	a325	136	a41	41	24
6	64	481	89	1,130	h43	144	148	a400	140	a45	40	24
7	54	1,690	100	1,520	h43	130	128	a350	130	a47	37	23
8	51	1,160	98	605	h43	122	119	a300	119	a45	34	22
9	78	525	117	394	h68	120	124	a260	101	a42	33	20
10	102	664	115	305	h67	106	126	234	95	a41	32	19
11	280	585	148	245	h67	100	126	192	144	a40	31	19
12	145	421	148	213	h56	92	122	144	117	a39	29	19
13	105	516	278	187	h55	98	122	100	108	a38	29	18
14	85	494	317	165	h56	105	171	66	a100	a37	28	18
15	338	1,100	257	148	167	105	223	61	a90	a37	33	19
16	717	699	201	130	199	105	269	67	a95	a36	29	19
17	582	548	444	115	293	108	272	71	a80	a35	30	18
18	777	575	484	103	346	117	332	58	a75	h33	27	17
19	801	394	356	92	237	117	257	47	a70	32	31	17
20	663	302	248	85	196	115	248	52	a110	32	33	17
21	441	240	216	78	1,290	150	245	60	a140	32	27	17
22	271	194	204	74	1,240	305	287	62	a120	31	33	68
23	220	173	167	78	494	245	377	61	a100	31	28	88
24	157	154	152	85	332	223	329	77	a90	29	35	74
25	124	134	136	77	361	216	349	100	a80	28	43	67
26	141	134	126	71	977	194	269	101	a70	28	33	150
27	114	120	128	68	433	187	213	152	a65	114	29	251
28	124	108	169	66	296	194	196	189	a65	130	27	163
29	156	98	144	63	226	232	171	122	a60	109	25	117
30	277	91	124	63	-	251	150	98	a55	108	29	89
31	232	-	124	62	-	223	-	97	-	103	27	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	7,804	801	21	252	11.0	12.62	15,480
November	13,100	1,690	91	437	19.0	21.18	25,980
December	5,634	484	89	182	7.91	9.11	11,170
Calendar year 1947	58,988	1,690	16	162	7.04	95.37	117,000
January	8,077	1,520	62	261	11.3	13.06	16,020
February	7,870	1,290	43	271	11.8	12.73	15,610
March	4,954	305	92	160	6.96	8.01	9,830
April	6,406	377	119	214	9.30	10.36	12,710
May	4,760	400	47	154	6.70	7.70	9,440
June	3,200	185	55	107	4.65	5.17	6,350
July	1,543	130	28	49.8	2.17	2.49	3,060
August	1,056	73	25	34.1	1.48	1.71	2,090
September	1,508	251	17	50.3	2.19	2.44	2,990
Water year 1947-48	65,912	1,690	17	180	7.83	106.58	130,700

Peak discharge (base, 1,400 sec.-ft.).- Nov. 7 (8 a.m.) 2,520 sec.-ft.; Nov. 15 (4 p.m.) 1,700 sec.-ft.; Jan. 6 (12 p.m.) 2,460 sec.-ft.; Feb. 22 (2 a.m.) 2,050 sec.-ft.
a No gage-height record; discharge computed on basis of records for nearby streams.
h Computed from once-daily staff-gage reading.

Washougal River near Washougal, Wash.

Location.- Staff gage, lat. 45°37'20", long. 122°18'00", in SE¼ sec. 27, T. 2 N., R. 4 E., half a mile upstream from Cougar Creek and 5½ miles northeast of Washougal.

Drainage area.- 108 square miles.

Records available.- September 1944 to September 1948.

Extremes.- Maximum discharge observed during year, 9,720 second-feet Feb. 22 (gage height, 9.80 feet), from rating curve extended above 4,400 second-feet; minimum observed, 65 second-feet Sept. 9-11 (gage height, 1.58 feet).

1944-48: Maximum discharge observed, 22,100 second-feet Feb. 7, 1945 (gage height, 14.40 feet), from rating curve extended above 4,400 second-feet; minimum observed, 5 second-feet Aug. 22, 1945 (gage height, 1.51 feet).

Remarks.- Records good except those above 7,500 second-feet or those for periods of rap changing discharge, which are fair. Gage read twice daily. No diversion or regulat

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.5	56	2.6	369	5.0	1,920
1.6	67	3.0	561	6.0	2,950
1.8	106	3.5	840	7.0	4,330
2.0	156	4.0	1,170	8.0	6,040
2.3	249	4.5	1,520	9.0	8,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	108	1,840	461	1,840	326	1,240	901	614	306	173	102	
2	1,170	1,520	414	4,030	286	1,100	964	588	286	167	102	
3	2,710	1,840	588	2,600	286	964	1,240	1,920	286	156	102	
4	1,170	1,450	561	2,290	286	901	1,100	1,840	268	159	99	
5	641	1,170	510	2,600	268	781	901	2,010	249	162	97	
6	486	1,840	486	4,980	249	696	901	2,710	232	187	97	
7	369	4,980	668	6,610	249	668	781	2,010	215	203	93	
8	414	4,650	641	3,600	306	641	781	1,380	215	167	84	
9	901	2,390	724	2,290	438	614	1,030	1,100	215	151	84	
10	1,310	2,290	696	1,920	369	561	1,680	964	209	151	89	
11	2,100	2,190	781	1,920	326	536	1,380	840	268	151	91	
12	1,170	1,760	781	1,600	306	486	964	781	268	140	84	
13	724	2,010	1,030	1,310	306	461	964	781	232	135	84	
14	641	2,100	1,920	1,030	392	510	1,170	781	212	135	84	
15	1,380	3,460	1,760	901	1,760	588	1,310	724	200	130	89	
16	3,330	2,830	1,380	781	1,760	641	1,450	724	190	125	93	
17	3,460	2,290	1,920	724	2,710	668	1,310	668	190	120	97	
18	4,650	1,920	2,290	668	2,830	724	1,100	614	184	120	86	
19	4,650	1,600	1,920	614	1,600	724	964	588	173	123	84	
20	3,330	1,240	1,380	561	1,100	724	901	510	268	123	86	
21	2,100	1,030	1,170	510	3,460	1,380	1,030	510	326	118	84	
22	1,450	901	1,170	486	7,590	4,330	1,100	486	306	111	84	
23	1,240	781	1,100	486	2,950	1,760	1,680	414	286	106	86	
24	964	724	1,170	486	1,760	1,450	1,920	392	249	106	102	
25	840	668	1,030	461	1,760	1,310	1,920	414	249	104	102	
26	781	614	840	414	6,040	1,100	1,380	369	232	102	89	
27	696	561	781	392	2,710	1,030	1,030	392	209	130	84	
28	781	510	964	369	1,680	1,170	840	510	193	184	81	
29	724	486	1,240	368	1,310	1,240	781	392	190	130	79	
30	1,100	461	1,030	348	-	1,920	668	326	170	120	81	
31	1,450	-	901	326	-	1,030	-	306	-	106	81	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fee
October	46,840	4,650	108	1,511	14.0	16.13	92,9
November	52,106	4,980	461	1,737	16.1	17.94	103,4
December	32,307	2,290	414	1,042	9.65	11.12	64,0
Calendar year 1947	307,900	8,640	77	844	7.81	106.01	610,8
January	47,016	6,610	326	1,517	14.0	16.19	93,2
February	45,413	7,590	249	1,566	14.5	15.64	90,0
March	31,948	4,330	461	1,031	9.55	11.000	63,3
April	34,141	1,920	668	1,138	10.5	11.76	67,7
May	26,658	2,710	306	860	7.96	9.18	52,8
June	7,076	326	170	236	2.19	2.44	14,0
July	4,295	203	102	139	1.29	1.48	8,5
August	2,780	102	79	89.7	.831	.96	5,5
September	5,264	1,030	65	175	1.62	1.81	10,4
Water year 1947-48	335,844	7,590	65	918	8.50	115.65	666,2

Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.

Location.- Water-stage recorder, lat. 43°44', long. 122°26', in SW¼ sec. 22, T. 21 S., R. 3 E., 400 feet upstream from Salt Creek and 2 miles southwest of Oakridge. Datum of gage is 1,202.8 feet above mean sea level (from river-profile survey).

Drainage area.- 392 square miles.

Records available.- October 1913 to September 1914, September 1935 to September 1948.

Average discharge.- 14 years, 1,030 second-feet.

Extremes.- Maximum discharge during year, 19,900 second-feet Jan. 7 (gage height, 9.04 feet, from floodmark); minimum, 278 second-feet Oct. 1, 2, 5-7.
1913-14, 1935-48: Maximum discharge, 34,000 second-feet Dec. 28, 1945 (gage height, 12.06 feet), from rating curve extended above 13,000 second-feet by logarithmic plotting; minimum, 201 second-feet Nov. 27 to Dec. 2, 1936 (gage height, 1.53 feet).

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
2.2	265	3.5	1,150	5.7	4,970	2.2	320	3.4	1,220	5.7	5,400
2.4	360	4.0	1,710	6.5	7,230	2.4	430	3.9	1,780	6.5	7,770
2.6	470	4.5	2,420	7.6	11,100	2.7	615	4.4	2,580	7.5	11,600
3.0	725	5.0	3,360			3.0	840	5.0	3,730	8.4	16,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	283	1,170	a1,050	a1,500	615	1,590	1,430	1,100	2,010	1,050	490	358
2	283	1,240	a1,000	a5,000	589	1,450	1,540	1,030	2,230	916	454	358
3	288	1,160	a1,300	a3,800	563	1,300	1,590	1,620	2,630	857	442	358
4	288	1,120	a1,130	a3,300	563	1,200	1,440	2,630	2,230	832	436	358
5	283	1,100	a1,040	a3,000	556	1,160	1,330	2,040	1,920	908	430	353
6	283	1,160	a980	a11,000	544	1,100	1,260	2,070	2,040	908	419	348
7	283	1,320	a940	15,900	532	1,050	1,200	2,090	2,580	832	419	348
8	310	1,840	a940	7,460	629	1,060	1,150	1,890	2,400	768	414	342
9	393	1,810	a960	4,360	816	1,160	1,170	1,700	2,580	730	402	336
10	524	1,520	a930	3,110	722	1,160	1,200	1,530	2,600	700	402	331
11	697	1,580	a900	2,440	671	1,080	1,190	1,400	2,740	685	397	326
12	506	1,480	a880	2,000	615	992	1,110	1,390	2,320	671	392	326
13	410	1,580	a1,000	1,720	608	992	1,060	1,440	2,250	643	386	320
14	371	1,660	a1,400	1,520	615	982	1,190	1,380	1,920	622	386	326
15	653	2,440	a1,250	1,370	2,060	934	1,500	1,310	1,700	608	386	331
16	2,610	3,040	a1,100	1,260	1,920	934	1,720	1,420	1,530	602	380	326
17	1,510	2,240	a1,100	1,170	1,720	963	1,910	1,610	1,420	596	380	326
18	1,120	2,010	a1,250	1,110	2,230	944	1,980	1,640	1,480	576	380	331
19	840	1,760	a1,350	1,020	2,040	944	1,770	1,690	1,410	556	380	320
20	2,760	1,540	a1,250	944	1,600	916	1,790	1,690	1,510	544	375	320
21	2,470	1,350	a1,140	882	4,380	934	2,020	1,730	1,700	532	375	315
22	1,580	1,150	a1,070	840	10,300	1,360	2,300	1,660	1,510	520	392	336
23	1,210	1,030	a1,000	824	4,580	1,460	2,300	1,890	1,360	508	472	460
24	970	943	a960	800	2,810	1,360	1,960	2,010	1,260	496	408	502
25	816	907	a920	768	2,200	1,240	1,890	2,540	1,210	490	386	419
26	725	970	a900	730	3,040	1,120	1,660	2,800	1,130	478	380	490
27	704	997	a900	700	2,810	1,110	1,520	2,900	1,100	484	375	484
28	762	997	a1,110	678	2,200	1,210	1,390	2,450	1,100	490	370	466
29	925	a1,000	a1,150	664	1,780	1,590	1,270	2,010	1,110	472	364	436
30	1,270	a1,000	a1,090	643	-	1,790	1,170	1,840	1,110	460	364	414
31	1,060	-	a1,050	622	-	1,550	-	2,000	-	454	364	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	27,187	2,760	283	877	2.24	2.58	53,920
November	43,114	3,040	907	1,437	3.67	4.09	85,520
December	33,040	1,400	880	1,066	2.72	3.13	65,530
Calendar year 1947	357,867	5,000	283	980	2.50	33.95	709,800
January	81,135	15,900	622	2,617	6.68	7.70	160,900
February	54,308	10,300	532	1,873	4.78	5.15	107,700
March	36,635	1,790	916	1,182	3.02	3.48	72,660
April	46,010	2,300	1,060	1,534	3.91	4.37	91,260
May	56,300	2,900	1,030	1,816	4.63	5.34	111,700
June	54,090	2,740	1,100	1,803	4.60	5.13	107,300
July	19,988	1,050	454	645	1.65	1.90	39,650
August	12,400	490	364	400	1.02	1.18	24,600
September	11,064	502	315	369	.941	1.05	21,950
Water year 1947-48	475,271	15,900	283	1,299	3.31	45.10	942,700

Peak discharge (base, 4,800 sec.-ft.).- Jan. 7 (about 6 a.m.) 19,900 sec.-ft.; Feb. 22 (4 a.m.) 14,700 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for other stations in Middle Fork Willamette Basin.

Middle Fork Willamette River at Eula, Oreg.

Location.- Water-stage recorder, lat. 43°50', long. 122°37', in sec. 18, T. 20 S., R. 1 E., a quarter of a mile southwest of Eula and 8 miles downstream from North Fork. tum of gage is 861.65 feet above mean sea level, datum of 1929.
Drainage area.- 941 square miles.
Records available.- July 1923 to September 1948.
Average discharge.- 24 years (1923-26, 1927-48), 2,477 second-feet.
Extremes.- Maximum discharge during year, 38,000 second-feet Jan. 6 (gage height, 13.0 feet), from rating curve extended above 19,000 second-feet by logarithmic plotting; minimum, 696 second-feet Oct. 1, 2.
1923-48: Maximum discharge, 65,200 second-feet Dec. 28, 1945 (gage height, 18.8 feet, from floodmark), from rating curve extended above 39,000 second-feet; minimum served, 450 second-feet Nov. 24, 25, Dec. 5, 6, 1929, Sept. 4-6, 16, 17, 1931.
Remarks.- Records good except those for periods of no gage-height record, which are fa No large diversions above station. Occasional diurnal fluctuation during periods o low flow caused by logging operations upstream.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (Water years).- W 694: 1925-28. W 814: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 6, 7, Jan. 22 to Feb. 14, Feb. 22, July 1 to Sept. 30)

2.2	660	4.8	3,770	9.4	18,400
2.6	940	5.4	5,050	11.4	26,800
3.0	1,270	6.0	6,510	12.8	33,200
3.6	1,870	7.0	9,500		
4.2	2,690	8.0	13,000		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	696	3,030	2,960	4,220	1,690	5,050	a4,500	3,010	5,260	2,420	1,150	
2	714	3,370	2,790	13,000	1,630	4,690	a4,350	2,810	5,610	2,200	1,100	
3	790	3,350	3,280	9,600	1,570	4,130	a4,300	3,810	6,300	2,050	1,100	
4	741	3,390	3,250	8,720	1,580	3,710	a4,000	6,280	5,700	1,990	1,090	
5	720	3,370	2,930	7,370	1,540	3,480	a3,700	5,370	4,910	2,190	1,080	
6	714	3,540	2,690	24,000	1,470	3,320	a3,500	5,530	5,160	2,200	1,050	
7	714	4,360	2,580	32,900	1,450	3,140	a3,350	5,750	6,150	2,120	1,030	
8	755	7,310	2,530	18,500	1,610	3,120	3,190	5,400	5,980	1,950	1,030	
9	876	7,000	2,560	11,600	1,980	3,500	3,190	4,890	6,280	1,840	1,010	
10	876	5,630	2,500	8,560	1,820	3,410	3,210	4,380	6,250	1,770	1,000	
11	1,770	5,920	2,420	6,920	1,690	3,140	3,190	3,990	6,350	1,720	996	
12	1,390	5,490	2,340	5,730	1,620	2,930	3,030	3,890	5,460	1,660	980	
13	1,100	5,420	2,530	4,960	1,600	2,890	2,860	4,210	5,280	1,600	980	
14	972	5,650	3,990	4,320	1,590	2,830	3,030	4,090	4,620	1,550	972	
15	2,170	7,750	3,580	3,850	5,180	2,740	3,770	3,790	4,150	1,490	972	
16	7,280	10,200	3,160	3,540	4,710	2,760	4,470	4,010	3,770	1,460	956	
17	4,450	7,920	3,120	3,230	4,320	2,710	4,940	4,560	3,500	1,450	948	
18	3,250	7,170	3,350	3,000	5,610	2,670	5,260	4,690	3,500	1,400	956	
19	2,470	6,200	3,770	2,960	5,440	2,640	4,960	4,670	3,390	1,360	948	
20	5,980	5,280	3,430	2,610	4,300	2,530	5,030	4,580	3,600	1,340	932	
21	6,950	4,470	3,190	2,440	10,400	a2,800	5,510	4,530	4,230	1,310	924	
22	4,600	3,850	3,070	2,320	25,500	a3,600	6,080	4,380	3,750	1,280	948	
23	3,600	3,390	2,840	2,230	13,000	a3,900	6,200	4,490	3,350	1,260	1,190	1,
24	2,890	3,030	2,670	2,160	8,410	a3,600	5,580	5,160	3,080	1,240	1,040	1,
25	2,400	2,840	2,500	2,100	6,730	3,320	5,460	6,430	2,910	1,200	980	1,
26	2,140	2,860	2,410	2,000	9,270	2,980	4,940	7,090	2,760	1,180	940	1,
27	2,050	3,000	2,410	1,930	8,630	2,890	4,380	7,280	2,630	1,200	916	1,
28	2,140	3,000	3,070	1,870	6,920	3,170	3,970	6,410	2,580	1,230	900	1,
29	2,410	2,860	3,170	1,820	5,730	4,450	3,580	5,510	2,590	1,180	876	1,
30	3,100	2,830	2,960	1,760	-	5,610	3,280	4,960	2,640	1,160	868	1,
31	2,720	-	2,780	1,700	-	a5,100	-	5,210	-	1,130	868	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	73,428	7,280	696	2,369	2.52	2.90	145,
November	143,480	10,200	2,830	4,783	5.08	5.67	284,
December	90,830	3,990	2,340	2,930	3.11	3.59	180,
Calendar year 1947	1,005,701	12,700	696	2,755	2.93	39.75	1,995,
January	201,920	32,900	1,700	6,514	6.92	7.98	400,
February	146,990	25,500	1,450	5,069	5.39	5.81	291,
March	106,810	5,610	2,530	3,445	3.66	4.22	211,
April	126,810	6,200	2,860	4,227	4.49	5.01	251,
May	151,160	7,280	2,810	4,876	5.18	5.97	299,
June	131,740	6,350	2,580	4,391	4.67	5.21	261,
July	49,130	2,420	1,130	1,585	1.68	1.94	97,
August	30,730	1,190	868	991	1.05	1.21	60,
September	27,690	1,380	769	923	.981	1.09	54,
Water year 1947-48	1,280,718	32,900	696	3,499	3.72	50.60	2,540,

Peak discharge (base, 11,000 sec.-ft.).- Nov. 16 (2 a.m.) 11,300 sec.-ft.; Jan. 2 (12:30 p.m.) 15,200 sec.-ft.; Jan. 6 (10 p.m.) 38,000 sec.-ft.; Feb. 22 (6 a.m.) 32,600 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for stations upstream and downstream.

Middle Fork Willamette River at Lowell, Oreg.

Location.- Staff gage, lat. 43°55', long. 122°47', in NW¼ sec. 23, T. 19 S., R. 1 W., at bridge three-quarters of a mile south of Lowell and 4½ miles upstream from Lost Creek. Datum of gage is 667.68 feet above mean sea level, datum of 1929.

Drainage area.- 994 square miles.

Records available.- October 1946 to September 1948.

Extremes.- Maximum discharge during year, 43,100 second-feet Jan. 7 (gage height, 12.75 feet, from floodmark), from rating curve extended above 23,000 second-feet; minimum observed, 716 second-feet Oct. 2 (gage height, 2.12 feet).

1946-48: Maximum discharge that of Jan. 7, 1948; minimum observed, that of Oct. 2, 1947.

Maximum stage known, 13.9 feet Dec. 28, 1945 (discharge, 68,400 second-feet, estimated).

Remarks.- Records good. No large diversions above station. Occasional diurnal fluctuations during periods of low flow caused by log ponds upstream.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 6 to Sept. 30					
2.1	700	3.3	2,090	5.4	6,710	2.4	740	4.3	3,440	8.1	16,500
2.4	970	3.9	3,060	6.4	9,840	2.8	1,100	5.0	5,000	9.7	24,500
2.8	1,410	4.6	4,530	7.6	14,400	3.2	1,560	5.9	7,500	11.8	36,300
						3.7	2,330	6.9	11,100		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	724	3,410	3,030	3,810	1,850	5,300	4,640	3,280	5,660	2,540	1,150	910
2	d760	3,470	2,910	14,400	1,820	5,000	4,620	2,990	5,870	2,380	1,140	901
3	d800	3,320	3,320	10,800	1,760	4,340	4,430	3,680	7,080	2,210	1,130	874
4	d760	3,410	3,350	10,300	1,730	3,980	a4,300	6,570	5,870	2,080	1,110	865
5	732	3,490	3,030	7,840	1,660	3,830	a4,000	5,710	5,450	2,060	1,100	865
6	732	3,630	2,820	25,700	1,640	3,640	a3,700	d5,900	5,550	2,190	1,080	846
7	732	4,240	2,790	36,200	1,590	3,500	a3,500	d6,000	6,540	2,130	1,060	838
8	764	7,900	2,750	20,200	1,620	3,360	a3,400	d5,600	6,250	2,000	1,040	820
9	930	6,860	2,670	13,000	2,260	3,560	a3,450	d5,200	6,360	1,880	1,030	804
10	1,370	5,910	2,620	9,240	2,100	3,680	a3,500	4,760	d6,400	1,780	1,000	788
11	2,000	d6,200	2,590	7,620	1,940	3,480	3,560	4,470	d6,500	1,700	1,000	788
12	1,410	d6,000	2,560	6,360	1,820	3,260	3,280	4,030	5,730	1,640	982	780
13	1,220	d5,700	2,610	5,420	1,760	3,200	3,090	4,160	5,350	1,560	964	804
14	1,070	6,070	4,180	4,660	1,730	3,140	3,160	4,090	4,830	1,530	946	820
15	1,350	8,400	3,630	4,140	6,080	3,010	3,480	4,050	4,360	1,500	964	829
16	7,900	11,100	3,320	3,740	5,600	2,960	4,620	4,140	3,940	1,460	964	796
17	4,480	8,360	3,170	3,480	4,900	2,920	5,120	4,360	3,620	1,430	955	788
18	3,240	7,390	3,320	3,240	6,140	2,900	5,450	4,620	3,560	1,410	946	788
19	2,660	6,130	3,610	3,090	6,080	2,840	5,050	4,780	3,520	1,380	946	788
20	6,300	5,410	3,350	2,900	4,980	2,960	5,150	4,710	3,460	1,360	928	780
21	7,240	4,530	3,170	2,750	10,500	3,110	5,580	4,570	4,470	1,310	928	780
22	4,630	3,800	3,060	2,630	29,800	4,180	6,080	4,710	3,920	1,270	1,040	820
23	3,590	3,430	2,890	2,570	14,700	4,380	6,480	4,880	3,520	1,260	1,200	1,110
24	2,910	3,170	2,890	2,500	9,480	3,980	6,190	5,280	3,200	1,260	1,060	1,220
25	2,580	2,990	2,750	2,360	7,870	3,720	5,680	5,810	3,050	1,240	1,020	1,200
26	2,300	2,870	2,540	2,260	10,200	3,320	5,180	d7,300	2,940	1,200	982	1,350
27	2,180	2,990	2,500	2,190	8,990	3,180	4,400	7,200	2,840	1,200	964	1,380
28	2,300	2,990	3,370	2,130	7,410	3,130	3,940	6,300	2,810	1,190	964	1,220
29	2,530	2,960	3,320	2,000	5,810	4,570	3,720	5,660	2,750	1,160	910	1,160
30	3,260	3,030	3,100	1,940	-	5,980	3,460	5,050	2,680	1,160	910	1,090
31	2,910	-	2,910	1,910	-	5,450	-	5,500	-	1,160	892	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	76,364	7,900	724	2,463	2.48	2.86	151,500
November	149,160	11,100	2,870	4,972	5.00	5.58	295,900
December	94,130	4,180	2,500	3,036	3.05	3.52	186,700
Calendar year 1947	1,049,846	14,200	724	2,876	2.89	39.27	2,082,000
January	221,380	36,200	1,910	7,141	7.18	8.28	439,100
February	163,820	29,800	1,590	5,649	5.68	6.13	324,900
March	115,860	5,980	2,840	3,737	3.76	4.33	229,800
April	132,210	6,480	3,090	4,407	4.43	4.95	262,200
May	155,360	7,300	2,990	5,012	5.04	5.81	308,200
June	138,080	7,080	2,680	4,603	4.63	5.17	273,900
July	49,630	2,540	1,160	1,601	1.61	1.86	98,440
August	31,305	1,200	892	1,010	1.02	1.17	62,090
September	27,802	1,380	780	927	.933	1.04	55,140
Water year 1947-48	1,355,101	36,200	724	3,702	3.72	50.70	2,688,000

Peak discharge (base, 12,000 sec.-ft.).- Nov. 16 (about 3 a.m.) 16,100 sec.-ft.; Jan. 2 (2:45 p.m.) 18,200 sec.-ft.; Jan. 7 (about 1 a.m.) 43,100 sec.-ft.; Feb. 22 (7:30 a.m.) 33,900 sec.-ft.

a No gage-height record; discharge computed on basis of records for station at Eula.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Willamette River at Springfield, Oreg.

Location.- Water-stage recorder, lat. 44°02'45", long. 123°01'40", in SE¼ sec. 34, T. 17 S., R. 3 W., at highway bridge at Springfield. Datum of gage is 423.47 feet above mean sea level, datum of 1929.
Drainage area.- 2,030 square miles.
Records available.- November 1911 to December 1913, October 1928 to September 1948. Jun 1919 to September 1928 at site 4 miles downstream, published as Willamette River at Eugene; 1894 to 1948 (records of stage by U. S. Weather Bureau) at site at Eugene.
Average discharge.- 30 years (1912-13, 1919-48), 5,038 second-feet.
Extremes.- Maximum discharge during year, 94,100 second-feet Jan. 7 (gage height, 17.55 feet); minimum, 973 second-feet Oct. 2 (gage height, 1.79 feet); minimum daily, 980 second-feet Oct. 2.
1911-13, 1919-48: Maximum discharge, 140,000 second-feet Dec. 29, 1945 (gage heig 20.9 feet), from rating curve extended above 93,000 second-feet; minimum, 500 second-feet Aug. 11, 1926.
Maximum stage recorded by U. S. Weather Bureau, 22.0 feet Jan. 25, 1903, at Eugene Floods in December 1861 and February 1890 reached about the same stage.
Remarks.- Records good above 1,500 second-feet, fair below. Slight diurnal fluctuation at low flow caused by logging operations in basin of Middle Fork Willamette River. Small diversions above station. Flow regulated at times by Cottage Grove Reservoir (see p. 124).
Revisions (water years).- W 694: Drainage area; W 984: 1921, 1923, 1927.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 14 to Feb. 15, May 11 to June 26, July 1 to Sept. 30)

Oct. 1 to Jan. 6

1.8	980	4.0	3,490	7.0	13,100
2.4	1,460	4.5	4,570	8.0	17,500
3.0	2,050	5.0	5,930	9.5	25,700
3.5	2,690	6.0	9,260	12.1	43,100

Jan. 7 to Sept. 30

2.3	1,020	5.2	6,720	12.0	42,700
2.8	1,510	6.0	9,700	14.0	58,200
3.3	2,170	7.0	13,900	16.5	82,400
3.9	3,200	8.5	21,400		
4.5	4,550	10.0	29,900		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	987	8,550	4,740	7,020	2,770	10,800	8,990	5,150	7,100	3,160	1,480	1,2
2	980	10,400	4,570	28,000	2,720	10,800	8,830	5,060	7,130	2,930	1,480	1,4
3	1,120	9,150	5,750	29,600	2,570	9,540	9,300	5,450	7,840	2,760	1,500	2,0
4	1,120	8,580	6,600	22,400	2,580	8,400	8,330	11,900	7,300	2,670	1,470	2,0
5	1,050	8,830	5,840	19,400	2,550	7,660	8,070	9,820	6,550	2,720	1,460	2,0
6	1,020	9,550	5,160	42,800	2,250	7,630	7,520	9,300	6,450	2,880	1,410	2,1
7	1,300	10,900	5,190	82,400	2,120	7,480	7,100	9,740	7,840	2,880	1,410	2,1
8	1,470	16,200	5,810	49,100	2,600	7,770	6,790	9,340	7,630	2,700	1,390	1,9
9	1,600	16,500	6,420	29,100	5,330	9,140	6,960	9,300	7,590	2,470	1,380	2,0
10	2,360	12,700	6,450	21,000	5,030	9,380	7,300	8,220	7,660	2,380	1,380	1,9
11	4,380	12,400	6,170	17,900	3,920	8,100	7,380	7,380	6,680	2,280	1,350	1,9
12	3,990	12,100	5,810	15,100	3,600	7,060	7,060	6,790	7,700	2,250	1,340	1,9
13	2,900	12,200	5,840	13,000	3,220	7,660	6,480	7,410	7,270	2,110	1,340	2,0
14	2,520	13,900	9,260	10,700	3,150	7,200	6,250	7,300	6,550	2,080	1,320	1,8
15	2,900	15,300	8,620	9,660	12,300	7,380	7,410	6,820	5,890	2,020	1,330	1,2
16	21,400	21,500	7,450	8,640	19,200	7,700	8,480	6,650	5,240	1,980	1,320	1,1
17	14,700	16,300	6,860	7,770	14,500	7,700	9,220	7,340	4,980	1,880	1,320	1,1
18	9,330	13,600	6,930	7,240	15,200	7,380	9,940	7,450	4,830	1,840	1,310	1,1
19	7,300	12,100	7,760	6,860	16,200	7,590	9,180	7,410	4,770	1,800	1,310	1,1
20	11,700	10,100	6,990	6,410	12,500	7,340	8,680	7,450	4,720	1,740	1,300	1,0
21	16,500	8,380	6,140	5,330	22,300	7,480	8,790	7,410	5,790	1,700	1,270	1,0
22	10,800	7,550	6,200	4,800	59,600	12,400	9,620	7,060	5,540	1,690	1,300	1,1
23	8,380	6,600	5,570	4,470	39,000	14,500	10,700	6,930	4,830	1,650	1,500	1,6
24	6,930	5,780	5,110	4,060	22,600	11,700	10,200	7,200	4,240	1,640	1,530	2,1
25	5,840	5,270	4,720	3,900	16,800	10,400	9,660	8,370	4,040	1,620	1,400	2,1
26	5,300	4,980	4,400	3,730	19,400	9,140	8,910	9,300	3,830	1,570	1,320	1,9
27	4,950	4,950	4,150	3,620	20,400	8,220	7,880	9,500	3,600	1,570	1,280	2,5
28	4,980	4,820	5,270	3,540	15,800	8,830	7,160	8,680	3,440	1,670	1,230	2,0
29	5,690	4,600	7,020	3,160	12,700	9,700	6,480	7,590	3,400	1,620	1,230	1,8
30	7,090	4,430	6,540	3,110	-	11,400	5,760	6,860	3,360	1,550	1,220	1,7
31	6,800	-	5,870	2,810	-	10,300	-	7,130	-	1,580	1,220	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	177,387	21,400	980	5,722	2.82	3.25	351,80
November	308,220	21,500	4,430	10,270	5.06	5.65	611,30
December	189,210	9,260	4,150	6,104	3.01	3.47	375,30
Calendar year 1947	1,909,923	24,900	980	5,233	2.58	34.99	3,788,00
January	476,630	82,400	2,810	15,380	7.58	8.73	945,40
February	362,910	59,600	2,120	12,510	6.16	6.65	719,80
March	277,780	14,500	7,060	8,961	4.41	5.09	551,00
April	244,430	10,700	5,760	8,148	4.01	4.48	484,80
May	241,310	11,900	5,060	7,784	3.83	4.42	478,60
June	175,790	8,680	3,360	5,860	2.89	3.22	348,70
July	65,390	3,160	1,550	2,109	1.04	1.20	129,70
August	42,100	1,530	1,220	1,358	.669	.77	83,50
September	51,860	2,520	1,080	1,729	.852	.95	102,90
Water year 1947-48	2,613,017	82,400	980	7,139	3.52	47.88	5,183,00

Peak discharge (base, 35,000 sec.-ft.).- Jan. 2 (11 p.m.) 40,900 sec.-ft.: Jan. 7 (12:30 a.m.) 94,100 sec.-ft.; Feb. 22 (3 p.m.) 72,100 sec.-ft.

Willamette River at Harrisburg, Oreg.

Location.- Water-stage recorder, lat. 44°16'03", long. 123°10'24", in SW¼SE¼ sec. 16, T. 15 S., R. 4 W., at east end of State highway bridge at Harrisburg. Datum of gage is 290.07 feet above mean sea level, datum of 1929.

Drainage area.- 3,420 square miles.

Records available.- October 1944 to September 1948. Gage-height records collected at same site since December 1927 (October to April only each year) available in records of U. S. Weather Bureau.

Extremes.- Maximum discharge during year, 163,000 second-feet Jan. 7 (gage height, 18.75 feet), from rating curve extended above 62,000 second-feet; minimum, 2,500 second-feet Oct. 2.

1944-48: Maximum discharge, 210,000 second-feet Dec. 29, 1945 (gage height, 19.69 feet), from rating curve extended above 62,000 second-feet; minimum, 1,990 second-feet Oct. 30, 1944.

Flood of 1861 reached a stage of about 21 feet (present site and datum), from information by local residents. Flood of Jan. 1, 1943, reached a stage of 19.1 feet (present datum), from U. S. Weather Bureau records.

Remarks.- Records good except those above 70,000 second-feet, which are fair. Many small diversions above station for irrigation; about 15 second-feet diverted from McKenzie River for city of Eugene water supply. Flow regulated at times by Cottage Grove Reservoir (see p. 124).

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1-16				Oct. 17 to Sept. 30					
1.2	2,430	5.5	10,300	1.6	2,890	6.0	13,600	14.0	63,000
2.0	3,410	6.5	13,600	2.0	3,430	7.0	17,600	15.0	73,800
3.0	5,030	8.0	20,000	3.0	5,130	8.0	22,400	16.0	89,900
4.5	7,920	9.1	25,200	4.0	7,400	10.0	33,500	17.5	124,000
				5.0	10,200	12.0	47,000	18.3	147,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,530	16,300	10,500	14,000	7,050	22,400	17,700	11,800	14,400	6,900	3,920	3,210
2	2,530	20,900	10,300	37,700	6,920	21,600	16,600	10,900	14,400	6,560	3,890	3,280
3	2,760	19,100	11,000	61,600	6,610	19,600	17,400	11,000	15,100	6,180	3,890	3,750
4	3,010	18,200	13,500	46,300	6,590	17,300	16,300	21,800	15,100	5,930	3,870	3,950
5	2,770	18,600	12,300	43,800	6,540	15,900	15,500	20,900	13,800	5,840	3,840	3,940
6	2,660	19,800	11,100	48,200	6,230	15,500	14,900	19,100	13,000	6,370	3,750	3,950
7	2,720	22,300	10,500	146,000	5,950	14,900	14,400	20,400	14,200	6,350	3,670	3,840
8	3,060	32,400	12,200	115,000	6,230	14,700	13,900	20,000	15,100	6,060	3,670	3,900
9	3,340	37,900	13,000	62,300	9,190	16,500	13,800	19,000	14,600	5,710	3,620	3,750
10	4,360	30,900	13,700	45,100	9,660	17,000	14,400	17,400	14,600	5,500	3,590	3,750
11	7,710	28,300	13,200	37,500	8,400	15,500	14,600	15,500	15,500	5,260	3,570	3,770
12	8,940	28,500	12,600	30,600	7,690	13,800	14,200	14,400	15,000	5,080	3,510	3,750
13	6,550	26,500	12,000	25,800	7,280	14,200	13,200	15,300	13,600	4,990	3,480	3,750
14	5,500	30,400	17,300	21,400	7,050	13,600	12,700	15,900	12,600	4,990	3,480	3,750
15	5,460	32,800	19,400	18,600	12,300	13,600	14,000	14,800	11,400	4,770	3,510	3,360
16	25,200	45,900	16,500	16,600	29,800	13,800	16,100	14,200	10,400	4,680	3,510	3,140
17	41,400	40,700	14,900	15,300	24,800	13,900	17,700	15,100	9,750	4,600	3,480	3,090
18	28,400	34,000	15,300	14,100	23,000	13,400	19,100	15,600	9,420	4,600	3,460	3,080
19	22,800	30,100	18,400	13,100	27,800	13,900	18,700	15,000	9,420	4,550	3,450	3,080
20	23,400	25,700	17,500	12,200	21,900	13,800	17,500	14,800	9,240	4,430	3,430	3,010
21	38,800	21,800	15,200	11,200	27,100	13,800	17,600	14,600	10,600	4,400	3,360	2,970
22	28,000	18,400	14,700	10,500	78,700	18,700	18,900	14,400	10,900	4,310	3,480	3,010
23	21,400	16,000	13,500	9,960	84,100	26,600	20,500	14,000	9,750	4,280	3,610	3,800
24	17,200	14,100	12,500	9,660	47,600	22,200	20,400	14,400	8,990	4,260	3,940	4,770
25	14,100	12,700	11,400	9,300	35,000	19,400	19,700	15,900	8,400	4,180	3,640	4,720
26	12,400	11,800	10,700	8,820	34,400	17,500	19,100	17,600	7,950	4,070	3,460	4,450
27	11,400	11,500	10,000	8,320	42,100	15,900	17,100	18,400	7,660	4,060	3,380	5,320
28	10,900	11,300	11,300	7,950	33,400	15,700	15,300	18,000	7,320	4,240	3,300	4,950
29	11,800	10,700	15,100	7,690	28,700	16,700	14,200	16,500	7,150	4,240	3,250	4,570
30	13,800	10,200	14,700	7,500	-	20,800	12,800	14,900	7,080	4,070	3,250	4,230
31	14,700	-	13,400	7,200	-	20,800	-	14,300	-	4,000	3,250	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	399,600	41,400	2,530	12,890	3.77	4.35	792,600
November	697,800	45,900	10,200	23,260	6.80	7.59	1,384,000
December	417,700	19,400	10,000	13,470	3.94	4.54	828,500
Calendar year 1947	4,109,040	45,900	2,530	11,260	3.29	44.69	8,150,000
January	923,300	146,000	7,200	29,780	8.71	10.04	1,831,000
February	650,090	84,100	5,950	22,420	6.56	7.07	1,289,000
March	523,000	26,600	13,400	16,870	4.93	5.69	1,037,000
April	488,300	20,500	12,700	16,280	4.76	5.31	968,500
May	495,900	21,800	10,900	16,000	4.68	5.39	983,600
June	346,430	15,500	7,080	11,550	3.38	3.77	687,100
July	155,370	6,900	4,000	5,012	1.47	1.69	308,200
August	110,510	3,940	3,250	3,565	1.04	1.20	219,200
September	113,890	5,320	2,970	3,796	1.11	1.24	225,900
Water year 1947-48	5,321,890	146,000	2,530	14,540	4.25	57.88	10,550,000

Peak discharge (base, 59,000 sec.-ft.).- Jan. 3 (9 a.m.) 66,700 sec.-ft.; Jan. 7 (1 p.m.) 163,000 sec.-ft.; Feb. 22 (10:30 p.m.) 115,000 sec.-ft.

Willamette River at Albany, Oreg.

Location.- Water-stage recorder, lat. 44°38'20", long. 123°06'20", in SW¼ sec. 6, T. 1 S., R. 3 W., at Albany, just downstream from Calapooya River. Datum of gage is 171 feet above mean sea level, datum of 1929.

Drainage area.- 4,840 square miles.

Records available.- November 1878 to April 1882, 1883 to 1888 (fragmentary), January 1 to September 1948.

Average discharge.- 53 years (1895-1948), 13,690 second-feet.

Extremes.- Maximum discharge during year, 185,000 second-feet Jan. 8 (gage height, 28. feet); minimum, 3,100 second-feet Sept. 21, 22 (gage height, -0.48 foot).
1878-82, 1892-1948: Maximum discharge, 266,000 second-feet Jan. 14, 1881 (gage height, 32.8 feet); minimum, 1,840 second-feet Sept. 1, 2, 1940.
Maximum stage known, 36.0 feet Dec. 4, 1861 (discharge, 340,000 second-feet, fro rating curve extended above 220,000 second-feet). Flood of Feb. 4, 1890, reached a stage of 33.9 feet (discharge, 291,000 second-feet).

Remarks.- Records good. Flow regulated at times by Cottage Grove and Fern Ridge Reser (see pp. 124,139). Albany power canal diverts water from South Santiam River into Willamette River above station; small diversions for irrigation.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).- W 694: Drainage area. W 904: 1939. W 964: 1862(M), 1881 1890, 1894, 1897, 1901, 1903, 1907, 1908, 1910, 1916, 1923, 1927, 1932(M). W 984:

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	3,580	22,800	14,000	21,000	8,890	34,000	22,900	15,500	16,600	8,180	4,450	3,
2	4,240	27,900	14,200	35,400	8,840	30,100	20,400	14,300	16,200	7,850	4,320	3,
3	4,350	28,900	14,200	57,400	8,620	27,400	20,500	14,100	16,300	7,500	4,300	3,
4	4,660	26,500	16,700	71,500	8,410	23,500	20,900	20,900	17,100	7,110	4,300	4,
5	4,820	25,500	17,400	65,000	8,570	20,800	20,100	29,100	16,200	7,010	4,320	4,
6	4,600	26,300	15,900	63,100	8,260	19,900	20,000	25,700	14,800	7,110	4,240	4,
7	4,560	27,100	15,000	88,200	7,820	19,200	19,600	24,700	15,000	7,420	4,130	4,
8	4,720	30,200	16,600	167,000	8,470	19,100	18,500	25,100	16,500	7,420	4,060	4,
9	5,230	38,300	18,000	141,000	12,900	21,600	18,000	24,100	16,500	7,040	4,020	4,
10	5,740	40,800	19,200	89,800	15,900	22,500	18,700	22,400	16,200	6,750	4,020	4,
11	7,380	35,100	18,900	64,000	14,200	20,900	19,300	20,200	16,100	6,460	3,970	3,
12	12,600	33,500	18,400	49,000	12,300	18,600	19,300	18,300	17,300	6,130	3,880	3,
13	11,200	33,300	17,600	39,700	10,900	17,700	17,800	18,100	15,700	6,000	3,840	3,
14	8,980	34,700	19,600	33,300	10,300	18,700	16,400	19,600	14,700	5,830	3,860	3,
15	8,360	38,000	25,800	28,500	11,800	18,300	16,300	18,900	13,600	5,670	3,880	3,
16	11,900	42,200	24,100	25,500	26,700	18,200	18,400	17,600	12,400	5,500	3,910	3,
17	35,900	50,100	22,000	23,200	34,500	19,400	21,500	17,600	11,600	5,390	3,910	3,
18	40,800	45,700	22,100	21,500	31,600	19,000	23,900	18,400	11,000	5,250	3,860	3,
19	36,300	39,100	24,600	20,100	31,800	18,800	24,500	18,200	10,700	5,210	3,860	3,
20	35,200	34,400	26,400	18,800	31,400	19,300	22,500	17,800	10,600	5,150	3,840	3,
21	40,200	30,200	23,700	17,500	31,200	18,700	21,400	17,600	10,900	5,060	3,780	3,
22	44,900	26,300	21,600	16,500	48,400	24,400	22,100	17,600	12,400	4,980	3,740	3,
23	34,200	22,800	20,600	15,800	79,500	34,500	24,300	16,900	11,700	4,870	3,840	3,
24	26,900	20,300	18,900	15,100	102,000	36,100	25,600	16,600	10,600	4,820	4,200	4,
25	22,300	18,400	17,500	14,600	69,100	31,000	24,600	17,200	9,970	4,740	4,260	5,
26	19,000	16,900	16,100	13,900	45,600	27,200	24,100	18,900	9,520	4,680	3,950	5,
27	17,100	16,100	15,200	13,000	46,100	23,700	22,200	20,100	9,080	4,580	3,810	5,
28	16,200	15,700	15,500	11,300	49,100	21,200	20,000	20,800	8,700	4,580	3,710	6,
29	16,200	15,100	19,900	10,100	41,200	20,500	18,300	20,300	8,470	4,800	3,630	5,
30	17,200	14,400	21,500	9,580	-	22,100	16,700	18,300	8,280	4,680	3,580	5,
31	19,800	-	20,100	9,270	-	25,100	-	16,700	-	4,500	3,590	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	529,120	44,900	3,580	17,070	3.53	4.07	1,049,
November	876,600	50,100	14,400	29,220	6.04	6.74	1,739,
December	591,300	26,400	14,000	19,070	3.94	4.54	1,173,
Calendar year 1947	5,282,400	52,400	2,790	14,470	2.99	40.60	10,480,
January	1,269,650	167,000	9,270	40,960	8.46	9.76	2,518,
February	824,380	102,000	7,820	28,430	5.87	6.33	1,635,
March	711,500	36,100	17,700	22,950	4.74	5.47	1,411,
April	618,800	25,600	16,300	20,630	4.26	4.75	1,227,
May	601,600	29,100	14,100	19,410	4.01	4.62	1,193,
June	394,720	17,300	8,280	13,160	2.72	3.03	782,
July	182,270	8,180	4,500	5,880	1.21	1.40	361,
August	123,060	4,450	3,580	3,970	.820	.95	244,
September	123,390	6,360	3,120	4,110	.849	.95	244,
Water year 1947-48	6,846,390	167,000	3,120	18,710	3.87	52.61	13,580,

Peak discharge (base, 59,000 sec.-ft.).- Jan. 4 (1 p.m.) 69,800 sec.-ft.; Jan. 8 (3 p.m.) 185, sec.-ft.; Feb. 24 (3 a.m.) 110,000 sec.-ft.

Willamette River at Salem, Oreg.

Location.- Water-stage recorder, lat. 44°56'40", long. 123°02'30", in SW¼ sec. 22, T. 7 S., R. 3 W., 300 feet upstream from highway bridge at Salem. Datum of gage is 113.61 feet above mean sea level, datum of 1929.
Drainage area.- 7,280 square miles.
Records available.- October 1909 to December 1916, October 1927 to September 1948. Gage-height records collected at about same site since 1892 are contained in reports of U. S. Weather Bureau.
Average discharge.- 28 years, 22,060 second-feet.
Extremes.- Maximum discharge during year, 242,000 second-feet Jan. 9 (gage height, 27.47 feet); minimum, 3,710 second-feet Oct. 1 (gage height, -4.13 feet).
1909-16, 1927-48: Maximum discharge observed, 315,000 second-feet Nov. 25, 1909 (gage height, 30.5 feet); minimum, 2,470 second-feet Aug. 27, 1940 (gage height, -4.45 feet).
Maximum discharge known, 500,000 second-feet Dec. 4, 1861 (gage height, about 39 feet), from rating curve extended above 250,000 second-feet in 1916.
Flood of Feb. 5, 1890, reached a stage of 37.1 feet.
Remarks.- Records excellent except those for period of shifting control, which are good. Many small diversions for irrigation above station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River below station, through Mill Creek at Salem. Flow regulated at times by Cottage Grove and Fern Ridge Reservoirs (see pp. 124,139).
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Jan. 1)

-3.8	3,910	6.0	41,000
-2.6	6,270	12.0	77,900
-1.6	9,000	16.0	108,000
1.0	17,800	21.0	158,000
3.0	25,900	27.5	242,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,950	40,500	21,400	30,500	13,800	55,800	36,500	23,400	24,200	10,800	5,920	4,790
2	4,790	50,200	21,300	61,700	13,500	48,200	32,300	21,900	23,800	10,600	5,850	4,700
3	5,350	51,500	21,200	90,500	13,200	43,600	32,700	21,600	23,600	10,100	5,720	4,660
4	8,100	49,300	23,800	97,200	12,700	37,400	33,300	38,200	24,100	9,650	5,650	4,920
5	7,470	45,700	24,600	96,800	12,800	32,700	31,800	47,800	22,900	9,330	5,610	5,230
6	6,670	44,800	22,900	91,700	12,400	30,300	30,800	44,800	21,200	9,360	5,570	5,250
7	6,200	77,200	21,400	142,000	11,700	29,200	29,700	43,900	21,100	9,880	5,470	5,230
8	6,010	60,300	23,000	228,000	12,400	28,100	27,800	42,900	22,600	9,970	5,370	5,170
9	6,360	73,200	24,900	223,000	18,500	31,200	26,900	39,900	23,000	9,430	5,310	5,120
10	7,340	73,400	26,500	162,000	23,100	32,800	27,800	36,200	21,900	8,880	5,290	5,020
11	12,300	66,800	26,800	116,000	21,000	30,800	29,300	32,300	21,700	8,580	5,230	4,980
12	25,000	61,000	26,600	83,400	18,400	27,600	28,900	28,700	23,400	8,340	5,190	5,000
13	20,700	58,700	25,200	65,000	16,500	26,000	26,900	28,200	21,900	7,980	5,120	4,940
14	15,600	60,800	31,800	53,700	15,500	26,900	24,600	30,600	20,100	7,720	5,020	4,920
15	13,200	66,100	39,200	45,400	17,400	27,500	25,000	29,800	18,600	7,420	5,080	4,920
16	30,200	80,100	37,600	39,400	33,400	27,000	29,100	27,400	17,200	7,180	5,130	4,850
17	66,200	83,100	33,600	35,200	53,300	28,300	34,500	27,300	16,100	7,030	5,190	4,550
18	83,100	79,600	36,200	32,000	54,300	27,900	39,100	28,300	15,300	6,950	5,170	4,440
19	88,800	70,700	43,800	29,400	53,200	27,500	39,700	27,600	14,700	6,900	5,190	4,420
20	83,700	61,500	45,600	27,000	50,200	27,900	37,100	26,300	14,600	6,790	5,150	4,370
21	84,900	53,500	39,400	24,800	52,000	27,600	35,200	25,700	14,900	6,640	5,020	4,280
22	82,000	45,300	35,100	22,900	86,900	38,600	36,200	25,900	16,300	6,450	5,020	4,280
23	78,400	39,200	32,400	21,500	128,000	57,400	40,400	25,200	16,000	6,380	5,060	4,460
24	53,300	34,400	29,400	21,500	137,000	59,100	42,600	24,700	14,700	6,320	5,310	5,960
25	43,000	30,800	26,500	20,900	122,000	50,800	41,800	25,900	13,600	6,230	5,680	7,690
26	36,100	27,800	24,300	19,900	85,100	43,800	41,000	28,100	12,900	6,140	5,450	7,580
27	32,000	26,100	22,700	18,800	62,500	37,900	37,200	29,800	12,400	6,030	5,170	8,040
28	29,800	24,900	23,000	17,400	78,700	33,800	32,600	30,800	11,900	6,050	4,980	9,680
29	29,600	23,900	27,600	15,800	68,400	32,800	29,300	31,800	11,400	6,380	4,890	9,150
30	31,000	22,700	30,500	15,000	-	34,900	26,200	28,700	11,100	6,320	4,790	8,160
31	35,600	-	28,700	14,400	-	38,700	-	25,500	-	6,050	4,790	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,036,740	88,800	3,950	33,440	4.59	5.30	2,056,000
November	1,553,100	83,100	22,700	51,770	7.11	7.93	3,081,000
December	897,000	45,600	21,200	28,940	3.98	4.58	1,779,000
Calendar year 1947	8,869,380	89,400	3,730	24,300	3.34	45.30	17,590,000
January	1,962,800	228,000	14,400	63,320	8.70	10.03	3,893,000
February	1,317,900	137,000	11,700	45,440	6.24	6.73	2,614,000
March	1,102,100	59,100	26,000	35,550	4.88	5.63	2,186,000
April	986,300	42,600	24,600	32,880	4.52	5.04	1,956,000
May	949,200	47,800	21,600	30,620	4.21	4.85	1,883,000
June	547,200	24,200	11,100	18,240	2.51	2.80	1,085,000
July	241,880	10,800	6,030	7,803	1.07	1.24	479,800
August	163,390	5,920	4,790	5,271	.724	.83	324,100
September	166,760	9,680	4,280	5,559	.764	.85	330,800
Water year 1947-48	10,924,370	228,000	3,950	29,850	4.10	55.81	21,670,000

Peak discharge (base, 95,000 sec.-ft.).- Jan. 9 (12:30 a.m.) 242,000 sec.-ft.; Feb. 24 (7 p.m.) 140,000 sec.-ft.

Salt Creek near Oakridge, Oreg.

Location.- Water-stage recorder, lat. 43°44', long. 122°25', in SW¼ sec. 23, T. 21 S., R. 3 E., 0.7 mile upstream from mouth and 2 miles southeast of Oakridge. Datum of gage is 1,245.67 feet above mean sea level, datum of 1929.

Drainage area.- 113 square miles.

Records available.- July 1913 to September 1914, October 1933 to September 1948.

Average discharge.- 16 years, 280 second-feet.

Extremes.- Maximum discharge during year, 3,070 second-feet Jan. 7 (gage height, 6.69 feet); minimum, 107 second-feet Sept. 12, 13.

1913-14, 1933-48: Maximum discharge, 4,320 second-feet Dec. 28, 1945 (gage height, 7.70 feet), from rating curve extended above 1,700 second-feet; minimum, 55 second-feet Jan. 8, 1937 (computed on basis of records for Salmon Creek near Oakridge).

Remarks.- Records fair. In spring of 1948, a small diversion was begun around gage to millpond downstream and has been used intermittently since. No record kept of diversion.

Revisions (water years).- W 1014: 1943.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	124	319	360	410	199	496	446	379	710	402	156	
2	126	332	340	720	189	456	474	356	760	366	150	
3	133	342	360	620	179	424	464	428	810	334	146	
4	128	339	350	560	169	397	433	528	740	317	146	
5	128	360	320	540	162	384	410	487	665	352	140	
6	126	360	300	1,500	172	366	388	528	735	343	137	
7	128	500	280	2,560	172	352	366	541	810	317	134	
8	133	750	270	1,560	203	361	348	514	810	283	134	
9	159	650	280	1,020	217	397	352	478	958	263	131	
10	179	600	270	820	203	384	348	446	946	259	131	
11	198	620	260	690	189	361	343	424	830	251	131	
12	171	580	250	600	182	343	330	428	730	239	128	
13	157	530	290	532	182	338	321	442	685	224	128	
14	151	540	370	482	186	334	352	424	610	213	125	
15	220	750	330	433	464	325	410	415	565	206	125	
16	520	900	300	402	433	321	456	442	532	199	125	
17	342	800	310	370	410	308	496	505	510	196	125	
18	282	700	330	348	509	304	496	518	514	192	125	
19	243	600	340	321	469	296	492	528	496	186	125	
20	804	520	330	304	410	287	510	518	580	182	125	
21	594	430	320	291	719	300	546	523	650	179	125	
22	470	370	310	275	1,480	384	580	518	555	172	150	
23	380	350	300	263	898	388	570	550	500	166	156	
24	310	330	290	251	670	370	532	640	469	166	140	
25	270	320	280	243	595	352	536	830	451	159	131	
26	250	340	290	221	795	321	496	874	438	156	131	
27	240	370	300	217	735	321	474	898	415	166	128	
28	270	370	330	213	630	352	451	805	420	169	125	
29	274	350	320	213	546	460	428	710	428	159	125	
30	305	350	310	210	-	536	402	640	446	153	125	
31	282	-	300	199	-	478	-	690	-	153	122	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	8,097	804	124	261	2.31	2.66	16,0
November	14,672	900	319	489	4.33	4.83	29,1
December	9,590	370	250	309	2.73	3.16	19,0
Calendar year 1947	109,064	900	124	299	2.65	35.90	216,3
January	17,408	2,560	199	562	4.97	5.73	34,5
February	12,407	1,480	172	428	3.79	4.08	24,6
March	11,496	536	287	371	3.28	3.78	22,8
April	13,250	580	321	442	3.91	4.36	26,2
May	17,007	898	356	549	4.86	5.60	33,7
June	18,768	958	415	626	5.54	6.18	37,2
July	7,122	402	153	230	2.04	2.34	14,1
August	4,125	156	122	133	1.18	1.36	8,1
September	3,948	189	110	132	1.17	1.30	7,8
Water year 1947-48	137,890	2,560	110	377	3.34	45.38	273,5

Peak discharge (base, 800 sec.-ft.).- Oct. 20 (1 p.m.) 950 sec.-ft.; Jan. 7 (9 a.m.) 3,070 sec ft.; Feb. 22 (4 a.m.) 1,700 sec.-ft.; Feb. 26 (12 m.) 810 sec.-ft.

Note.- No gage-height record Oct. 22-27, Nov. 5 to Jan. 6; discharge computed on basis of weat records, recorded range in stage, and records for nearby streams including Salmon Creek near Oak ridge and Middle Fork Willamette River near Oakridge.

Salmon Creek near Oakridge, Oreg.

Location.- Water-stage recorder, lat. 43°45', long. 122°23', in SW¼ sec. 7, T. 21 S., R. 4 E., a quarter of a mile upstream from Slide Creek and 4 miles east of Oakridge.

Drainage area.- 117 square miles at cable a quarter of a mile above gage, where all discharge measurements are made.

Records available.- October 1933 to September 1948. February 1913 to September 1914 at site 2 miles downstream, below Flat Creek; October 1914 to October 1919 at site 1 mile downstream.

Average discharge.- 15 years (1933-48), 374 second-feet.

Extremes.- Maximum discharge during year, 4,240 second-feet Jan. 7 (gage height, 6.25 feet); minimum, 145 second-feet Oct. 1 (gage height, 1.29 feet).

1913-19, 1933-48: Maximum discharge, 8,040 second-feet (revised) Dec. 28, 1945 (gage height, 8.40 feet), from rating curve extended above 4,000 second-feet by logarithmic plotting; minimum, 63 second-feet Jan. 8, 1937 (gage height, 0.87 foot).

Revisions.- The figures of maximum discharge for some water years have been revised as shown in the following table. They supersede those shown in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
794.....	1935	Dec. 20	6.09	4,000
964.....	1942	Nov. 15	6.15	4,100
984.....	1943	Dec. 31	7.90	7,050
1064.....	1946	Dec. 28	8.40	8,040

Remarks.- Records good except those for days of no gage-height record, which are fair. No regulation. Since 1936 village of Oakridge has diverted water around station in an 8-inch pipe. Tunnel and control gates that were built to divert part of outflow from Waldo Lake into Salmon Creek Basin were not used during year but leakage under control gates amounts to about 5 second-feet.

Revisions (water years).- W 794: 1934. W 814: Drainage area. Revised figures of discharge for high-water periods in the water years 1935 and 1943 are given herewith. They supersede those published in Water-Supply Papers 794 and 984.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1934-35		1942-43	
Dec. 20	3,360	Nov. 30	3,040
		Dec. 30	2,830
1942-43		31	6,290
Nov. 27	3,050	Jan. 1	4,790
29	4,620		

Month and year	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
December 1934.....	24,389	3,360	403	787	6.73	7.75	48,370
Calendar year 1934.....	122,002	3,360	107	334	2.85	38.67	242,000
Water year 1934-35.....	150,267	3,360	107	412	3.52	47.73	298,000
November 1942.....	28,550	4,620	210	952	8.14	9.07	56,630
December 1942.....	41,934	6,290	686	1,353	11.6	13.33	83,170
Calendar year 1942.....	157,829	6,290	112	432	3.69	50.15	313,000
January 1943.....	28,764	4,790	430	928	7.93	9.14	57,050
Water year 1942-43.....	212,320	6,290	112	582	4.97	67.48	421,100
Calendar year 1943.....	162,202	4,790	148	444	3.79	51.56	321,700

Peak discharge 1942-43: Nov. 23 (10:30 p.m.) 3,320 sec.-ft.; Nov. 27 (6 to 7 a.m.) 3,540 sec.-ft.; Nov. 29 (1:30 p.m.) 6,630 sec.-ft.; Dec. 31 (1 a.m.) 6,090 sec.-ft.; Dec. 31 (6 p.m.) 7,050 sec.-ft.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 11 to Feb. 20)

Oct. 1 to Jan. 5				Jan. 6 to Sept. 30			
1.2	131	2.4	505	1.4	138	3.2	880
1.4	165	2.8	705	1.7	206	3.7	1,250
1.7	235	3.4	1,070	2.0	296	4.3	1,790
2.0	355	4.0	1,520	2.3	410	5.1	2,670
				2.7	590	6.0	3,870

Discharge, in second-feet, of Salmon Creek near Oakridge, Oreg., water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	S
1	145	407	523	610	286	730	652	442	772	382	201	
2	156	428	492	1,150	277	664	664	422	844	350	201	
3	171	478	536	994	270	590	635	526	894	330	201	
4	156	496	510	958	270	540	580	664	790	316	198	
5	151	492	474	a900	264	508	536	635	700	358	196	
6	149	500	438	a3,000	258	486	500	724	766	338	196	
7	151	678	428	3,840	255	464	472	766	856	330	194	
8	154	1,320	411	2,300	277	459	454	718	862	306	191	
9	175	1,130	415	1,540	283	486	446	664	880	290	191	
10	202	916	403	1,170	267	472	438	605	880	283	188	
11	253	952	391	943	258	450	430	560	850	277	188	
12	210	862	383	790	252	430	418	560	730	270	186	
13	185	820	446	688	252	418	394	590	688	261	186	
14	177	832	585	610	249	414	418	575	610	255	184	
15	238	1,210	528	560	468	406	495	550	555	252	184	
16	738	1,460	492	522	482	410	585	590	522	246	184	
17	505	1,240	514	490	482	402	658	694	495	243	181	
18	391	1,170	541	464	635	398	688	712	482	240	181	
19	328	1,000	555	438	620	382	676	688	459	237	181	
20	808	856	523	414	526	366	718	646	526	231	179	
21	838	722	510	390	1,290	386	796	630	580	226	179	
22	615	620	482	378	2,920	468	838	615	518	223	188	
23	510	550	464	366	1,650	472	796	652	472	220	212	
24	428	505	442	358	1,150	454	724	778	450	217	188	
25	363	487	424	342	957	438	712	978	438	214	184	
26	335	505	424	330	1,350	414	646	1,080	422	212	179	
27	328	541	442	320	1,270	410	590	1,080	410	220	176	
28	347	546	523	313	1,020	442	545	929	406	220	174	
29	367	518	505	306	832	658	500	802	410	212	174	
30	395	518	482	299	-	826	468	718	414	209	172	
31	367	-	464	293	-	730	-	760	-	204	172	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-
October	10,336	838	145	333	2.85	3.29	20
November	22,759	1,460	407	759	6.49	7.23	45
December	14,750	585	383	476	4.07	4.69	29
Calendar year 1947	154,298	1,460	144	423	3.62	49.04	306
January	26,076	3,840	293	841	7.19	8.29	51
February	19,370	2,920	249	668	5.71	6.16	38
March	15,173	826	366	489	4.18	4.82	30
April	17,472	838	394	582	4.97	5.55	34
May	21,353	1,080	422	689	5.89	6.79	42
June	18,681	894	406	623	5.32	5.94	37
July	8,172	382	204	264	2.26	2.60	16
August	5,789	212	172	187	1.60	1.84	11
September	5,189	240	152	173	1.48	1.65	10
Water year 1947-48	185,120	3,840	145	506	4.32	58.85	367

Peak discharge (base, 1,500 sec.-ft.).- Nov. 15, 16 (10 p.m. to 2 a.m.) 1,550 sec.-ft.; Jan. (about 8 a.m.) 4,240 sec.-ft.; Feb. 22 (4:30 a.m.) 3,690 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records f Salt Creek and Middle Fork Willamette River near Oakridge.

Waldo Lake Outlet near Oakridge, Oreg.

Location.- Water-stage recorder and artificial control on lake outlet, lat. 43°46', long. 122°03', in NW¼ sec. 7, T. 21 S., R. 6 E., on artificial outlet channel of Waldo Lake, 20 miles east of Oakridge. Altitude of water surface of lake and gage, 5,140 feet (from topographic map).

Drainage area.- 30 square miles.

Records available - October 1936 to September 1948.

Average discharge.- 12 years, 27.4 second-feet.

Extremes.- Maximum discharge during year, 71 second-feet June 21 (gage height, 1.85 feet); minimum, 1.3 second-feet Oct. 7, 8 (gage height, 0.10 foot).
1936-48: Maximum discharge, 144 second-feet Jan. 2, 1943 (gage height, 2.98 feet), from rating curve extended above 90 second-feet; no flow at times.

Remarks.- Records good except those for periods of no gage-height record, which are fair. At times seiches on Waldo Lake cause rapid changes in stage at gage several times per hour. Lake not artificially regulated. Diversion tunnel into head of Black Creek, near south end of lake, built about 1914, is not used, but there is leakage past control gates, 5.3 second-feet measured on July 20, 1948.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.1	1.3	0.4	8.5	1.1	35
.2	3.4	.6	15	1.5	54
.3	5.8	.8	22	1.9	73

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	14	25	27	31	58	57	54	57	68	41	16
2	1.9	14	25	31	31	59	58	54	57	67	40	16
3	2.1	15	26	33	30	58	59	56	57	66	38	15
4	1.9	15	26	35	30	57	59	57	57	65	37	15
5	1.7	16	25	35	30	57	60	57	57	66	36	14
6	1.5	17	24	41	29	56	61	57	58	66	35	14
7	1.5	18	25	49	28	55	61	57	60	66	34	13
8	1.5	20	26	50	29	55	60	58	62	65	33	13
9	1.9	20	27	50	33	57	59	58	64	63	33	12
10	2.4	20	27	50	34	56	59	57	67	62	31	11
11	3.2	22	27	51	34	55	59	56	69	61	30	10
12	3.0	22	27	50	33	54	58	55	69	60	29	9.7
13	2.8	23	27	49	32	54	58	55	69	59	28	9.4
14	2.8	25	28	48	31	54	57	55	69	57	27	8.8
15	4.1	27	27	47	36	54	57	54	68	56	26	8.5
16	7.7	29	27	46	36	a55	55	54	68	55	25	8.2
17	8.5	30	27	45	36	a55	56	54	67	54	25	8.2
18	8.2	30	27	44	36	a54	56	54	67	52	24	8.0
19	8.2	30	27	42	36	a52	55	55	67	51	23	8.0
20	13	30	27	41	36	a50	54	55	69	50	22	7.7
21	14	30	27	41	43	a55	54	54	70	48	21	7.2
22	14	29	27	40	54	a56	55	54	70	47	21	8.0
23	14	28	26	39	57	a56	57	53	70	46	22	9.1
24	13	27	25	38	56	a56	57	53	69	45	21	10
25	13	27	25	37	56	a56	58	54	68	43	21	10
26	13	26	24	36	59	a56	57	54	68	42	20	11
27	13	26	24	34	59	a54	56	54	68	42	19	11
28	13	25	25	33	59	a56	55	55	67	41	18	11
29	14	25	27	33	58	58	55	55	67	40	18	11
30	14	25	26	32	-	58	54	55	69	39	17	10
31	14	-	25	32	-	58	-	56	-	40	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	228.6	14	1.5	7.37	453
November	705	30	14	23.5	1,400
December	808	28	24	26.1	1,600
Calendar year 1947	13,146.8	70	1.5	36.0	26,080
January	1,259	51	27	40.6	2,500
February	1,152	59	28	39.7	2,280
March	1,724	59	50	55.6	3,420
April	1,716	61	54	57.2	3,400
May	1,709	58	53	55.1	3,390
June	1,964	70	57	65.5	3,900
July	1,682	68	39	54.3	3,340
August	823	41	17	26.8	1,650
September	323.8	16	7.2	10.8	642
Water year 1947-48	14,103.4	70	1.5	38.5	27,980

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Odell Creek near Crescent.

North Fork of Middle Fork Willamette River near Oakridge, Oreg.

Location.- Water-stage recorder, lat. 43°45', long. 122°30', in SW¼ sec. 7, T. 21 S., R. 3 E., 1 mile upstream from mouth and 2½ miles northeast of Oakridge. Datum of gag 1,029.6 feet above mean sea level (from river-profile survey).
Drainage area.- 246 square miles.
Records available.- October 1909 to September 1912 (fragmentary), September 1935 to S tember 1948. October 1913 to February 1916 at site half a mile upstream, above a tributary.
Average discharge.- 13 years (1935-48), 725 second-feet.
Extremes.- Maximum discharge during year, 9,580 second-feet Jan. 7 (gage height, 12.8 feet); minimum, 74 second-feet Sept. 7 (gage height, 2.59 feet); minimum daily, 14 second-feet Oct. 1, 2, Sept. 13.
1909-16, 1935-48: Maximum discharge, 17,000 second-feet Dec. 28, 1945 (gage he 16.6 feet), from rating curve extended above 8,000 second-feet by logarithmic plot minimum, 26 second-feet Oct. 14, 1939.
Remarks.- Records good except those for periods of no recorder record, which are fair Tunnel and control gates that were built to divert part of outflow from Waldo Lake Salmon Creek Basin were not used during year. Occasional diurnal fluctuation duri low-water periods caused by log pond upstream.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 5						Jan. 6 to Sept. 30					
2.6	142	3.7	450	6.0	1,980	2.9	137	4.0	530	7.0	2
2.8	180	4.1	630	7.0	2,880	3.1	187	4.5	810	8.5	4
3.0	225	4.6	910	7.6	3,480	3.4	280	5.0	1,120	10.0	6
3.3	310	5.2	1,330			3.7	390	6.0	1,870	11.7	8

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	h142	802	826	1,370	462	e1,500	1,380	924	1,390	525	248	
2	h142	856	778	3,220	435	e1,400	1,380	858	1,460	480	248	
3	h160	938	959	2,640	417	e1,300	1,340	1,240	1,550	458	248	
4	h180	952	886	2,280	417	e1,200	1,220	1,670	1,390	440	245	
5	h160	924	802	1,950	404	e1,100	1,120	1,490	1,230	505	245	
6	h160	945	730	6,100	382	e1,000	1,040	1,650	1,270	505	236	
7	h160	1,390	720	8,570	378	e970	996	1,740	1,400	500	232	
8	h160	2,540	715	5,280	426	e970	942	1,630	1,420	448	226	
9	h180	2,200	730	3,410	453	e1,000	924	1,460	1,400	426	223	
10	h250	1,790	710	2,550	426	h990	912	1,300	1,380	399	220	
11	630	1,930	675	2,000	394	e900	912	1,190	1,390	386	214	
12	386	1,690	650	1,690	382	h870	870	1,170	1,200	374	217	
13	295	1,620	766	1,450	378	h870	822	1,340	1,110	370	208	
14	250	1,650	1,110	1,290	366	h870	870	1,320	990	358	211	
15	482	2,340	952	1,150	906	h810	1,020	1,220	906	346	208	
16	2,360	h3,480	856	1,040	930	e910	1,250	1,290	846	336	205	
17	1,370	h2,700	904	972	960	e890	1,400	1,410	798	329	202	
18	1,020	h2,430	1,060	912	1,420	e860	1,530	1,390	768	322	202	
19	808	h2,250	1,200	852	1,340	e840	1,490	1,340	750	315	196	
20	1,660	h1,730	1,080	792	1,090	e840	1,540	1,240	798	308	193	
21	1,850	h1,490	1,020	744	3,330	e940	1,680	1,190	930	301	196	
22	1,320	h1,260	980	702	7,230	h1,050	1,850	1,170	840	290	199	
23	1,090	h1,120	898	679	h4,180	h1,050	1,880	1,220	756	287	267	
24	892	h1,050	850	657	h3,000	990	1,700	1,440	702	284	223	
25	754	h910	808	630	e2,750	930	1,700	1,770	674	274	211	
26	675	e940	802	596	e2,500	852	1,530	1,910	635	267	196	
27	630	e960	808	550	e2,300	840	1,340	1,890	613	270	187	
28	645	e900	1,050	520	h2,040	906	1,200	1,680	580	290	187	
29	695	h850	1,030	510	h1,870	1,300	1,080	1,460	565	270	182	
30	790	h730	945	495	-	1,710	990	1,330	540	258	176	
31	725	-	874	471	-	1,520	-	1,360	-	251	176	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-
October	21,021	2,360	142	678	2.76	3.18	41
November	45,367	3,480	730	1,512	6.15	6.86	89
December	27,174	1,200	650	877	3.57	4.11	53
Calendar year 1947	282,105	3,660	142	773	3.14	42.65	559
January	56,072	8,570	471	1,809	7.35	8.48	111
February	41,566	7,230	366	1,433	5.83	6.28	82
March	32,178	1,710	810	1,038	4.22	4.86	63
April	37,908	1,880	822	1,264	5.14	5.73	75
May	43,292	1,910	858	1,397	5.68	6.54	85
June	30,281	1,550	540	1,009	4.10	4.58	60
July	11,172	525	251	360	1.46	1.69	22
August	6,627	267	176	214	.870	1.00	13
September	5,883	362	142	196	.797	.89	11
Water year 1947-48	358,541	8,570	142	980	3.98	54.20	711

Peak discharge (base, 3,500 sec.-ft.).- Jan. 7 (9 a.m.) 9,580 sec.-ft.; Feb. 22 (5 a.m.) 8,96 sec.-ft.
e Observer's tape-gage reading not considered representative for day; discharge computed on b of records for Salmon Creek near Oakridge and Middle Fork Willamette River near Oakridge and at Eula.
h Computed from observer's once-daily tape-gage reading.

Fall Creek below Winberry Creek, near Fall Creek, Oreg.

Location.- Staff gage, lat. 43°57', long. 122°47', near center of sec. 2, T. 19 S., R. 1 W., 1½ miles downstream from Winberry Creek and 2½ miles southeast of Fall Creek. Datum of gage is 637.80 feet above mean sea level, datum of 1929.

Drainage area.- 190 square miles.

Records available.- October to December 1911 (gage heights only), September 1935 to September 1948.

Average discharge.- 13 years, 528 second-feet.

Extremes.- Maximum discharge during year, 12,000 second-feet Jan. 6 (gage height, 13.3 feet, from floodmark), from rating curve extended above 6,500 second-feet by logarithmic plotting; minimum observed, 38 second-feet Sept. 13 (gage height, 1.18 feet).
1935-48: Maximum discharge, 22,500 second-feet Dec. 28, 1945 (gage height, 18.0 feet, from floodmark), from rating curve extended above 6,500 second-feet by logarithmic plotting; minimum observed. 19 second-feet Dec. 1, 1936.

Remarks.- Records fair. Gage read once daily, oftener during periods of high water. No diversion above station.

Revisions (water years).- W 1064: 1946(M).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.1	32	2.2	197	4.0	850	7.0	3,000
1.3	49	2.6	300	4.6	1,180	8.0	4,050
1.6	86	3.0	425	5.3	1,650	10.0	6,600
1.9	136	3.5	615	6.0	2,150	12.0	9,600

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	1,170	569	1,000	211	1,140	1,010	439	366	155	72	51
2	51	1,170	394	3,500	202	1,280	940	404	366	147	70	50
3	144	1,120	714	2,570	190	1,060	960	571	342	144	70	49
4	75	965	624	2,510	197	890	810	1,100	306	140	67	49
5	65	1,290	519	1,920	190	815	755	905	282	136	67	49
6	58	1,790	467	7,770	179	790	736	960	270	167	65	47
7	60	2,320	460	8,060	167	669	723	940	265	144	62	45
8	70	3,720	692	3,380	230	795	770	1,080	260	136	61	44
9	78	2,180	990	2,090	432	1,230	900	1,080	255	129	60	44
10	250	2,440	885	1,440	478	1,010	880	1,090	230	122	58	42
11	930	2,490	860	1,470	330	800	860	705	282	115	56	42
12	567	1,890	790	1,060	303	705	800	638	404	108	53	41
13	260	2,190	845	885	270	750	714	678	384	108	51	38
14	220	2,040	1,570	755	245	732	687	741	300	104	50	44
15	495	3,060	1,180	696	2,650	705	865	624	225	101	75	47
16	4,520	2,890	980	615	1,790	830	850	591	211	98	60	47
17	1,750	1,860	840	543	1,380	780	890	678	197	95	62	45
18	890	1,710	741	474	1,750	714	860	718	230	92	65	44
19	714	1,470	651	425	1,240	765	810	669	230	92	60	42
20	2,550	1,040	633	397	1,160	741	780	678	260	90	56	42
21	1,240	840	651	360	4,460	965	775	575	425	86	53	40
22	1,130	732	615	339	8,740	1,850	830	535	378	86	65	45
23	575	651	599	312	3,460	1,570	1,010	503	306	83	147	215
24	543	571	547	291	2,130	1,300	1,120	495	270	86	118	336
25	495	523	481	270	1,480	1,100	1,140	488	240	80	83	240
26	460	488	425	255	3,630	990	940	460	211	83	60	188
27	474	446	404	250	2,240	1,040	780	432	184	115	58	291
28	567	408	820	235	1,760	1,160	669	418	171	104	56	208
29	591	336	980	228	1,360	1,400	591	467	167	78	53	159
30	840	330	815	222	-	1,610	543	418	163	75	53	132
31	895	-	930	211	-	1,360	-	372	-	75	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	21,608	4,520	51	697	3.67	4.23	42,860
November	44,130	3,720	330	1,471	7.74	8.64	87,530
December	22,471	1,570	369	725	3.82	4.40	44,570
Calendar year 1947	214,160	4,520	49	587	3.09	41.92	424,800
January	44,533	8,060	211	1,437	7.56	8.72	88,330
February	42,854	8,740	167	1,478	7.78	8.39	85,000
March	31,546	1,850	669	1,018	5.36	6.17	62,570
April	24,998	1,140	543	833	4.38	4.89	49,580
May	20,432	1,100	372	659	3.47	4.00	40,530
June	8,180	425	163	273	1.44	1.60	16,220
July	3,374	167	75	109	.574	.66	6,690
August	2,039	147	50	65.8	.346	.40	4,040
September	2,756	336	38	91.9	.484	.54	5,470
Water year 1947-48	268,921	8,740	38	735	3.87	52.64	533,400

Peak discharge (base, 3,100 sec.-ft.).- Oct. 16 (about 6 a.m.) 6,340 sec.-ft.; Jan. 2 (about 12 m.) 4,780 sec.-ft.; Jan. 6 (about 10 p.m.) 12,000 sec.-ft.; Feb. 22 (about 3 a.m.) 11,000 sec.-ft.; Feb. 26 (9:15 a.m.) 3,810 sec.-ft.

Little Fall Creek near Fall Creek, Oreg.

Location.- Staff gage, lat. 43°59', long. 122°45', in sec. 25, T. 18 S., R. 1 W., 4 mil northeast of Fall Creek.

Drainage area.- 48 square miles.

Records available.- September 1935 to September 1948 (discontinued).

Average discharge.- 13 years, 179 second-feet.

Extremes.- Maximum discharge during year, 3,540 second-feet Jan. 6 (gage height, 6.7 fe from floodmark), from rating curve extended above 2,400 second-feet; minimum not det mined.

1935-48: Maximum discharge, 6,110 second-feet Dec. 28, 1945 (gage height, 8.20 feet), from rating curve extended above 2,400 second-feet by velocity-area studies; minimum observed, 10 second-feet Dec. 1, 1936, Aug. 26, 27, Aug. 30 to Sept. 1, 194(

Remarks.- Records fair Oct. 1 to May 18, poor thereafter. No regulation or diversion above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

1.3	21	2.2	100	3.7	590
1.4	25	2.4	140	4.1	810
1.6	36	2.7	212	4.5	1,070
1.8	49	3.0	295	5.0	1,480
2.0	69	3.3	405	6.0	2,590

Jan. 7 to Sept. 30

1.3	26	1.9	68	2.6	186
1.5	36	2.1	93	3.0	297
1.7	49	2.3	123	3.3	405

Note.- Same as preceding table above 3.3 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	23	268	165	265	109	500	385	179				
2	24	257	149	876	106	495	369	172				
3	58	271	207	750	101	418	354	270				
4	35	283	182	792	104	362	334	279				
5	30	337	168	615	97	330	317	247				
6	28	414	154	1,780	93	310	307	252				
7	26	696	177	2,290	90	291	314	258		a65		a2
8	28	1,130	212	1,270	117	300	297	273				
9	44	792	306	852	140	365	344	270				
10	85	655	265	675	123	327	337	244				
11	401	650	274	565	113	291	330	222				
12	177	570	254	464	107	267	300	214				
13	110	610	265	389	104	273	279	211				
14	85	650	441	337	104	267	276	196		53		
15	156	1,030	365	304	526	285	300	181				3
16	1,110	1,000	312	273	459	314	310	174	a95		a30	
17	531	768	295	244	405	300	334	177				
18	423	630	306	219	441	294	377	163				
19	320	518	337	204	362	297	327					
20	560	446	295	186	300	300	297					
21	495	365	271	170	1,660	354	276					
22	354	312	254	161	2,590	600	270			a40		
23	295	274	233	152	1,310	555	304					a6
24	243	252	212	146	852	495	300					
25	207	222	192	140	393	441	304	a160				
26	187	207	180	132	1,010	405	276					
27	168	187	170	125	762	381	247					
28	168	175	212	120	630	401	235					
29	175	163	265	117	522	486	211					
30	192	163	249	113	-	522	194					
31	175	-	228	109	-	450	-		-			-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	6,913	1,110	23	223	4.65	5.36	13,7
November	14,295	1,130	163	476	9.92	11.08	28,3
December	7,595	441	149	245	5.10	5.88	15,0
Calendar year 1947	72,255	1,360	23	198	4.12	56.00	143,3
January	14,835	2,290	109	479	9.98	11.49	29,4
February	13,730	2,590	90	473	9.85	10.64	27,2
March	11,676	600	267	377	7.85	9.05	23,1
April	9,105	385	194	304	6.33	7.05	18,0
May	6,062	279	-	196	4.08	4.70	12,0
June	2,850	-	-	95.0	1.98	2.21	5,6
July	1,578	-	-	50.9	1.06	1.22	3,1
August	930	-	-	30.0	.625	.72	1,8
September	1,280	-	-	42.7	.890	.99	2,5
Water year 1947-48	90,849	2,590	-	248	5.17	70.39	180,2

Peak discharge (base, 900 sec.-ft.).- Oct. 16 (about 3 a.m.) 1,680 sec.-ft.; Nov. 8 (7:30 a.m.) 1,180 sec.-ft.; Nov. 15 (5:30 p.m.) 1,180 sec.-ft.; Jan. 2 (about 12 m.) 1,300 sec.-ft.; Jan. 6 (about 10 p.m.) 3,540 sec.-ft.; Feb. 22 (about 2 a.m.) 3,110 sec.-ft.; Feb. 26 (7 a.m.) 1,080 sec ft.

a No gage-height record; discharge computed on basis of records for Fall Creek near Lowell.

Coast Fork Willamette River at London, Oreg.

Location.- Water-stage recorder, lat. 34°39', long. 123°05', in SW¼ sec. 20, T. 22 S., R. 3 W., 0.6 mile north of London and 11 miles south of Cottage Grove. Datum of gage is 852.65 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 69 square miles.

Records available.- September 1935 to September 1948.

Average discharge.- 13 years, 190 second-feet.

Extremes.- Maximum discharge during year, 4,120 second-feet Jan. 6 (gage height, 8.69 feet); minimum, 18 second-feet Sept. 11-13.
1935-48: Maximum discharge, 8,800 second-feet Dec. 28, 1945 (gage height, 13.25 feet), from rating curve extended above 3,400 second-feet; minimum, 10 second-feet on several days in 1936, 1938, 1939, 1940.

Remarks.- Records good. No diversion above station; millpond 3 miles above station may cause slight regulation at times.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.2	18	1.8	81	3.5	670
1.3	23	2.0	119	4.0	920
1.4	30	2.3	195	5.0	1,440
1.5	39	2.6	290	6.0	2,040
1.6	51	3.0	445	7.6	3,200

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	594	135	641	121	397	280	178	105	59	30	22
2	24	499	121	1,810	117	373	300	164	99	57	30	22
3	25	405	204	990	113	329	308	342	95	55	31	22
4	24	393	216	1,040	117	297	294	486	92	54	31	22
5	25	494	181	805	111	297	300	325	88	55	30	21
6	24	548	157	3,160	111	345	314	311	86	61	29	20
7	24	512	181	2,820	128	357	311	300	90	59	28	20
8	25	630	219	1,300	186	373	300	290	81	54	28	20
9	58	558	272	830	297	425	373	269	94	50	28	20
10	111	437	262	656	228	393	381	237	122	49	28	19
11	189	401	237	544	175	333	377	210	266	47	26	18
12	99	377	216	441	154	311	341	207	175	45	26	18
13	65	504	234	377	144	333	300	234	142	44	26	18
14	58	522	349	318	147	314	290	252	121	43	26	21
15	472	725	290	283	970	322	322	222	105	41	26	22
16	1,660	725	240	252	h790	337	322	219	99	40	26	22
17	594	504	234	228	h580	329	337	243	92	39	26	22
18	373	397	297	204	h790	345	349	243	90	39	27	22
19	283	337	381	189	h643	381	311	243	85	38	26	20
20	930	297	300	173	445	369	280	237	113	37	25	20
21	620	258	280	157	1,700	397	269	222	119	37	25	20
22	393	228	258	150	2,970	805	311	201	105	36	26	33
23	280	201	225	140	1,320	735	389	181	95	36	30	59
24	210	178	192	135	795	616	381	167	88	34	26	94
25	167	160	167	130	598	544	361	157	81	33	25	51
26	175	147	152	126	765	463	311	144	76	32	23	135
27	173	137	152	117	675	421	266	137	71	36	22	73
28	210	128	262	113	553	417	249	130	68	34	22	51
29	294	119	308	113	450	397	219	121	64	33	22	44
30	345	124	286	113	-	361	201	115	61	32	22	36
31	266	-	252	119	-	308	-	113	-	31	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	8,218	1,660	22	265	3.84	4.43	16,300
November	11,539	725	119	385	5.58	6.22	22,890
December	7,260	381	121	234	3.39	3.91	14,400
Calendar year 1947	71,957	1,660	22	197	2.86	38.78	142,700
January	18,474	3,160	113	596	8.64	9.96	36,640
February	16,193	2,970	111	558	8.09	8.73	32,120
March	12,424	805	297	401	5.81	6.70	24,640
April	9,347	389	201	312	4.52	5.04	18,540
May	6,900	486	113	223	3.23	3.72	13,690
June	3,068	266	61	102	1.48	1.65	6,090
July	1,340	61	31	43.2	.626	.72	2,660
August	819	31	22	26.4	.383	.44	1,620
September	1,007	135	18	33.6	.487	.54	2,000
Water year 1947-48	96,589	3,160	18	264	3.83	52.06	191,600

Peak discharge (base, 1,900 sec.-ft.).- Oct. 16 (3:30 a.m.) 3,060 sec.-ft.; Jan. 2 (11 a.m.) 2,310 sec.-ft.; Jan. (1 p.m.) 4,120 sec.-ft.; Feb. 22 (4 a.m.) 4,080 sec.-ft.

h Computed from once-daily staff-gage readings.

Cottage Grove Reservoir near Cottage Grove, Oreg.

Location.- Water-stage recorder, lat. 43°43', long. 123°03', in NW¼ sec. 28, T. 21 S., R. 3 W., in east abutment of dam on Coast Fork Willamette River, 5½ miles south of Cottage Grove. Gage readings are elevations above mean sea level (surveys by Corps of Engineers).

Drainage area.- 104 square miles.

Records available.- October 1942 to September 1948.

Extremes.- Maximum contents during year, 34,030 acre-feet May 5 (elevation, 791.81 feet); minimum, 2,667 acre-feet Dec. 26 (elevation, 748.68 feet).
1942-48: Maximum contents observed, 34,200 acre-feet June 2, 1943 (elevation, 791.9 feet); minimum observed since first filling, 646 acre-feet Jan. 26, 1944 (elevation, 738.74 feet).

Remarks.- Reservoir is formed by earth-fill dam with concrete spillway completed by Corps of Engineers in 1942; storage began Oct. 31, 1942 (slight pondage at times in water year 1941-42, when inflow temporarily exceeded 2,600 second-feet, capacity of outlets). Capacity, 33,090 acre-feet between elevations 719.0 feet (outlet conduit) and 791.0 feet (crest of spillway). Dead storage negligible. Reservoir used for flood control and improvement of navigation below Albany. Daily contents computed from reservoir elevation at 12 p.m.

Cooperation.- Gage readings furnished and recorder inspected by Corps of Engineers.

Contents, in acre-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30,230	6,639	2,920	4,277	3,576	12,690	23,150	33,050	33,450	32,930	32,220	29,990
2	30,180	5,258	2,859	5,639	3,688	12,900	23,450	33,370	33,410	32,930	32,200	28,490
3	30,110	3,794	2,975	4,428	3,794	13,170	23,730	33,900	33,390	32,930	32,150	26,530
4	30,070	3,214	3,133	3,678	3,928	13,560	24,010	34,020	33,240	32,930	32,090	24,570
5	30,000	3,268	3,205	3,317	4,051	14,030	24,340	33,970	32,980	32,970	32,020	22,520
6	29,560	3,423	3,238	8,626	4,166	14,390	24,680	33,970	32,750	33,000	31,970	20,440
7	28,490	3,477	3,327	12,920	4,273	14,790	25,000	33,940	32,570	33,020	31,950	18,470
8	27,400	3,721	3,515	13,140	4,658	15,030	25,300	33,910	32,510	33,020	31,870	16,610
9	26,430	3,717	3,818	11,110	5,381	15,220	25,760	33,880	32,510	33,010	31,810	14,640
10	25,280	3,379	4,016	8,689	5,920	15,490	26,240	33,820	32,750	33,000	31,760	12,780
11	23,850	3,022	4,012	6,091	6,319	16,050	26,720	33,750	33,230	32,980	31,710	10,880
12	22,280	2,915	3,938	3,608	6,654	16,660	27,100	33,750	33,380	32,970	31,630	8,940
13	20,520	3,154	3,932	2,915	6,951	17,030	27,370	33,760	33,380	32,940	31,580	6,980
14	18,770	3,438	4,196	2,952	7,267	17,150	27,650	33,770	33,370	32,930	31,520	6,180
15	18,280	3,886	4,030	3,030	8,655	17,490	27,930	33,750	33,370	32,890	31,460	6,125
16	21,230	4,244	3,691	3,085	8,367	17,840	28,270	33,760	33,160	32,880	31,410	6,057
17	20,940	4,073	3,358	3,082	8,350	18,160	28,640	33,780	32,900	32,850	31,350	6,009
18	20,020	3,668	3,148	3,013	9,082	18,400	29,040	33,780	32,650	32,810	31,290	5,948
19	18,970	3,330	3,121	2,901	9,421	18,790	29,330	33,800	32,500	32,780	31,230	5,878
20	19,520	3,166	2,938	2,969	9,475	19,240	29,520	33,780	32,500	32,740	31,170	5,807
21	19,330	3,133	2,926	3,130	11,580	19,570	29,750	33,770	32,480	32,710	31,070	5,741
22	18,510	3,103	2,981	3,244	17,190	19,650	30,060	33,710	32,480	32,660	31,080	5,741
23	17,410	3,121	2,969	3,265	17,030	19,810	30,510	33,670	32,570	32,630	31,050	5,882
24	16,140	3,187	2,878	3,226	14,840	20,390	30,970	33,620	32,660	32,580	30,990	5,941
25	14,830	3,211	2,730	3,166	12,690	20,760	31,340	33,580	32,740	32,540	30,920	5,977
26	13,560	3,205	2,761	3,094	12,130	21,070	31,620	33,540	32,800	32,490	30,870	6,227
27	12,170	3,166	2,917	2,998	11,640	21,350	31,770	33,540	32,860	32,450	30,800	6,309
28	10,840	3,112	3,401	3,059	11,720	21,770	31,960	33,520	32,890	32,420	30,730	6,295
29	9,730	3,024	3,966	3,202	12,200	22,280	32,290	33,480	32,910	32,390	30,660	6,202
30	8,660	2,964	4,462	3,339	-	22,680	32,680	33,470	32,330	32,330	30,610	6,097
31	7,411	-	4,466	3,454	-	22,960	-	33,460	-	32,290	30,550	-

Monthly elevation and contents, water year October 1947 to September 1948

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	788.54	30,300	-
Oct. 31	760.59	7,411	-22,889
Nov. 30	749.74	2,964	-4,447
Dec. 31	754.27	4,466	+1,502
Calendar year 1947	-	-	+1,630
Jan. 31	751.37	3,454	-1,012
Feb. 29	768.47	12,200	+8,746
Mar. 31	781.49	22,960	+10,760
Apr. 30	790.65	32,680	+9,720
May 31	791.32	33,460	+780
June 30	790.86	32,930	-530
July 31	790.31	32,290	-640
Aug. 31	788.77	30,550	-1,740
Sept.30	758.00	6,091	-24,459
Water year 1947-48	-	-	-24,209

† Elevation at 12 p.m.

Coast Fork Willamette River below Cottage Grove Dam, Oreg.

Location.- Water-stage recorder, lat. 43°43', long. 123°03', in NE¼ sec. 28, T. 21 S., R. 3 W., at bridge a quarter of a mile downstream from Cottage Grove Dam and 5½ miles south of Cottage Grove. Datum of gage is 711.00 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.- 104 square miles.

Records available.- October 1944 to September 1948. January 1939 to September 1944 at site 0.8 mile downstream, published as Coast Fork Willamette River near Cottage Grove.

Extremes.- Maximum discharge during year, 2,480 second-feet Jan. 7 (gage height, 8.05 feet); minimum, 55 second-feet Sept. 14-22 (gage height, 2.93 feet).
1939-48: Maximum discharge recorded, 3,340 second-feet Jan. 4, 1943 (gage height, 10.06 feet, site and datum then in use); practically no flow July 5-7, 1945, Aug. 24, 1947.

Remarks.- Records excellent except those for periods of partial gage-height record and those based on observer's readings, which are fair. No diversions above station. Flow regulated by Cottage Grove Reservoir.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.9	52	3.6	180	6.0	1,210
3.0	63	3.9	260	7.0	1,800
3.1	77	4.3	390	7.7	2,260
3.2	94	4.7	555		
3.4	134	5.3	840		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	1,260	205	895	70	306	245	60	h155	59	59	284
2	56	1,450	202	1,760	70	h366	245	69	h146	59	59	790
3	56	1,360	202	2,050	66	h311	245	228	h136	59	59	1,070
4	56	845	205	1,960	63	h266	245	498	h172	59	59	1,060
5	56	640	205	1,390	60	h266	245	462	h245	59	59	1,090
6	234	645	205	1,810	58	h272	245	406	h225	59	58	1,100
7	600	650	205	2,070	58	h272	248	418	h491	59	58	1,080
8	600	654	208	1,830	58	h380	248	398	h146	59	58	950
9	591	730	210	2,250	59	458	251	376	h117	59	58	1,030
10	805	770	260	2,220	60	383	248	344	h55	59	58	1,010
11	985	715	338	2,090	61	161	248	308	h55	59	58	1,020
12	965	546	338	1,930	61	146	251	287	h126	59	58	1,030
13	985	510	338	915	62	275	251	284	h171	59	59	1,030
14	985	519	338	438	62	334	254	h299	h171	59	59	407
15	975	668	466	355	838	308	254	h296	141	59	59	55
16	1,000	790	532	320	1,180	278	257	h278	228	59	59	55
17	996	790	519	324	730	278	260	h296	238	59	59	55
18	985	780	510	320	600	344	260	h308	236	59	59	55
19	975	640	510	317	604	308	260	h308	190	59	59	55
20	975	490	502	200	609	269	260	h311	157	59	59	55
21	975	366	376	141	1,370	364	260	h308	157	59	59	55
22	970	327	320	141	1,550	1,120	260	h284	120	59	59	55
23	960	260	324	180	2,120	930	260	h260	58	59	59	56
24	945	208	320	205	2,240	560	260	h239	59	59	59	56
25	930	208	317	205	1,860	560	260	h220	59	59	59	56
26												
26	915	208	195	202	1,370	474	260	h205	59	59	59	56
27	965	208	134	202	1,160	418	263	h192	59	59	59	56
28	985	208	136	115	771	346	263	h192	59	59	59	77
29	965	205	141	70	360	242	137	h182	59	59	59	102
30	1,020	205	146	70	-	242	60	h168	59	59	59	102
31	1,020	-	365	70	-	242	-	h164	-	59	59	-

Month	Observed				Change in contents in Cottage Grove Reservoir (acre-feet)	Adjusted for change in contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	1,020	56	761	46,780	-22,890	23,890	389	3.74	4.31
November	1,450	205	595	35,410	-4,447	30,930	520	5.00	5.58
December	532	134	299	18,390	+1,502	19,890	324	3.12	3.59
Calendar year 1947	1,450	12	265	192,070	+1,630	193,700	268	2.58	34.93
January	2,250	70	872	53,640	-1,012	52,630	856	8.23	9.49
February	2,240	58	629	36,160	+8,746	44,910	781	7.51	8.10
March	1,120	146	370	22,770	+10,760	33,530	545	5.24	6.05
April	263	60	243	14,490	+9,720	24,210	407	3.91	4.36
May	498	60	279	17,150	+780	17,930	292	2.81	3.23
June	491	59	145	8,650	-530	8,120	136	1.31	1.46
July	59	59	59.0	3,630	-640	2,990	48.6	.467	.54
August	59	58	58.8	3,610	-1,740	1,870	30.4	.292	.34
September	1,100	55	465	27,670	-24,460	3,210	54.0	.519	.58
Water year 1947-48	2,250	55	397	288,350	-24,210	264,100	364	3.50	47.63

h Computed on basis of observer's daily gage reading and log of gate operations.

Coast Fork Willamette River at Saginaw, Oreg.

Location.- Water-stage recorder, lat. 43°50'05", long. 123°02'30", in NW¼ sec. 15, T. 20 S., R. 3 W., at Saginaw, 1 mile downstream from Row River. Datum of gage is 595.47 feet above mean sea level, datum of 1929.

Drainage area.- 529 square miles.

Records available.- October 1923 to September 1948.

Average discharge.- 22 years (1925-26, 1927-48), 1,178 second-feet.

Extremes.- Maximum discharge during year, 28,100 second-feet Jan. 6 (gage height, 10.74 feet), from rating curve extended above 11,000 second-feet by logarithmic plotting; minimum, 109 second-feet Sept. 15.
1923-48: Maximum discharge, 32,900 second-feet Dec. 28, 1945 (gage height, 12.38 feet), from rating curve extended above 16,000 second-feet; minimum observed, 7 second-feet July 31, 1928.

Remarks.- Records good below and fair above 12,000 second-feet, and are based largely upon summation of flows at upstream stations. Small diversions and regulation by log pond above station; regulation by Cottage Grove Reservoir (see p.124); some pondage for short periods during construction of Dorena Dam on Row River.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).- W 794: 1934.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	125	3,740	854	3,110	374	2,440	1,830	922	867	304	148	2
2	125	4,270	854	14,000	348	2,590	1,910	802	828	290	148	8
3	129	3,300	1,310	9,480	326	2,240	1,960	1,510	789	275	148	1,1
4	131	2,650	1,580	8,480	340	1,850	1,720	3,350	726	262	148	1,1
5	127	2,630	1,310	6,380	340	1,690	1,650	2,420	726	262	148	1,2
6	145	3,040	1,140	19,400	304	1,890	1,620	2,280	726	290	148	1,2
7	662	3,740	1,120	21,900	290	2,000	1,650	2,240	908	326	139	1,2
8	640	6,180	1,220	10,800	423	2,160	1,600	2,240	726	282	139	1,0
9	673	5,110	1,430	7,200	1,300	2,950	1,740	2,220	642	257	134	1,1
10	1,010	3,480	1,550	5,900	1,040	2,800	1,870	1,850	542	234	134	1,1
11	1,630	3,370	1,530	5,040	828	2,080	1,930	1,530	1,310	223	134	1,1
12	1,390	3,150	1,450	4,270	702	1,710	1,830	1,400	1,140	212	131	1,1
13	1,170	3,760	1,550	2,950	654	2,080	1,600	1,620	992	204	129	1,1
14	1,080	4,360	2,780	2,020	630	2,040	1,650	1,640	867	204	129	6
15	1,800	5,180	2,300	1,740	5,920	2,040	2,240	1,420	726	199	129	1
16	10,900	6 720	1,910	1,530	5,490	2,160	2,480	1,380	726	195	129	1
17	4,240	4,150	1,760	1,400	3,970	2,120	2,460	1,480	678	195	126	1
18	2,650	3,300	1,760	1,300	4,600	2,100	2,590	1,420	678	191	129	1
19	2,000	2,820	1,940	1,200	4,200	2,140	2,240	1,400	630	191	131	1
20	5,660	2,240	1,740	992	3,060	1,960	2,080	1,500	630	191	126	1
21	4,680	1,850	1,530	802	8,460	2,040	2,060	1,500	978	183	121	1
22	2,760	1,570	1,470	750	17,900	4,840	2,340	1,400	880	183	123	1
23	2,160	1,350	1,330	738	9,930	4,960	2,800	1,300	619	178	148	2
24	1,810	1,140	1,200	750	6,600	3,620	2,520	1,280	492	178	148	3
25	1,620	1,020	1,080	714	5,300	3,120	2,340	1,350	434	170	136	5
26	1,530	978	964	654	6,200	2,590	2,080	1,220	400	167	131	3
27	1,520	936	841	630	5,490	2,320	1,760	1,110	357	167	123	4
28	1,620	880	1,190	510	3,970	2,460	1,580	1,020	333	183	123	2
29	1,830	828	1,620	408	2,930	2,610	1,310	880	340	167	123	2
30	2,480	802	1,550	400	-	2,630	1,050	828	318	158	123	2
31	2,120	-	1,500	366	-	2,160	-	964	-	154	126	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	60,417	10,900	125	1,949	3.68	4.25	119,80
November	88,544	6,720	802	2,951	5.58	6.22	175,60
December	45,363	2,780	841	1,463	2.77	3.19	89,98
Calendar year 1947	468,417	10,900	99	1,283	2.43	32.92	929,00
January	135,814	21,900	366	4,381	8.28	9.55	269,40
February	101,913	17,900	290	3,514	6.64	7.17	202,20
March	76,390	4,960	1,690	2,464	4.66	5.37	151,50
April	58,490	2,800	1,050	1,950	3.69	4.11	116,00
May	47,476	3,350	802	1,531	2.89	3.34	94,17
June	21,008	1,310	318	700	1.32	1.48	41,67
July	6,675	304	154	215	.406	.47	13,24
August	4,152	148	121	134	.253	.29	8,24
September	17,847	1,220	113	595	1.12	1.25	35,40
Water year 1947-48	664,095	21,900	113	1,814	3.43	46.69	1,317,00

Peak discharge (base, 12,000 sec.-ft.).- Oct. 16 (8 a.m.) 15,700 sec.-ft.; Jan. 2 (3 p.m.) 17,300 sec.-ft.; Jan. 6 (5 p.m.) 28,100 sec.-ft.; Feb. 22 (8 a.m.) 22,800 sec.-ft.

Row River at Star, Oreg.

Location.- Water-stage recorder, lat. 43°44', long. 122°53', in NW¼ sec. 24, T. 21 S., R. 2 W., half a mile west of Star and 3 miles upstream from Teeter Creek. Datum of gage is 856.16 feet above mean sea level, datum of 1929.

Drainage area.- 211 square miles.

Records available.- September 1935 to September 1948.

Average discharge.- 13 years, 554 second-feet.

Extremes.- Maximum discharge during year, 12,700 second-feet Jan. 6 (gage height, 12.00 feet); minimum, 22 second-feet Sept. 13, 14 (gage height, 1.59 feet).
1935-48: Maximum discharge, 19,600 second-feet Dec. 28, 1945 (gage height, 14.33 feet), from rating curve extended above 9,300 second-feet; minimum, 12 second-feet Sept. 2, 1940.

Remarks.- Records good. No diversion above station; possibly slight regulation at times by log ponds.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.6	23	3.3	267	7.0	2,740
1.8	37	3.7	394	8.0	3,940
2.0	53	4.2	600	9.0	5,550
2.3	83	4.8	905	10.0	7,650
2.6	121	5.4	1,310	11.0	10,100
2.9	172	6.0	1,770		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept
1	34	1,190	390	1,690	186	984	991	510	482	149	59	35
2	36	1,300	376	5,400	172	1,030	1,040	453	494	140	56	35
3	41	1,010	725	2,930	163	893	1,020	912	474	135	55	35
4	38	965	834	2,800	170	765	845	1,610	384	124	56	34
5	37	1,030	650	2,120	163	720	750	1,110	336	132	55	34
6	36	1,280	542	9,700	152	812	690	1,140	376	147	52	31
7	34	1,790	502	8,850	149	845	686	1,060	506	167	51	30
8	37	3,030	524	3,680	236	834	672	1,030	416	134	50	29
9	72	2,250	636	2,080	537	1,200	765	1,060	387	120	49	28
10	238	1,550	681	1,490	387	1,110	818	869	359	107	48	26
11	486	1,740	654	1,220	314	869	845	715	654	103	47	25
12	270	1,660	640	978	287	745	785	705	532	95	44	24
13	165	1,920	785	812	282	790	695	875	458	92	43	23
14	107	1,980	1,590	690	287	785	818	823	394	87	42	23
15	1,010	2,600	1,110	604	2,510	765	1,240	710	336	84	41	29
16	4,370	2,850	845	532	1,810	845	1,400	730	296	82	38	30
17	1,570	1,790	770	474	1,510	845	1,330	760	270	81	37	31
18	972	1,570	812	431	2,200	770	1,420	700	287	80	43	31
19	618	1,380	917	390	1,790	740	1,170	710	279	79	42	30
20	2,380	1,120	750	342	1,170	690	1,110	785	336	75	35	29
21	1,710	923	676	311	3,530	775	1,150	785	582	73	34	29
22	984	760	658	290	8,040	1,770	1,320	700	478	72	36	39
23	686	645	614	273	3,430	1,640	1,570	686	380	71	59	137
24	506	546	510	262	1,920	1,340	1,340	750	311	71	51	199
25	390	482	443	251	1,530	1,110	1,230	845	267	67	42	159
26	346	474	409	235	2,670	923	1,040	735	240	64	38	228
27	342	450	390	218	2,080	905	857	658	218	69	36	228
28	443	405	650	206	1,480	1,170	740	546	194	81	35	139
29	632	352	770	199	1,160	1,510	650	458	182	68	34	114
30	965	342	700	194	-	1,510	591	458	165	62	34	88
31	668	-	627	184	-	1,170	-	550	-	60	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	20,223	4,370	34	652	3.09	3.56	40,110
November	39,384	3,030	342	1,313	6.22	6.94	78,120
December	21,180	1,590	376	683	3.24	3.73	42,010
Calendar year 1947	206,692	4,370	34	566	2.68	36.43	410,000
January	49,836	9,700	184	1,608	7.62	8.78	98,850
February	40,315	3,040	149	1,390	6.59	7.11	79,960
March	30,860	1,770	690	995	4.72	5.44	61,210
April	29,548	1,570	591	985	4.67	5.21	58,610
May	24,435	1,610	450	788	3.73	4.31	48,470
June	11,073	654	165	369	1.75	1.95	21,960
July	2,971	167	60	95.8	.454	.52	5,890
August	1,378	59	34	44.5	.211	.24	2,730
September	1,952	228	23	65.1	.309	.34	3,870
Water year 1947-48	273,155	9,700	23	746	3.54	48.13	541,800

Peak discharge (base, 4,800 sec.-ft.).- Oct. 16 (4:30 a.m.) 7,650 sec.-ft.; Jan. 2 (10:30 a.m.) 7,070 sec.-ft.; Jan. 6 (1:30 p.m.) 12,700 sec.-ft.; Feb. 22 (5:30 a.m.) 11,500 sec.-ft.

Row River near Cottage Grove, Oreg.
(Formerly published as Row River near Dorena, Oreg.)

Location.- Water-stage recorder, lat. 43°48', long. 123°00', in NE¼ sec. 36, T. 20 S., R. 3 W., 1½ miles upstream from Mosby Creek, 1½ miles downstream from Dorena Dam, and 3 miles east of Cottage Grove. Datum of gage is 685.24 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 270 square miles.

Records available.- January 1939 to September 1948 (prior to October 1947, published as Row River near Dorena).

Extremes.- Maximum discharge during year, 15,100 second-feet Jan. 6 (gage height, 14.78 feet); minimum, 30 second-feet Sept. 14 (gage height, 1.47 feet).
1939-48: Maximum discharge, 21,400 second-feet Dec. 28, 1945 (gage height, 18.20 feet); minimum, 14 second-feet Aug. 29 to Sept. 2, 1940 (gage height, 1.23 feet).

Remarks.- Records good. No diversion above station; slight regulation at times by Dorena Reservoir, under construction in 1947 and 1948.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Sept. 23-30)

1.4	24	1.8	81	2.8	433	6.6	3,260
1.5	33	1.9	103	3.3	690	8.0	4,790
1.6	46	2.1	158	4.0	1,130	10.0	7,440
1.7	62	2.4	262	5.0	1,870	13.0	12,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	41	1,670	485	1,840	240	1,330	1,240	646	575	171	72	
2	41	1,780	471	6,890	232	1,400	1,280	570	570	161	70	
3	48	1,410	962	3,890	214	1,210	1,280	1,010	545	155	70	
4	48	1,360	1,150	3,770	229	1,030	1,090	1,980	456	146	72	
5	46	1,520	878	2,870	218	969	995	1,390	387	146	72	
6	46	1,890	718	11,400	204	1,070	950	1,410	424	168	68	
7	42	2,510	684	10,900	197	1,120	936	1,380	581	194	64	
8	45	4,050	757	5,080	258	1,130	910	1,420	475	158	64	
9	64	3,050	950	2,860	696	1,570	1,010	1,410	438	138	62	
10	262	2,150	1,010	2,080	530	1,490	1,100	1,190	401	126	60	
11	545	2,310	936	1,680	433	1,190	1,170	956	827	119	59	
12	352	2,250	872	1,350	387	1,010	1,090	891	657	111	57	
13	187	2,840	1,030	1,120	374	1,100	956	1,070	565	108	54	
14	132	2,760	2,110	943	374	1,070	1,050	1,030	485	103	57	
15	1,000	3,410	1,560	805	3,260	1,060	1,490	865	424	101	57	
16	5,940	3,730	1,190	718	2,520	1,190	1,710	865	369	96	57	
17	2,110	2,400	1,040	646	1,970	1,160	1,650	936	322	92	54	
18	1,280	2,060	1,060	580	2,650	1,070	1,740	865	330	92	60	
19	823	1,800	1,210	515	2,290	1,070	1,460	865	326	90	64	
20	2,970	1,480	995	456	1,550	995	1,380	943	387	88	57	
21	2,300	1,220	891	419	4,260	1,120	1,390	956	648	85	54	
22	1,350	1,000	859	387	9,970	2,350	1,570	865	570	83	57	
23	943	835	781	356	4,530	2,210	1,870	805	442	81	99	1
24	668	701	657	343	2,550	1,850	1,630	859	343	81	88	2
25	515	613	570	322	1,970	1,560	1,510	982	318	79	68	1
26	480	580	525	301	3,180	1,320	1,330	853	282	75	59	2
27	466	550	480	278	2,690	1,260	1,100	763	258	79	52	3
28	550	495	805	262	1,970	1,490	956	652	229	94	48	1
29	757	442	1,100	255	1,540	1,830	817	550	214	90	45	1
30	1,180	438	995	251	-	1,850	734	535	194	90	45	
31	859	-	847	232	-	1,460	-	646	-	75	48	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	26,090	5,940	41	842	3.12	3.59	51,75
November	53,104	4,050	438	1,770	6.56	7.31	105,30
December	28,578	2,110	471	922	3.41	3.94	56,68
Calendar year 1947	264,805	5,940	41	725	2.68	36.46	525,00
January	63,799	11,400	232	2,058	7.62	8.79	126,50
February	51,486	9,970	197	1,775	6.57	7.09	102,10
March	41,534	2,350	969	1,340	4.96	5.72	82,38
April	37,394	1,870	734	1,246	4.61	5.15	74,17
May	30,158	1,980	535	973	3.60	4.15	59,82
June	13,040	827	194	435	1.61	1.80	25,86
July	3,475	194	75	112	.415	.48	6,8[illegible]
August	1,913	99	45	61.7	.228	.26	3,79
September	2,326	322	31	77.5	.287	.32	4,61
Water year 1947-48	352,897	11,400	31	964	3.57	48.60	699,80

Peak discharge (base, 5,500 sec.-ft.).- Oct. 16 (5:30 a.m.) 9,690 sec.-ft.; Jan. 2 (11 a.m. to 1 m.) 8,800 sec.-ft.; Jan. 6 (2:30 p.m.) 15,100 sec.-ft.; Feb. 22 (6 a.m.) 13,300 sec.-ft.

Mosby Creek at mouth, near Cottage Grove, Oreg.

Location.- Water-stage recorder, lat. 43°47', long. 123°00', in sec. 1, T. 21 S., R. 3 W., two-thirds of a mile upstream from mouth and 3½ miles southeast of Cottage Grove.

Drainage area.- 96 square miles.

Records available.- October 1946 to September 1948.

Extremes.- Maximum discharge during year, 6,020 second-feet Jan. 6 (gage height, 9.85 feet); minimum, 10 second-feet Sept. 12-14.
1946-48: Maximum discharge, that of Jan. 6, 1948; minimum, 8 second-feet Oct. 1 and about Oct. 16, 1946.

Remarks.- Records excellent. Small diversions above station for irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.2	9	2.0	126	4.0	1,040
1.3	16	2.2	187	4.5	1,420
1.4	24	2.5	290	5.0	1,820
1.5	34	2.8	400	5.5	2,220
1.6	46	3.2	570	6.5	3,080
1.8	78	3.6	780	8.0	4,350

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	617	118	738	73	400	227	184	105	56	26	16
2	12	645	123	2,840	73	388	276	165	100	53	25	15
3	12	489	248	1,490	69	346	311	338	93	52	24	16
4	12	432	325	1,380	71	308	286	556	87	50	26	16
5	14	512	259	1,010	71	294	290	396	80	50	25	15
6	13	595	213	4,080	65	322	318	350	73	54	24	14
7	13	605	210	4,300	62	360	336	325	91	57	22	14
8	14	665	248	1,810	114	368	322	328	82	50	22	13
9	23	610	308	905	322	480	350	322	73	45	22	13
10	89	472	322	635	276	494	368	283	118	42	22	12
11	220	400	290	525	220	400	372	238	333	41	21	12
12	108	392	262	432	190	339	350	224	244	39	20	12
13	57	530	266	364	168	368	308	252	190	38	19	11
14	44	660	456	308	165	342	304	266	153	35	18	12
15	390	798	404	282	1,400	336	360	234	123	34	18	13
16	2,160	957	325	230	977	356	364	224	110	33	18	14
17	710	615	283	204	650	346	356	241	93	33	18	14
18	432	432	294	181	834	332	396	230	93	33	18	15
19	314	420	400	161	738	346	350	234	93	32	19	15
20	975	368	342	143	525	350	314	248	116	31	18	13
21	715	318	297	126	1,990	392	294	255	163	31	17	12
22	444	269	308	116	3,990	885	353	224	150	31	18	20
23	318	230	269	110	1,780	924	444	204	123	29	24	47
24	227	197	220	100	879	660	412	190	107	28	23	74
25	174	168	187	96	615	548	380	171	91	27	20	60
26	155	143	158	89	840	444	339	158	82	26	18	82
27	155	123	146	85	786	396	290	143	73	29	16	78
28	190	113	262	80	600	396	258	132	67	31	16	49
29	280	100	420	78	468	380	234	123	63	27	15	41
30	436	100	428	78	-	342	207	121	67	27	16	34
31	322	-	356	73	-	297	-	116	-	26	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	9,040	2,160	12	292	3.04	3.50	17,930
November	12,975	957	100	432	4.50	5.03	25,740
December	8,747	456	118	282	2.94	3.39	17,350
Calendar year 1947	78,924	2,160	12	216	2.25	30.57	156,800
January	23,029	4,300	73	743	7.74	8.92	45,680
February	19,011	3,990	62	656	6.83	7.36	37,710
March	12,939	924	294	417	4.34	5.01	25,660
April	9,769	444	207	326	3.40	3.78	19,380
May	7,475	556	116	241	2.51	2.90	14,830
June	3,491	339	60	116	1.21	1.35	6,920
July	1,170	57	26	37.7	.393	.45	2,320
August	624	26	15	20.1	.209	.24	1,240
September	772	82	11	25.7	.268	.30	1,530
Water year 1947-48	109,042	4,300	11	298	3.10	42.23	216,300

Peak discharge (base, 2,500 sec.-ft.).- Oct. 16 (6 a.m.) 3,560 sec.-ft.; Jan. 2 (1 p.m.) 3,460 sec.-ft.; Jan. 6 (2:30 p.m.) 6,020 sec.-ft.; Feb. 22 (6 a.m.) 5,300 sec.-ft.

McKenzie River at outlet of Clear Lake, Oreg.

Location.- Water-stage recorder, lat. 44°22', long. 122°00', in SE¼ sec. 8, T. 14 S., R E., on west bank of Clear Lake in narrow channel 150 feet above outlet. Former gage site 1 mile north of lake outlet.

Drainage area.- 101 square miles.

Records available.- June 1912 to July 1915, October 1947 to September 1948.

Extremes - Maximum discharge during year, 2,320 second-feet Jan. 7 (gage height, 6.75 f from rating curve extended above 1,400 second-feet by logarithmic plotting; minimum, about 230 second-feet Oct. 1-8, a period of no gage-height record.

1912-15, 1947-48: Maximum discharge, that of Jan. 7, 1948; maximum gage height, 1 feet (former site and datum) May 27, June 3, 1913; minimum daily discharge, 201 seco feet July 31, 1915.

A discharge of 165 second-feet was measured on Sept. 28, 1915.

Remarks.- Records excellent except those for periods of no gage-height record, which ar fair. Flow regulated by natural storage in lake.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.6	225	4.0	1,000
1.9	285	5.0	1,420
2.5	445	6.3	2,060
3.0	610		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	a230	490	481	415	403	676	368	568	920	558	418	3
2	a230	478	466	469	397	670	372	550	936	547	415	3
3	a230	463	460	454	394	652	380	578	960	533	412	3
4	a230	451	442	478	391	631	380	628	932	526	412	3
5	a230	439	430	487	385	606	382	638	880	522	409	3
6	a230	427	421	823	380	578	385	670	888	516	406	3
7	a230	436	418	2,050	378	550	385	728	924	512	403	3
8	a230	466	409	1,470	380	526	385	720	948	499	400	3
9	a240	519	406	1,090	375	502	388	688	908	493	397	3
10	a250	547	400	a1,000	368	484	388	670	868	487	394	3
11	a260	547	394	a940	360	469	385	656	880	484	388	3
12	a280	533	388	a890	355	454	382	666	848	481	385	3
13	a290	530	388	a840	352	439	380	716	812	478	382	3
14	a300	533	391	a800	350	427	382	724	780	472	380	3
15	a320	578	380	a770	360	415	380	700	756	466	378	2
16	h332	728	375	a740	352	409	382	704	728	460	372	2
17	h348	744	378	a700	350	406	391	740	704	454	370	2
18	h436	748	382	a670	352	403	397	756	692	448	368	2
19	h519	712	380	a650	348	397	403	744	670	445	365	2
20	h582	676	378	624	350	391	412	720	656	439	360	2
21	h620	652	380	582	372	385	445	724	656	436	355	2
22	h614	634	380	544	424	397	544	732	648	433	355	2
23	606	617	380	512	424	382	592	752	631	433	355	2
24	596	596	380	493	436	380	603	792	620	430	350	2
25	586	572	380	481	508	375	617	860	610	427	345	2
26	572	554	380	466	670	368	617	932	600	427	342	2
27	558	540	380	451	764	365	614	964	589	427	342	a3
28	544	519	388	433	732	362	606	968	582	427	338	a2
29	530	499	382	421	692	365	596	932	575	424	335	a2
30	516	487	382	412	-	368	582	908	564	421	332	2
31	499	-	382	406	-	365	-	908	-	421	330	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	12,238	620	230	395	3.91	4.51	24,27
November	16,715	748	427	557	5.51	6.15	33,15
December	12,361	481	375	399	3.95	4.55	24,52
Calendar year	-	-	-	-	-	-	-
January	21,561	2,050	406	696	6.89	7.94	42,77
February	12,402	764	348	428	4.24	4.57	24,60
March	14,197	676	362	458	4.53	5.23	28,16
April	13,523	617	368	451	4.47	4.98	26,82
May	23,036	968	550	743	7.36	8.48	45,69
June	22,765	960	564	759	7.51	8.38	45,15
July	14,526	558	421	469	4.64	5.35	28,81
August	11,593	418	330	374	3.70	4.27	22,99
September	9,067	328	288	302	2.99	3.34	17,98
Water year 1947-48	183,984	2,050	230	502	4.98	67.75	364,90

Peak discharge (base, 750 sec.-ft.).- Nov. 18 (4 to 9 a.m.) 752 sec.-ft.; Jan. 7 (12 m.) 2,320 sec.-ft.; Feb. 27 (8 a.m. to 2 p.m.) 768 sec.-ft.; May 28 (4 to 7 a.m.) 976 sec.-ft.

a No gage-height record; discharge computed on basis of weather records, recorded range in stag when available, and records for station at McKenzie Bridge.

h Computed from gage height based on two or more readings daily of staff gage.

McKenzie River at McKenzie Bridge, Oreg.

Location.- Water-stage recorder lat. 44°11', long. 122°07', in NE¼ sec. 18, T. 16 S., R. 6 E., 1.7 miles east of village of McKenzie Bridge. Datum of gage is 1,419.04 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.- 345 square miles at measuring section three-quarters of a mile above gage.

Records available.- August 1910 to September 1948.

Average discharge.- 32 years (1910-14, 1915-16, 1918-21, 1923-25, 1926-48), 1,590 second-feet.

Extremes.- Maximum discharge during year, 10,300 second-feet Jan. 7 (gage height, 6.64 feet); minimum, 949 second-feet Oct. 1 and 2 (gage height, 1.03 feet).
1910-48: Maximum discharge, 18,000 second-feet Jan. 6, 1923 (gage height, 8.3 feet, from floodmarks at former gage at highway bridge), from rating curve extended above 2,400 second-feet; minimum, 805 second-feet Oct. 20, 1931.

Remarks.- Records good. No diversion or regulation above station.

Revisions.- W 814: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge in second-feet)

1.0	925	3.0	3,260
1.3	1,180	3.5	4,040
1.6	1,490	4.0	4,910
2.0	1,950	5.0	6,850
2.5	2,580	6.0	8,920

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	949	1,680	1,720	2,150	1,510	2,370	1,850	1,880	2,520	1,830	1,490	1,240
2	965	1,630	1,670	3,580	1,480	2,270	1,880	1,830	2,580	1,790	1,480	1,240
3	989	1,640	1,700	2,840	1,460	2,150	1,870	2,260	2,610	1,770	1,470	1,240
4	965	1,630	1,640	2,570	1,460	2,060	1,810	2,540	2,450	1,760	1,460	1,230
5	957	1,600	1,590	2,410	1,440	2,000	1,760	2,410	2,370	1,770	1,450	1,220
6	949	1,600	1,560	6,180	1,400	1,930	1,700	2,580	2,450	1,760	1,440	1,220
7	949	1,990	1,560	8,840	1,400	1,850	1,660	2,610	2,530	1,760	1,420	1,210
8	957	2,840	1,520	5,790	1,450	1,820	1,630	2,450	2,580	1,720	1,410	1,210
9	1,000	2,520	1,520	4,210	1,420	1,780	1,630	2,320	2,450	1,700	1,400	1,200
10	1,060	2,360	1,490	3,540	1,380	1,720	1,620	2,200	2,400	1,690	1,390	1,200
11	1,510	2,360	1,480	3,160	1,360	1,690	1,610	2,130	2,450	1,680	1,380	1,190
12	1,200	2,190	1,470	2,900	1,340	1,660	1,590	2,190	2,310	1,670	1,370	1,190
13	1,130	2,180	1,580	2,710	1,330	1,630	1,570	2,440	2,190	1,660	1,370	1,180
14	1,100	2,200	1,710	2,550	1,330	1,610	1,610	2,370	2,120	1,640	1,360	1,180
15	1,400	2,900	1,660	2,420	1,560	1,590	1,710	2,290	2,060	1,640	1,360	1,190
16	2,850	3,090	1,630	2,310	1,590	1,580	1,880	2,320	2,010	1,630	1,350	1,180
17	2,620	2,950	1,750	2,200	1,720	1,560	1,930	2,420	2,000	1,610	1,340	1,170
18	2,940	2,850	1,970	2,130	2,030	1,560	1,960	2,380	2,050	1,590	1,340	1,170
19	2,290	2,630	2,070	2,050	1,940	1,530	1,940	2,310	2,000	1,580	1,330	1,160
20	2,680	2,440	1,900	1,950	1,810	1,520	2,000	2,230	2,050	1,570	1,320	1,160
21	2,550	2,260	1,830	1,880	2,550	1,560	2,090	2,260	2,080	1,560	1,310	1,160
22	2,220	2,130	1,770	1,820	4,800	1,820	2,310	2,270	2,030	1,540	1,320	1,210
23	2,090	2,030	1,710	1,780	3,280	1,750	2,380	2,330	2,000	1,530	1,340	1,240
24	1,940	1,950	1,670	1,750	2,710	1,720	2,320	2,500	1,960	1,520	1,310	1,210
25	1,830	1,890	1,640	1,700	2,490	1,680	2,440	2,680	1,940	1,520	1,300	1,200
26	1,760	1,880	1,620	1,670	3,280	1,630	2,310	2,830	1,900	1,510	1,290	1,250
27	1,700	1,870	1,640	1,630	3,080	1,620	2,170	2,830	1,880	1,520	1,280	1,240
28	1,710	1,810	1,760	1,600	2,760	1,640	2,080	2,830	1,870	1,520	1,270	1,220
29	1,750	1,760	1,690	1,570	2,500	1,810	2,010	2,640	1,850	1,500	1,260	1,200
30	1,770	1,750	1,630	1,540	-	2,060	1,940	2,530	1,840	1,490	1,260	1,190
31	1,700	-	1,620	1,520	-	1,930	-	2,520	-	1,490	1,250	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	50,480	2,940	949	1,628	4.72	5.44	100,100
November	64,610	3,090	1,600	2,154	6.24	6.96	128,200
December	51,770	2,070	1,470	1,670	4.84	5.58	102,700
Calendar year 1947	591,319	3,690	949	1,620	4.70	63.74	1,173,000
January	84,950	8,840	1,520	2,740	7.94	9.16	168,500
February	57,860	4,800	1,330	1,995	5.78	6.24	114,800
March	55,100	2,370	1,520	1,777	5.15	5.94	109,300
April	57,260	2,440	1,570	1,909	5.53	6.17	113,600
May	74,380	2,830	1,830	2,399	6.95	8.02	147,500
June	65,530	2,610	1,840	2,184	6.33	7.06	130,000
July	50,520	1,830	1,490	1,630	4.72	5.45	100,200
August	42,120	1,490	1,250	1,359	3.94	4.54	83,540
September	36,100	1,250	1,160	1,203	3.49	3.89	71,600
Water year 1947-48	690,680	8,840	949	1,887	5.47	74.45	1,370,000

Peak discharge (base, 3,000 sec.-ft.).- Oct. 18 (3 a.m.) 3,420 sec.-ft.; Nov. 15 (7 to 8 p.m.) 3,250 sec.-ft.; Jan. 2 (5:30 a.m.) 4,070 sec.-ft.; Jan. 7 (7 a.m.) 10,300 sec.-ft.; Feb. 22 (3:30 a.m.) 5,720 sec.-ft.; Feb. 26 (11 a.m.) 3,530 sec.-ft.

McKenzie River near Vida, Oreg.

Location.- Water-stage recorder, lat. 44°07', long. 122°28', in NE¼ sec. 5, T. 17 S., R 3 E., 1 mile upstream from head of Martin Rapids and 5 miles east of Vida. Datum of gage is 855.56 feet above mean sea level, datum of 1929.
Drainage area.- 930 square miles.
Records available.- September 1924 to September 1948. June 1910 to March 1911 (gage heights only), at site at Martin Rapids.
Average discharge.- 24 years, 3,666 second-feet.
Extremes.- Maximum discharge during year, 39,200 second-feet Jan. 7 (gage height, 12.16 feet); minimum, 1,590 second-feet Oct. 1 (gage height, 0.73 foot).
1924-48: Maximum discharge, 64,400 second-feet Dec. 28, 1945 (gage height, 17.70 feet), from rating curve extended above 32,000 second-feet by logarithmic plotting; minimum, 1,260 second-feet Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931 (gage height, 0.36 foot).
Remarks.- Records good. No diversion or regulation above station.
Cooperation.- Water-stage recorder inspected by employee of Eugene Water Board.
Revisions.- Revised figures of discharge, in second-feet, for the 1943 water year, superseding those published in Water Supply Paper 984, are given herewith.

Dec. 5 ..... 7,920.

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-f
December.....	357,600	39,700	6,560	11,540	12.4	14.30	709,
Calendar year 1942.....	1,462,370	39,700	1,320	4,006	4.31	58.47	2,900,
Water year 1942-43.....	1,935,820	39,700	1,320	5,304	5.70	77.41	3,840,

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.7	1,550	4.5	9,750
1.2	2,260	5.5	13,000
1.8	3,280	7.0	18,200
2.5	4,650	9.0	26,200
3.5	6,950	11.0	34,300

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	1,590	4,280	4,000	6,990	3,030	6,280	5,480	4,340	6,150	3,420	2,480	2,05
2	1,680	4,260	3,760	15,700	2,940	5,980	5,500	4,160	6,400	3,280	2,400	2,04
3	1,930	4,400	4,160	10,600	2,870	5,410	5,410	6,120	6,620	3,210	2,390	2,04
4	1,720	4,400	4,000	8,790	2,870	5,030	5,030	7,900	6,080	3,140	2,370	2,02
5	1,690	4,400	3,740	7,580	2,800	4,800	4,690	6,820	5,540	3,240	2,320	2,00
6	1,680	4,480	3,610	26,700	2,700	4,630	4,480	7,400	5,790	3,260	2,290	1,99
7	1,690	6,320	3,610	33,800	2,680	4,440	4,340	7,520	6,150	3,280	2,260	1,96
8	1,780	9,900	3,560	19,400	2,990	4,360	4,200	6,900	6,250	3,100	2,230	1,93
9	1,990	8,100	3,730	12,800	3,150	4,570	4,340	6,400	6,020	3,010	2,220	1,90
10	2,420	6,820	3,690	10,000	2,890	4,300	4,360	5,790	5,930	2,960	2,180	1,89
11	5,070	7,220	3,690	8,460	2,750	4,080	4,320	5,320	6,150	2,920	2,170	1,89
12	3,190	6,500	3,590	7,350	2,680	3,900	4,160	5,320	5,460	2,890	2,140	1,88
13	2,550	6,400	4,140	6,550	2,630	3,840	3,960	6,250	5,090	2,820	2,120	1,86
14	2,320	6,700	5,680	5,950	2,660	3,820	4,180	6,050	4,760	2,780	2,120	1,88
15	3,420	10,700	4,840	5,500	5,200	3,740	4,960	5,630	4,440	2,750	2,120	1,90
16	12,300	11,400	4,380	5,180	5,480	3,710	5,700	5,790	4,240	2,730	2,110	1,8[illegible]
17	8,250	9,330	4,670	4,920	5,740	3,670	5,810	6,220	4,080	2,720	2,110	1,88
18	8,910	8,700	5,630	4,710	7,220	3,690	6,200	6,080	4,200	2,680	2,110	1,8[illegible]
19	6,300	7,480	6,150	4,460	6,380	3,690	5,810	5,740	4,080	2,660	2,110	1,86
20	8,760	6,500	5,300	4,220	5,300	3,650	5,980	5,500	4,260	2,630	2,110	1,8[illegible]
21	8,400	5,740	4,880	4,000	12,200	3,920	6,320	5,630	4,610	2,600	2,110	1,83
22	6,320	5,200	4,650	3,860	24,500	5,570	6,820	5,540	4,260	2,600	2,170	1,99
23	5,570	4,780	4,340	3,760	13,000	5,200	6,980	5,720	4,040	2,580	2,370	2,45
24	4,920	4,440	4,140	3,690	8,940	4,760	6,550	6,300	3,880	2,550	2,220	2,40
25	4,320	4,240	3,960	3,540	7,520	4,540	7,100	7,150	3,780	2,520	2,160	2,20
26	4,000	4,220	3,860	3,440	12,100	4,280	6,350	7,600	3,650	2,520	2,120	2,58
27	3,820	4,240	3,900	3,350	10,200	4,240	5,650	7,600	3,590	2,610	2,110	2,67
28	3,960	4,140	4,610	3,280	8,160	4,610	5,240	7,300	3,540	2,650	2,100	2,47
29	4,140	3,980	4,500	3,210	6,950	5,590	4,840	6,720	3,500	2,530	2,060	2,31
30	4,820	3,940	4,160	3,120	-	7,300	4,570	6,180	3,560	2,500	2,060	2,18
31	4,280	-	4,060	3,050	-	6,120	-	6,150	-	2,470	2,060	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fee
October.....	133,790	12,300	1,590	4,316	4.64	5.35	265,40
November.....	183,190	11,400	3,940	6,106	6.57	7.33	363,40
December.....	132,990	6,150	3,560	4,290	4.61	5.32	263,80
Calendar year 1947.....	1,448,990	16,300	1,590	3,970	4.27	57.96	2,874,00
January.....	247,960	33,800	3,050	7,999	8.60	9.92	491,80
February.....	178,530	24,500	2,630	6,156	6.62	7.14	354,10
March.....	143,720	7,300	3,650	4,636	4.98	5.75	285,10
April.....	159,330	7,100	3,960	5,311	5.71	6.37	316,00
May.....	193,140	7,900	4,160	6,230	6.70	7.72	383,10
June.....	146,100	6,620	3,500	4,870	5.24	5.84	289,80
July.....	87,610	3,420	2,470	2,826	3.04	3.50	173,80
August.....	67,900	2,480	2,060	2,190	2.35	2.72	134,70
September.....	61,550	2,610	1,830	2,052	2.21	2.46	122,10
Water year 1947-48.....	1,735,810	33,800	1,590	4,743	5.10	69.42	3,443,00

Peak discharge (base, 16,000 sec.-ft.).- Jan. 2 (8:30 a.m.) 18,000 sec.-ft.; Jan. 7 (8:30 a.m.) 39,200 sec.-ft.; Feb. 22 (4 a.m.) 31,400 sec.-ft.

McKenzie River near Coburg, Oreg.

Location.- Water-stage recorder, lat. 44°06'48", long. 123°02'49", in NE¼NE¼ sec. 9, T. 17 S., R. 3 W., at Armitage Bridge, 2 miles southeast of Coburg and 3 miles upstream from mouth. Datum of gage is 395.96 feet above mean sea level, datum of 1929.
Drainage area.- 1,310 square miles.
Records available.- October 1944 to September 1948.
Extremes.- Maximum discharge during year, 58,100 second-feet Jan. 7 (gage height, 15.69 feet), from rating curve extended above 36,000 second-feet by logarithmic plotting; minimum, 1,430 second-feet Sept. 7.
1944-48: Maximum discharge, 88,200 second-feet Dec. 29, 1945 (gage height, 17.36 feet), from rating curve extended above 36,000 second-feet; minimum daily, 1,310 second-feet Oct. 29, 1944.
Remarks.- Records good except those for period of no gage-height record and those below 2,500 and above 40,000 second-feet, which are fair. Slight diurnal fluctuation caused by log ponds and power plants upstream. Water supply for city of Eugene is diverted about 10 miles upstream; small diversions above station for irrigation.
Cooperation.- Wire-weight gage read once daily during fall and winter months by employee of U. S. Weather Bureau.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 2-5)

Oct. 1 to Jan. 5				Jan. 6 to Sept. 30			
1.9	1,700	5.0	8,450	1.4	1,770	8.0	20,800
2.6	2,900	7.0	14,500	2.0	2,690	10.0	29,000
3.6	4,900	8.8	21,000	3.0	4,520	12.0	38,200
				4.0	6,860	14.0	48,400
				6.0	13,200	15.5	57,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,720	6,640	5,080	6,910	3,840	9,850	7,790	5,480	7,020	3,700	2,450	2,060
2	1,750	6,870	4,810	21,000	3,740	9,560	7,530	5,190	7,130	3,600	2,450	2,020
3	2,090	6,660	5,370	20,200	3,610	8,540	7,760	6,280	7,470	3,600	2,420	2,040
4	2,000	6,660	5,470	16,000	3,610	7,560	7,050	11,400	7,050	3,500	2,420	2,020
5	1,860	7,160	5,020	13,800	3,550	7,050	6,720	9,340	6,380	3,300	2,370	2,000
6	1,830	7,700	4,720	28,700	3,410	6,890	6,460	9,370	6,330	3,600	2,320	1,980
7	1,810	9,330	4,950	56,500	3,320	6,460	6,260	10,000	6,830	3,500	2,310	1,840
8	1,860	14,000	5,440	39,900	3,640	6,430	6,030	9,430	7,020	3,400	2,310	1,900
9	2,070	13,200	5,810	23,600	4,730	7,020	6,160	8,760	6,600	3,300	2,310	1,880
10	2,770	11,000	5,840	17,600	4,260	6,720	6,300	7,850	6,300	3,100	2,300	1,860
11	5,760	11,000	5,760	14,800	3,930	6,200	6,330	7,080	6,800	3,000	2,280	1,880
12	4,570	10,500	5,560	12,500	3,720	5,820	6,030	6,750	6,400	2,900	2,260	1,860
13	3,260	10,200	5,510	10,700	3,610	5,860	5,600	7,820	6,000	2,900	2,240	1,860
14	2,810	10,700	8,260	9,370	3,370	5,530	5,620	7,820	5,500	2,800	2,240	1,880
15	3,040	13,900	7,570	8,460	6,950	5,600	6,330	7,210	5,200	2,800	2,280	1,960
16	16,500	17,700	6,610	7,640	9,850	5,620	7,330	7,100	4,900	2,800	2,280	1,950
17	13,200	14,200	6,480	7,000	10,000	5,650	7,970	7,670	4,600	2,800	2,260	1,950
18	13,100	12,900	7,210	6,590	10,500	5,530	8,730	7,580	4,700	2,800	2,240	1,950
19	10,500	11,400	8,880	6,160	10,700	5,720	8,210	7,130	4,600	2,700	2,240	1,960
20	11,700	9,950	7,860	5,770	8,520	5,700	7,940	6,780	4,800	2,600	2,190	1,940
21	13,800	8,690	7,000	5,420	15,200	5,960	8,270	6,810	5,000	2,700	2,200	1,900
22	10,100	7,700	6,770	5,170	38,700	9,460	8,760	6,720	4,800	2,630	2,310	2,010
23	8,450	6,950	6,180	5,000	26,600	10,300	9,370	6,720	4,500	2,640	2,450	2,880
24	7,290	6,360	5,710	4,850	17,000	8,670	8,950	7,130	4,300	2,610	2,390	3,090
25	6,210	5,860	5,390	4,710	13,000	7,910	9,460	8,090	4,100	2,550	2,250	2,670
26	5,560	5,610	5,230	4,480	16,500	7,210	8,830	8,730	4,000	2,480	2,190	2,750
27	5,150	5,560	5,110	4,300	16,800	6,720	7,700	9,080	3,900	2,530	2,140	3,300
28	5,110	5,440	5,980	4,180	13,400	6,860	6,970	8,760	3,900	2,690	2,120	2,880
29	5,270	5,150	6,640	4,080	11,100	7,500	6,360	8,150	3,800	2,590	2,080	2,740
30	6,340	4,920	6,140	4,020	-	9,910	5,860	7,350	3,800	2,480	2,080	2,530
31	5,980	-	5,710	3,850	-	9,020	-	7,080	-	2,450	2,080	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	183,460	16,500	1,720	5,918	4.52	5.21	363,900
November	273,910	17,700	4,920	9,130	6.97	7.78	543,300
December	188,070	8,880	4,720	6,067	4.63	5.34	373,000
Calendar year 1947	1,950,320	23,900	1,700	5,343	4.08	55.38	3,868,000
January	383,260	56,500	3,850	12,360	9.44	10.88	760,200
February	277,160	38,700	3,320	9,557	7.30	7.87	549,700
March	222,830	10,300	5,530	7,188	5.49	6.33	442,000
April	218,680	9,460	5,600	7,289	5.56	6.21	433,700
May	240,660	11,400	5,190	7,763	5.93	6.83	477,300
June	163,730	7,470	3,800	5,458	4.17	4.65	324,800
July	91,050	3,700	2,450	2,937	2.24	2.58	180,600
August	70,460	2,450	2,080	2,273	1.74	2.00	139,800
September	65,540	3,300	1,840	2,185	1.67	1.86	130,000
Water year 1947-48	2,378,810	56,500	1,720	6,499	4.96	67.54	4,718,000

Peak discharge (base, 24,000 sec.-ft.).- Jan. 2 (7 p.m.) 24,500 sec.-ft.; Jan. 7 (8 a.m.) 58,100 sec.-ft.; Feb. 22 (2 p.m.) 46,000 sec.-ft.
Note.- No gage-height record June 9 to July 21; discharge computed on basis of records for McKenzie River near Vida and Mohawk River near Springfield and records for Willamette River at Harrisburg minus Willamette River at Springfield.

South Fork McKenzie River near Rainbow, Oreg.

Location.- Water-stage recorder, lat. 44°08', long. 122°15', in NW¼ sec. 31, T. 16 S., R. 5 E., 0.2 mile upstream from Cougar Creek and 2 miles south of Rainbow and mouth of river.

Drainage area.- 211 square miles.

Records available.- October 1947 to September 1948. December 1945 to August 1947 (discharge measurements only). December 1945 to September 1947, fragmentary records of stage only, in files of Corps of Engineers.

Extremes.- Maximum discharge during year, 10,400 second-feet Jan. 7 (gage height, 6.70 feet); minimum, about 210 second-feet Oct. 1 during period of no gage-height record.
Maximum discharge known, 24,500 second-feet Dec. 28, 1945 (gage height, 8.8 feet, from floodmarks, at former site and datum; corresponding gage height at present site about 9.3 feet), by slope-area method.

Remarks.- Records fair. No diversion or regulation above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.8	220	1.6	600	4.5	4,450
.9	250	2.0	940	5.5	6,600
1.1	315	2.8	1,820	6.2	8,650
1.3	405	3.5	2,760		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	210	h805	814	1,470	498	1,240	1,260	868	1,690	630	315	277
2	270	h787	736	3,370	484	1,140	1,260	823	1,830	600	308	27[illegible]
3	350	h850	805	2,290	484	1,010	1,200	1,380	1,840	560	304	277
4	330	h868	744	1,890	472	895	1,080	1,810	1,640	540	304	27[illegible]
5	320	823	680	1,640	447	841	980	1,600	1,350	560	301	274
6	320	832	640	6,360	435	796	904	1,840	1,400	560	298	271
7	320	1,160	624	8,440	417	760	841	1,840	1,450	560	294	268
8	340	2,080	593	6,520	465	760	805	1,630	1,450	500	294	268
9	400	1,770	616	2,680	465	778	814	1,480	1,450	450	290	268
10	600	1,460	593	2,060	441	728	796	1,340	1,350	400	290	268
11	900	1,570	600	1,660	429	680	778	1,210	1,400	380	290	268
12	600	1,360	600	1,380	417	664	736	1,260	1,250	360	290	265
13	500	1,380	796	1,180	417	664	712	1,510	1,100	350	290	267
14	450	1,420	1,100	1,040	441	664	805	1,450	1,000	340	287	265
15	800	2,580	895	1,040	1,000	648	1,070	1,340	900	331	287	265
16	2,500	2,880	832	877	1,080	632	1,350	1,450	850	331	287	265
17	1,800	2,250	922	832	1,180	616	1,400	1,620	800	331	287	265
18	2,100	1,980	1,100	796	1,740	608	1,470	1,560	830	327	287	267
19	1,500	1,630	1,210	760	1,480	608	1,390	1,450	800	323	287	259
20	2,000	1,360	1,020	720	1,170	593	1,510	1,380	900	319	287	256
21	1,700	1,160	931	688	3,180	640	1,690	1,420	1,000	319	284	256
22	1,300	913	886	664	6,300	913	1,770	1,390	900	315	298	290
23	1,100	895	814	656	2,800	868	1,720	1,490	800	312	335	355
24	900	832	720	648	1,840	814	1,540	1,820	730	312	301	343
25	750	805	704	640	1,540	769	1,590	2,170	700	308	290	319
26	700	841	704	608	2,860	728	1,400	2,300	650	304	287	405
27	640	877	712	593	2,330	744	1,230	2,210	630	327	284	390
28	670	868	904	572	1,770	859	1,130	2,020	630	335	280	360
29	h696	823	850	558	1,440	1,370	1,020	1,780	640	323	277	339
30	h895	814	778	537	-	1,870	931	1,600	650	315	277	319
31	h832	-	736	504	-	1,480	-	1,650	-	312	277	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee[illegible]
October	26,793	2,500	210	864	4.09	4.72	53,140
November	38,673	2,880	787	1,289	6.11	6.82	76,710
December	24,659	1,210	593	795	3.77	4.35	48,910
Calendar year	-	-	-	-	-	-	-
January	53,673	8,440	504	1,731	8.20	9.46	106,500
February	38,022	6,300	417	1,311	6.21	6.70	75,420
March	26,360	1,870	593	850	4.03	4.65	52,280
April	35,182	1,770	712	1,173	5.56	6.20	69,780
May	48,691	2,300	823	1,571	7.45	8.58	96,580
June	32,610	1,840	630	1,087	5.15	5.75	64,680
July	12,234	630	304	395	1.87	2.16	24,270
August	9,067	335	277	292	1.38	1.60	17,980
September	8,733	405	256	291	1.38	1.54	17,320
Water year 1947-48	354,697	8,440	210	969	4.59	62.53	703,600

Peak discharge (base, 3,000 sec.-ft.).- Nov. 15 (9 p.m.) 3,520 sec.-ft.; Jan. 2 (7 a.m.) 3,670 sec.-ft.; Jan. 7 (7 a.m.) 10,400 sec.-ft.; Feb. 22 (4 a.m.) 6,920 sec.-ft.; Feb. 26 (10:30 a.m.) 3,420 sec.-ft.

h Computed from staff-gage reading.

Note.- No gage-height record Oct. 1-28, June 5 to July 14; discharge computed on basis of record for McKenzie River near Vida and North Fork Willamette River near Oakridge.

Blue River above Quentin Creek, Oreg.

Location.- Water-stage recorder, lat. 44°16', long. 122°12', about 1½ miles upstream from Quentin Creek, right bank tributary, 7 miles north of town of McKenzie Bridge and 11 miles northeast of town of Blue River. Prior to Nov. 20, temporary staff gage at site 15 feet upstream on opposite bank.

Drainage area.- 11.5 square miles.

Records available.- October 1947 to September 1948.

Extremes.- Maximum discharge during year, 1,320 second-feet Jan. 6 (gage height, 3.77 feet from rating curve extended above 530 second-feet by logarithmic plotting; minimum observed, 3.9 second-feet Oct. 1; minimum gage height, 0.68 foot Sept. 10-14, 19-22.

Remarks.- Records good except those for periods of no gage-height record or those based on staff-gage readings, which are fair. No diversion or regulation above station.

Rating table, water year 1947-48, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1, 7-10, 14, 15)

0.6	1.6	1.1	41	2.8	555
.7	5.2	1.4	85	3.1	740
.8	11	1.7	135	3.4	970
.9	19	2.0	220	3.8	1,350
1.0	29	2.4	365		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	h3.9	h85	70	212	27	90	103	67	110	27	14	5.7
2	6	h85	62	446	26	78	102	62	117	26	12	5.7
3	15	h85	73	248	b25	67	102	164	114	25	11	5.7
4	9	90	67	181	24	60	94	190	98	23	11	5.2
5	8.5	85	61	163	23	54	84	158	91	25	10	5.2
6	9	95	56	862	b22	49	72	199	97	24	9.6	5.2
7	h8.6	170	55	962	22	47	64	184	102	24	9.2	5.2
8	h10	250	51	401	24	45	58	150	102	22	9.2	4.7
9	h27	200	49	214	22	44	58	128	92	20	9.2	4.7
10	g48	170	45	148	21	40	58	108	90	19	8.6	4.7
11	130	180	45	119	b19	39	56	98	94	18	8.6	4.3
12	55	150	44	97	19	37	55	107	80	17	8.0	4.3
13	40	135	70	85	19	36	54	124	72	17	8.0	4.3
14	h31	160	90	73	20	36	64	114	62	17	8.0	4.3
15	g100	260	82	66	41	35	90	107	56	17	8.0	4.7
16	h297	220	76	60	66	*35	124	117	52	17	8.0	4.7
17	h262	190	94	56	90	36	135	130	51	17	7.4	4.7
18	h341	170	135	*52	110	36	140	117	49	16	7.4	4.7
19	210	h158	158	49	97	34	133	105	45	15	7.4	4.3
20	240	140	126	47	82	33	138	102	52	15	7.4	4.3
21	180	115	110	44	178	40	150	110	49	14	6.8	4.3
22	140	97	100	44	434	84	166	110	44	14	9.6	10
23	120	86	94	44	205	74	175	117	41	13	16	18
24	90	76	86	44	138	68	160	135	39	13	10	17
25	75	72	82	41	117	61	166	160	36	13	8.6	14
26	70	73	80	39	187	56	138	163	35	13	8.0	27
27	65	76	85	36	158	56	115	152	34	13	7.4	26
28	70	74	96	35	126	64	98	150	31	13	6.8	22
29	90	70	88	33	102	97	85	133	29	13	6.2	17
30	110	73	79	30	-	138	74	119	28	12	6.8	15
31	95	-	78	28	-	119	-	112	-	14	6.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	2,956.0	341	3.9	95.4	8.30	9.56	5,860
November	3,890	260	70	130	11.3	12.58	7,720
December	2,487	158	44	80.2	6.97	8.04	4,930
Calendar year	-	-	-	-	-	-	-
January	4,959	962	28	160	13.9	16.04	9,840
February	2,444	434	19	84.3	7.33	7.90	4,850
March	1,788	138	33	57.7	5.02	5.78	3,550
April	3,111	175	54	104	9.04	10.06	6,170
May	3,992	199	62	129	11.2	12.91	7,920
June	1,992	117	28	66.4	5.77	6.44	3,950
July	546	27	12	17.6	1.53	1.77	1,080
August	274.4	16	6.2	8.85	.770	.89	544
September	266.9	27	4.3	8.90	.774	.86	529
Water year 1947-48	28,706.3	962	3.9	78.4	6.82	92.83	56,940

Peak discharge (base, 400 sec.-ft.).- Jan. 2 (4:30 a.m.) 588 sec.-ft.; Jan. 6 (4 p.m.) 1,320 sec.-ft.; Feb. 22 12 a.m.) 616 sec.-ft.

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
g Computed on basis of graph based on staff-gage readings.
h Computed from staff-gage reading.

Note.- No gage-height record Oct. 2-6, 11-13, 19-31, Nov. 4-18; discharge computed on basis of records for station near Blue River.

Blue River near Blue River, Oreg.

Location.- Water-stage recorder, lat. 44°11', long. 122°17', near line between secs. 13 and 14, T. 16 S., R. 4 E., 3 miles upstream from Quartz Creek and 3½ miles northeast Blue River post office.

Drainage area.- 75 square miles.

Records available.- September 1935 to September 1948.

Average discharge.- 13 years, 359 second-feet.

Extremes.- Maximum discharge during year, 8,740 second-feet Jan. 7 (gage height, 7.44 feet); minimum, 19 second-feet Sept. 12, 13.
1935-48: Maximum discharge, 13,300 second-feet Dec. 28, 1945 (gage height, 9.80 feet), from rating curve extended above 6,500 second-feet; minimum, 13 second-feet Sept. 27, 28, Oct. 1, 2, 1938.

Remarks.- Records good. No diversion or regulation above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Jan. 24 to Feb. 21, Sept. 23-30)

Oct. 1 to Nov. 7

1.0	23	1.4	150	2.5	885
1.1	43	1.6	255	3.0	1,380
1.2	73	1.8	370	3.5	1,970
1.3	110	2.1	575	4.0	2,680

Nov. 8 to Sept. 30

1.0	8	1.6	220	4.0	2,560
1.1	22	2.0	465	5.0	4,200
1.2	42	2.5	835	6.2	6,380
1.3	72	3.0	1,280		
1.4	115	3.5	1,850		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	29	442	268	1,620	160	584	658	370	458	111	51	2
2	49	416	250	3,550	150	535	680	340	479	106	45	2
3	103	463	310	1,710	135	458	665	1,130	452	102	42	2
4	61	463	304	1,130	135	394	563	1,230	382	98	42	2
5	46	456	262	949	125	370	479	932	340	106	40	2
6	41	477	232	6,140	115	346	432	1,040	370	106	40	2
7	41	1,190	226	6,360	111	328	388	966	370	111	38	2
8	58	1,890	209	2,480	170	322	370	803	364	98	38	2
9	170	1,220	232	1,330	187	340	400	695	328	89	36	2
10	279	924	226	940	145	328	432	598	322	81	36	2
11	1,060	974	238	740	135	304	432	521	376	81	36	2
12	376	803	244	628	125	280	394	570	310	76	34	2
13	228	710	445	521	125	280	364	718	274	72	34	2
14	160	803	755	452	130	280	452	620	244	72	34	2
15	642	1,900	549	406	591	280	702	570	214	69	36	2
16	2,560	1,580	439	382	827	286	867	620	198	69	34	2
17	1,800	1,190	577	364	940	280	867	658	182	69	34	2
18	2,560	1,060	919	346	1,240	286	907	584	209	66	32	2
19	1,250	851	966	322	932	274	803	500	176	66	32	2
20	1,500	665	680	292	672	268	851	458	209	63	30	2
21	1,250	535	570	274	2,210	346	875	500	256	63	30	2
22	829	439	521	268	4,470	883	949	500	226	60	42	4
23	688	376	452	262	1,760	665	992	549	209	57	60	13
24	540	328	400	259	1,040	528	924	658	198	57	40	11
25	422	304	370	238	795	472	1,070	740	182	54	36	6
26	358	310	352	220	1,820	426	843	725	165	51	32	19
27	328	310	364	204	1,220	432	665	665	155	63	30	18
28	346	298	458	192	867	542	549	620	145	66	28	11
29	449	274	413	182	672	795	465	549	135	57	28	7
30	582	268	370	170	-	1,050	406	479	120	54	28	5
31	463	-	352	165	-	787	-	465	-	48	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	19,268	2,560	29	622	8.29	9.55	38,22
November	21,919	1,900	268	731	9.75	10.87	43,48
December	12,953	966	209	418	5.57	6.42	25,69
Calendar year 1947	133,681	3,500	29	366	4.88	66.27	265,20
January	33,096	6,360	165	1,068	14.2	16.41	65,64
February	22,004	4,470	111	759	10.1	10.91	43,64
March	13,749	1,050	268	444	5.92	6.82	27,27
April	19,444	1,070	364	648	8.64	9.64	38,57
May	20,373	1,230	340	657	8.76	10.10	40,41
June	8,048	479	120	268	3.57	3.99	15,96
July	2,341	111	48	75.5	1.01	1.16	4,64
August	1,126	60	28	36.3	.484	.56	2,23
September	1,482	198	21	49.4	.659	.73	2,94
Water year 1947-48	175,803	6,360	21	480	6.40	87.16	348,70

Peak discharge (base, 2,600 sec.-ft.).- Oct. 18 (4 a.m.) 3,470 sec.-ft.; Jan. 2 (6 a.m.) 4,490 sec.-ft.; Jan. 7 (5 a.m.) 8,740 sec.-ft.; Feb. 22 (2 a.m.) 6,650 sec.-ft.

Mohawk River near Springfield, Oreg.

Location.- Wire-weight gage, lat. 44°06', long. 122°57', in sec. 17, T. 17 S., R. 2 W., 1 mile upstream from mouth and 4½ miles northeast of Springfield.

Drainage area.- 180 square miles.

Records available.- September 1935 to September 1948.

Average discharge.- 13 years, 517 second-feet.

Extremes.- Maximum discharge during year, 7,890 second-feet Jan. 7 (gage height, 20.78 feet); minimum observed, 28 second-feet Sept. 14.
1935-48: Maximum discharge, 8,600 second-feet Dec. 28, 1945 (gage height, 22.1 feet, from floodmark), from rating curve extended above 6,000 second-feet; minimum observed, 11 second-feet Sept. 17, 1938.

Remarks.- Records good. Gage read once daily during low-water periods, twice daily or oftener at other times. No diversion above station; some regulation at low flow by log ponds.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30			
1.3	38	2.5	265	14.0	4,550	1.0	23	1.7	106
1.4	49	3.0	390	18.0	6,490	1.1	30	2.0	167
1.5	62	5.0	950	20.5	7,740	1.2	38	3.0	410
1.7	94	7.0	1,570			1.3	48	4.0	660
2.0	151	10.0	2,720			1.5	73	5.0	950

Note.- Same as preceding table above 5.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	1,180	432	568	318	1,140	702	448	275	108	58	43
2	47	1,110	395	2,790	300	992	690	422	280	108	55	40
3	76	1,040	632	2,880	278	911	749	947	280	108	54	41
4	74	933	540	2,790	305	872	700	974	255	106	63	39
5	72	1,060	480	2,270	288	845	719	782	228	106	56	39
6	71	1,410	442	5,030	258	860	740	779	208	138	54	38
7	71	1,510	649	7,720	242	758	716	752	242	144	52	37
8	50	2,080	863	5,040	432	842	688	740	245	116	52	36
9	116	1,770	1,000	3,230	665	992	716	700	222	108	54	34
10	137	1,640	901	2,450	572	890	710	630	220	106	55	33
11	437	1,630	869	2,030	470	812	740	578	295	99	50	32
12	179	1,460	762	1,620	422	728	685	608	228	97	49	32
13	125	1,760	741	1,340	400	806	640	605	212	88	47	30
14	112	1,730	1,120	1,130	378	719	625	550	192	86	49	28
15	289	2,340	980	980	1,450	770	625	512	180	79	64	39
16	2,860	2,510	880	848	1,480	752	615	485	175	79	58	38
17	1,710	2,050	875	752	1,400	788	758	498	169	78	54	38
18	2,340	1,740	924	680	1,420	794	860	468	169	78	56	36
19	1,590	1,480	986	620	1,200	842	794	458	165	76	55	35
20	2,260	1,340	875	572	1,020	872	700	435	197	73	55	34
21	2,020	1,140	776	512	2,480	932	685	418	188	72	49	34
22	1,310	974	759	472	6,010	1,820	700	405	163	70	58	46
23	1,150	851	671	445	3,750	1,780	764	385	159	72	90	152
24	857	753	599	428	2,540	1,450	719	375	152	69	63	161
25	697	671	548	400	1,880	1,290	746	385	144	66	55	88
26	635	596	512	380	2,110	1,130	675	405	140	64	49	210
27	534	545	466	360	1,840	1,020	595	408	136	69	48	148
28	545	504	705	338	1,540	932	525	398	126	73	46	110
29	557	461	764	348	1,270	899	488	350	120	68	41	108
30	613	445	699	330	-	920	462	305	116	64	42	97
31	557	-	635	305	-	797	-	308	-	59	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	22,131	2,860	40	714	3.97	4.57	43,900
November	38,713	2,510	445	1,290	7.17	8.00	76,790
December	22,480	1,120	395	725	4.03	4.64	44,590
Calendar year 1947	201,490	3,150	36	552	3.07	41.63	399,700
January	49,658	7,720	305	1,602	8.90	10.26	98,500
February	36,718	6,010	242	1,266	7.03	7.59	72,830
March	29,955	1,820	719	966	5.37	6.19	59,410
April	20,531	860	462	684	3.80	4.24	40,720
May	16,513	974	305	533	2.96	3.41	32,750
June	5,881	295	116	196	1.09	1.22	11,660
July	2,727	144	59	88.0	.489	.56	5,410
August	1,680	90	41	54.2	.301	.35	3,330
September	1,876	210	28	62.5	.347	.39	3,720
Water year 1947-48	248,863	7,720	28	680	3.78	51.42	493,600

Peak discharge (base, 2,700 sec.-ft.).- Oct. 16 (about 10 a.m.) 3,530 sec.-ft.; Jan. 2 (about 12 p.m.) 3,900 sec.-ft.; Jan. 7 (12 m.) 7,890 sec.-ft.; Feb. 22 (11:45 a.m.) 6,250 sec.-ft.

Long Tom River near Noti, Oreg.

Location.- Water-stage recorder, lat. 44°03', long. 123°26', in sec. 33, T. 17 S., R. 6 an eighth of a mile upstream from railroad bridge, 1 mile downstream from Noti Creek and 1½ miles southeast of Noti. Datum of gage is 388.76 feet above mean sea level (levels by U. S. Weather Bureau).

Drainage area.- 88 square miles.

Records available.- October 1935 to September 1948.

Average discharge.- 13 years, 221 second-feet.

Extremes.- Maximum discharge during year, 4,670 second-feet Jan. 7 (gage height, 18.43 feet); minimum, 17 second-feet Sept. 13 (gage height, 0.73 foot).
1935-48: Maximum discharge, that of Jan. 7, 1948; minimum observed, 7 second-fee Sept. 25-27, 1939 (gage height, 0.66 foot).

Remarks.- Records good. No diversion above station; slight diurnal fluctuation caused log pond above Noti.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.7	16	2.3	151	8.0	830	16.0	2,610
.9	26	3.0	228	9.5	1,020	17.0	3,200
1.1	39	4.0	345	11.0	1,240	17.5	3,610
1.4	62	5.0	465	13.0	1,610	18.1	4,250
1.8	99	6.5	645	15.0	2,190		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	19	622	156	467	187	481	311	250	134	59	29	
2	20	608	146	1,660	192	457	309	236	123	57	29	
3	29	445	168	1,700	174	411	315	388	123	60	31	
4	26	362	165	1,310	194	377	309	548	h119	56	31	
5	22	338	144	1,080	204	363	371	413	h119	60	38	
6	21	322	138	1,920	176	352	436	359	h109	76	38	
7	21	304	165	4,230	162	321	417	329	h109	73	31	
8	22	321	249	2,730	298	344	381	307	h109	61	30	
9	51	316	250	1,520	578	368	380	281	h109	59	29	
10	106	296	246	1,110	532	331	417	259	h109	55	26	
11	147	273	260	948	407	299	496	231	h109	52	25	
12	74	242	251	774	332	296	427	203	h99	52	25	
13	46	290	252	657	289	285	373	259	h99	50	24	
14	40	334	338	568	280	307	351	249	h99	50	24	
15	134	518	323	495	608	304	339	228	h99	46	25	
16	757	550	292	445	709	391	310	237	h99	45	28	
17	692	443	311	401	673	475	350	248	h99	44	29	
18	1,150	376	335	369	663	443	377	226	87	43	36	
19	981	325	421	340	568	430	345	214	83	44	31	
20	1,320	290	382	314	499	429	346	221	89	43	31	
21	860	265	335	292	1,180	441	304	212	88	42	30	
22	499	242	344	274	2,680	1,000	413	202	80	41	28	
23	397	225	304	261	1,980	1,190	538	187	77	40	31	
24	316	209	273	250	1,150	817	475	176	69	38	31	
25	256	207	251	254	844	671	424	166	70	38	30	
26	228	184	234	210	764	565	391	160	69	37	28	
27	204	176	226	209	677	490	355	163	66	36	27	
28	206	166	286	202	619	439	308	182	66	38	27	
29	198	160	351	197	541	398	281	166	62	63	25	
30	222	154	322	194	-	369	258	151	60	42	24	
31	228	-	295	185	-	333	-	146	-	33	24	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	9,292	1,320	19	300	3.41	3.93	18,4
November	9,563	622	154	319	3.62	4.04	18,9
December	8,213	421	138	265	3.01	3.47	16,2
Calendar year 1947	76,589	1,710	17	210	2.39	32.37	151,9
January	25,566	4,230	185	825	9.37	10.80	50,7
February	18,160	2,680	162	626	7.11	7.67	36,0
March	14,177	1,190	285	457	5.19	5.99	28,1
April	11,107	538	258	370	4.20	4.69	22,0
May	7,597	548	146	245	2.78	3.21	15,0
June	2,832	134	60	94.4	1.07	1.20	5,6
July	1,533	76	33	49.5	.562	.65	3,0
August	895	38	24	28.9	.328	.38	1,7
September	830	91	18	27.7	.315	.35	1,6
Water year 1947-48	109,765	4,230	18	300	3.41	46.38	217,7

Peak discharge (base, 1,300 sec.-ft.).- Oct. 20 (2 p.m.) 1,430 sec.-ft.; Jan. 2 (9:30 p.m.) 2,12 sec.-ft.; Jan. 7 (2 p.m.) 4,670 sec.-ft.; Feb. 22 (2:30 p.m.) 3,050 sec.-ft.
h Computed from once-daily staff-gage readings.

Fern Ridge Reservoir near Elmira, Oreg.

Location.- Water-stage recorder, lat. 44°07'18", long. 123°17'56", near center of sec. 4, T. 17 S., R. 5 W., in control house at spillway section of dam across Long Tom River and Coyote Creek, 4½ miles northeast of Elmira. Datum of gage is at mean sea level (levels by Corps of Engineers).

Drainage area.- 252 square miles.

Records available.- October 1941 to September 1948.

Extremes.- Maximum contents during year, 101,900 acre-feet May 3 (elevation, 373.57 feet); minimum, 6,740 acre-feet Nov. 26 (elevation, 352.83 feet).
1941-48: Maximum contents, 105,400 acre-feet Jan. 1, 1943 (elevation, 373.74 feet); minimum since first filling in 1942, 3,220 acre-feet Nov. 29, Dec. 11, 12, 17, 1943, Jan. 12, 1944 (elevation, 349.95 feet).

Remarks.- Reservoir is formed by earth-fill dam with concrete outlet and spillway, completed in 1941 by Corps of Engineers; storage began Nov. 13, 1941. Capacity, 101,200 acre-feet between elevations 340 feet (sill of outlet gate) and 373.5 feet (maximum operating pool level); dead storage, 23 acre-feet below elevation 340 feet. Reservoir used for flood control and improvement of navigation. Daily contents computed from elevations at 12 p.m. Capacity table computed by Geological Survey on basis of areas furnished by Corps of Engineers.

Cooperation.- Water-stage recorder inspected by employees of Corps of Engineers.

Contents, in acre-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86,470	30,050	7,010	8,700	9,110	42,640	72,500	100,500	100,600	100,300	97,350	93,660
2	83,230	29,760	7,190	11,560	9,890	40,800	73,910	100,800	100,700	100,200	79,260	93,570
3	80,000	28,870	7,450	16,230	10,620	41,760	74,810	100,800	100,800	100,100	96,990	93,480
4	76,720	27,440	7,540	20,100	11,480	43,180	75,950	100,000	100,800	100,100	96,800	93,210
5	73,760	25,750	7,440	22,440	12,190	44,630	77,260	99,920	100,800	100,400	96,710	93,040
6	70,100	24,060	7,270	34,720	12,890	45,870	78,500	99,920	101,300	100,500	96,440	92,950
7	67,050	22,040	7,480	63,570	13,590	46,920	79,600	99,740	100,800	100,500	96,530	92,770
8	63,710	20,010	7,890	78,820	15,300	47,940	80,720	99,550	100,600	100,500	96,260	92,600
9	61,130	17,830	8,210	84,800	18,340	48,810	81,850	99,740	100,100	100,400	96,170	92,420
10	58,640	15,710	8,220	84,300	20,270	49,410	82,660	100,100	100,200	100,400	95,900	92,330
11	55,370	13,460	8,130	82,250	21,060	50,080	83,480	100,400	100,300	100,400	95,900	92,150
12	52,120	10,950	8,000	79,680	21,530	50,750	84,390	100,600	100,400	100,200	95,720	92,070
13	48,920	9,130	7,950	76,330	21,830	51,430	85,380	99,830	100,500	100,100	95,540	91,890
14	45,770	8,450	7,950	72,200	22,680	52,410	86,980	99,650	100,500	99,830	95,540	91,800
15	44,890	8,100	7,950	67,610	24,930	53,280	88,170	99,740	100,600	99,740	95,270	91,450
16	43,930	7,950	7,860	63,040	27,060	54,710	89,370	100,300	100,600	99,650	95,090	91,360
17	43,830	7,640	8,160	58,010	28,690	56,040	90,320	100,300	100,700	99,460	95,090	91,280
18	43,930	7,440	8,420	52,820	29,870	57,200	90,750	100,300	100,900	99,370	94,820	91,190
19	45,770	7,150	8,340	47,450	30,460	58,380	91,450	100,600	101,100	99,180	94,820	91,100
20	48,590	6,980	8,020	42,540	31,320	59,590	92,070	100,600	101,000	98,910	94,730	90,930
21	50,920	6,960	7,730	37,090	35,470	60,810	93,120	100,600	100,700	98,910	94,640	90,840
22	50,640	6,960	7,530	31,700	47,400	63,570	94,370	100,600	100,500	98,820	94,640	91,280
23	49,410	7,000	7,390	26,420	55,250	66,570	95,090	100,400	100,500	98,630	94,550	92,070
24	47,560	6,930	7,130	20,790	59,200	68,250	95,720	100,300	100,600	98,450	94,460	92,150
25	45,250	6,790	7,100	15,590	59,910	68,250	96,530	100,700	100,600	98,360	94,370	92,150
26	42,780	6,790	7,180	10,680	57,140	67,890	97,720	100,900	100,500	98,260	94,280	29,510
27	40,290	6,840	7,280	8,310	53,760	68,100	98,820	101,400	100,600	97,990	94,100	92,420
28	37,700	6,840	7,680	7,760	49,910	68,880	99,830	101,000	100,600	97,810	94,010	92,420
29	35,180	6,780	8,030	7,760	46,290	69,880	100,700	100,500	100,700	97,720	93,920	92,420
30	32,630	6,870	8,160	7,860	-	70,600	100,500	100,500	100,400	97,720	93,920	92,420
31	30,570	-	7,870	8,310	-	71,470	-	100,400	-	97,530	93,840	-

Monthly elevation and contents, water year October 1947 to September 1948

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	372.23	89,800	-
Oct. 31	362.36	30,570	-59,230
Nov. 30	352.92	6,870	-23,700
Dec. 31	353.58	7,870	+1,000
Calendar year 1947	-	-	+1,020
Jan. 31	353.85	8,310	+440
Feb. 29	365.90	46,290	+37,980
Mar. 31	369.93	71,470	+25,180
Apr. 30	373.42	100,500	+29,030
May 31	373.41	100,400	-100
June 30	373.41	100,400	0
July 31	373.10	97,530	-2,870
Aug. 31	372.69	93,840	-3,690
Sept.30	372.53	92,420	-1,420
Water year 1947-48	-	-	+2,620

† Elevation at 12 p.m.

Long Tom River below Fern Ridge Dam, near Smithfield, Oreg.

Location.- Water-stage recorder and masonry control, lat. 44°07'25", long. 123°18'00", NW¼ sec. 4, T. 17 S., R. 5 W., in canalized river channel 1,000 feet downstream from Fern Ridge Dam, which impounds runoff of Long Tom River and Coyote Creek, and 2½ mile south of Smithfield. Datum of gage is 332.00 feet above mean sea level, datum of 19 (surveys by Corps of Engineers).

Drainage area.- 252 square miles.

Records available.- October 1943 to September 1948. August 1939 to September 1943 at s 2½ miles downstream, below Coyote Creek.

Extremes (not including diversion to Coyote Creek).- Maximum discharge during year, 3,67 second-feet Jan. 12 (gage height, 6.42 feet); minimum, 5 second-feet July 9.
1943-48: Maximum discharge, that of Jan. 12, 1948; no flow part of June 11, 12, 1

Remarks.- Records of flow in river channel excellent; records of diversion to Coyote Cre poor. A few small diversions above station; several second-feet diverted around stat to Coyote Creek channel through 24-inch concrete pipe 600 feet long, several hundred feet upstream, record of which is based on daily staff-gage readings and occasional measurements. Fern Ridge Dam, 1,000 feet above station, was completed in 1941, and h regulated flow since Nov. 13, 1941 (see preceding page).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.9	3.5	1.3	43	1.9	177	3.5	975
1.0	9	1.4	60	2.1	240	4.0	1,340
1.1	17	1.5	80	2.5	405	5.0	2,210
1.2	28	1.7	125	3.0	660	6.2	3,430

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	1,620	1,830	210	1,210	22	2,810	93	385	126	30	46	
2	1,620	1,810	204	1,900	21	1,810	32	248	68	30	46	
3	1,620	1,800	301	2,200	19	384	34	1,160	66	30	45	
4	1,610	1,800	352	1,980	18	42	34	1,500	68	30	45	
5	1,600	1,780	356	2,170	16	42	147	903	68	30	45	
6	1,590	1,760	356	1,320	16	40	207	744	94	30	45	
7	1,610	1,730	356	10	16	130	240	744	378	28	43	
8	1,610	1,710	360	8	17	348	204	622	356	28	43	
9	1,580	1,750	512	862	18	428	204	333	202	25	43	
10	1,690	1,730	583	3,210	359	344	371	248	128	43	42	
11	1,720	1,650	583	3,320	684	316	465	248	68	42	43	
12	1,700	1,700	583	3,140	583	320	286	462	68	50	42	
13	1,670	1,670	610	3,060	535	320	91	750	68	52	40	
14	1,640	1,260	649	3,290	525	320	45	480	66	52	38	
15	1,620	1,160	649	3,320	803	227	155	240	66	52	37	
16	1,610	1,160	638	3,250	1,200	304	210	288	38	52	37	
17	1,590	1,140	638	3,280	1,230	432	383	378	32	42	37	
18	1,590	910	738	3,330	1,230	432	475	288	31	46	37	
19	1,580	826	910	3,320	1,240	436	382	288	31	46	38	
20	1,380	660	962	3,150	1,240	436	348	382	176	46	38	
21	1,270	540	949	3,220	1,520	436	153	382	240	46	38	
22	1,640	460	936	3,230	1,100	795	298	378	94	45	37	
23	1,660	400	832	3,140	1,300	982	480	378	31	46	37	
24	1,660	405	762	3,100	1,230	1,380	480	243	30	46	37	
25	1,650	405	585	2,850	1,620	1,630	342	62	30	46	37	
26	1,640	328	480	2,750	3,210	1,410	30	58	30	46	36	
27	1,700	292	480	1,640	3,180	926	28	175	30	45	36	
28	1,720	292	658	587	3,120	1,130	28	553	30	45	34	
29	1,690	288	786	348	2,900	852	105	509	28	46	34	
30	1,670	240	793	308	-	852	473	237	28	46	34	
31	1,760	-	906	145	-	237	-	237	-	48	34	

Month	Observed				Diversion to Coyote Creek channel (acre-feet)	Adjusted for Diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Run i inc
	Maximum	Minimum	Mean				Mean	Per square mile	
October	1,760	1,270	1,623	99,790	526	100,300	1,631	-	-
November	1,830	240	1,116	66,420	311	66,730	1,121	-	-
December	962	204	604	37,120	484	37,600	612	-	-
Calendar year 1947	1,930	20	446	322,900	4,100	327,000	452	1.79	24.
January	3,330	8	2,214	136,200	464	136,700	2,222	-	-
February	3,210	16	999	57,470	325	57,800	1,005	-	-
March	2,810	40	663	40,760	216	40,980	666	-	-
April	480	28	227	13,530	192	13,720	231	-	-
May	1,500	58	448	27,580	377	27,960	455	-	-
June	378	28	92.3	5,490	78	5,570	93.6	-	-
July	52	25	41.6	2,560	52	2,610	42.4	-	-
August	46	34	39.5	2,430	107	2,540	41.2	-	-
September	34	30	31.1	1,850	111	1,960	33.0	-	-
Water year 1947-48	3,330	8	677	491,200	3,240	494,400	681	2.70	36.

Long Tom River at Monroe, Oreg.

Location.- Water-stage recorder and concrete control, lat. 44°18'50", long. 123°17'45", in NE¼ sec. 33, T. 14 S., R. 5 W., in canalized river channel at Monroe, 800 feet upstream from a concrete drop structure and just downstream from Shafer Creek. Datum of gage is 270.00 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).
Drainage area.- 391 square miles.
Records available.- November 1920 to September 1948 (1925-27 incomplete).
Average discharge.- 25 years (1921-25, 1927-48), 708 second-feet.
Extremes.- Maximum discharge during year, 7,920 second-feet Jan. 7 (gage height, 9.20 feet); minimum, 36 second-feet Sept. 8, 13 (gage height, 4.19 feet).
1920-48: Maximum discharge, 19,300 second-feet Jan. 2, 1943 (gage height, 17.14 feet, datum then in use, from graph based on gage readings), includes some overflow at Willamette River near Junction City; no flow Oct. 20-22, 1944 (water filling pool at gage); minimum observed prior to regulation of flow, 7 second-feet Sept. 29, Oct. 1, 1939.
Remarks.- Records excellent except those below 100 second-feet, which are good. A few small diversions above station. Flow regulated by Fern Ridge Reservoir beginning Nov. 13, 1941 (see p. 139). In 1943 and 1944 river channel was improved from outlet of Fern Ridge Reservoir to a point below Monroe.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau. Water-stage recorder inspected by employee of Corps of Engineers.
Revisions.- W 654: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

4.2	38	5.0	450	7.0	2,820
4.3	72	5.3	700	7.5	3,660
4.4	110	5.6	1,000	8.0	4,710
4.5	155	6.0	1,460	9.0	7,320
4.7	260	6.5	2,100		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,480	2,600	326	1,890	190	3,190	394	1,150	284	57	60	44
2	1,580	2,620	326	3,810	210	2,630	272	401	165	57	60	44
3	1,560	2,600	401	4,570	195	970	278	1,140	150	57	60	41
4	1,560	2,340	522	4,050	216	362	278	2,170	146	54	57	38
5	1,560	2,250	538	3,700	254	344	387	1,500	142	57	54	41
6	1,560	2,180	498	5,730	222	362	554	1,090	142	64	54	38
7	1,580	2,130	498	7,180	190	374	562	1,010	351	64	54	38
8	1,580	2,060	554	4,390	386	1,380	522	960	415	64	54	38
9	1,580	2,010	720	2,560	770	950	578	619	284	57	54	38
10	1,640	2,010	860	4,370	940	810	673	436	244	68	54	38
11	1,720	1,930	870	4,330	1,230	610	920	415	132	64	54	38
12	1,700	1,900	810	3,930	970	570	691	474	132	72	54	38
13	1,660	2,050	800	3,500	820	586	422	920	128	72	54	38
14	1,640	1,810	960	3,550	800	673	302	790	124	72	54	38
15	1,700	1,960	960	3,550	1,480	602	374	408	119	72	54	38
16	1,920	1,790	910	3,460	2,250	760	514	415	110	72	51	47
17	2,070	1,630	950	3,410	2,340	1,120	790	546	83	64	54	41
18	2,540	1,350	1,100	3,450	2,100	1,000	950	490	80	60	54	41
19	2,660	1,120	1,330	3,410	1,850	940	780	401	80	60	54	41
20	3,000	990	1,350	3,220	1,790	930	610	538	128	60	54	41
21	2,440	770	1,260	3,280	2,790	930	506	570	272	60	54	41
22	2,480	691	1,230	3,240	4,620	2,040	562	546	205	64	51	51
23	2,270	570	1,160	3,220	3,260	2,270	930	514	80	64	51	60
24	2,040	554	1,010	3,120	3,170	2,300	830	458	72	64	47	72
25	1,930	538	850	2,980	1,750	2,340	770	205	72	60	47	57
26	1,850	490	637	2,850	3,830	2,050	338	190	72	60	47	57
27	1,870	408	628	2,090	3,770	1,500	302	227	68	60	47	57
28	1,890	401	830	810	3,700	1,010	272	539	64	60	44	57
29	1,870	394	1,180	522	3,430	637	260	740	60	64	44	54
30	1,880	368	1,200	415	-	602	530	362	60	60	44	54
31	1,940	-	1,150	356	-	538	-	344	-	60	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	58,750	3,000	1,480	1,895	-	-	116,500
November	44,514	2,620	368	1,484	-	-	88,290
December	26,418	1,350	326	852	-	-	52,400
Calendar year 1947	241,959	3,760	32	663	1.70	23.01	479,900
January	100,943	7,180	356	3,256	-	-	200,200
February	49,523	4,620	190	1,708	-	-	98,230
March	35,380	3,190	344	1,141	-	-	70,180
April	16,151	950	260	538	-	-	32,040
May	20,568	2,170	190	663	-	-	40,800
June	4,464	415	60	149	-	-	8,850
July	1,943	72	54	62.7	-	-	3,850
August	1,618	60	44	52.2	-	-	3,210
September	1,359	72	38	45.3	-	-	2,700
Water year 1947-48	361,631	7,180	38	988	2.53	34.40	717,200

Coyote Creek near Crow, Oreg.

Location.- Water-stage recorder and concrete control, lat. 44°01'19", long. 123°15'17", in NE¼ sec. 11, T. 18 S., R. 5 W., just upstream from backwater of Fern Ridge Reservoir, 1 mile downstream from Spencer Creek, and 5 miles northeast of Crow. Datum of gage is 374.0 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.- 94 square miles.

Records available.- June 1940 to September 1948.

Extremes.- Maximum discharge during year, 9,080 second-feet Jan. 7 (gage height, 14.08 feet), from rating curve extended above 4,700 second-feet; minimum, 0.6 second-foot Sept. 16.

1940-48: Maximum discharge, 9,260 second-feet Dec. 28, 1945 (gage height, 14.13 feet), from rating curve extended above 4,700 second-feet; no flow at times in August and September 1940.

Remarks.- Records fair except those for Oct. 1-15, which are poor.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-10, June 1 to Sept. 29)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30					
0.7	10	4.5	220	10.5	1,320	0.3	0.3	1.8	65	8.5	
.8	17	6.0	335	11.0	1,660	.4	1.1	2.4	95	9.0	
1.0	30	7.0	430	11.5	2,210	.5	2.5	3.0	131	9.5	
1.3	44	8.0	557	12.0	3,050	.6	5.0	4.0	195	10.0	1,
1.8	64	9.0	735	12.5	4,150	.7	10	5.0	260	10.5	1,
2.6	102	9.5	880	13.0	5,490	.9	24	6.0	335	11.0	1,
3.4	149	10.0	1,070	13.4	6,710	1.1	35	7.0	430	11.5	2,
						1.3	44	8.0	557	12.0	3,

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	10	582	77	364	80	245	139	100	49	12	3.6	2.
2	14	687	72	1,160	89	232	136	91	45	11	3.6	2.
3	20	580	121	1,450	75	205	145	191	41	11	3.6	2.
4	21	411	129	1,260	88	180	143	319	38	10	3.6	2.
5	20	380	103	a1,100	96	176	192	251	36	10	4.4	1.
6	20	339	92	a1,500	79	175	202	203	34	12	5.0	1.
7	21	293	106	a6,500	69	152	178	174	34	14	4.1	1.
8	22	275	177	a2,000	170	204	155	154	32	15	3.6	1.
9	30	260	218	1,270	384	249	173	133	29	12	3.1	1.
10	43	249	202	934	385	201	175	113	29	10	3.3	1.
11	57	221	181	722	297	180	182	99	32	9.7	3.3	1.
12	58	184	159	509	232	169	156	94	33	9.2	3.1	1
13	50	230	154	380	200	214	145	111	28	9.2	3.1	.
14	47	309	210	300	180	207	153	108	25	8.6	2.9	.
15	53	a350	180	252	709	195	207	89	23	8.1	2.7	.
16	407	a357	162	222	1,080	264	207	86	21	7.1	2.7	.
17	606	a300	182	193	938	259	269	92	20	6.6	2.9	.
18	659	a250	207	171	764	257	259	84	19	6.6	3.6	.
19	501	a210	258	151	548	260	224	78	19	6.6	3.8	.
20	1,050	a180	240	135	427	246	197	84	21	6.6	3.8	.
21	936	170	216	122	1,190	236	186	76	25	6.6	3.3	1.
22	578	144	309	114	3,120	642	205	70	22	6.0	3.3	1.
23	345	123	267	107	1,730	806	202	60	18	6.0	3.6	2.
24	233	110	220	100	1,040	605	178	56	17	5.5	3.3	12
25	166	100	184	94	619	442	159	54	16	5.0	3.3	13
26	138	92	162	86	482	324	145	51	16	4.7	3.8	8.
27	120	85	147	79	396	260	145	50	15	4.7	3.3	8.
28	117	80	225	74	334	227	138	55	14	4.4	2.7	7.
29	116	74	356	74	279	204	132	70	12	4.4	2.3	7.
30	148	71	315	78	-	187	106	58	12	4.1	2.3	6.
31	147	-	256	72	-	159	-	52	-	3.8	2.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fee
October	6,753	1,050	10	218	2.32	2.67	13,39
November	7,696	687	71	257	2.73	3.04	15,26
December	5,887	356	72	190	2.02	2.33	11,68
Calendar year 1947	55,477.2	1,210	-	152	1.62	21.95	110,00
January	21,573	6,500	72	696	7.40	8.54	42,79
February	16,080	3,120	69	554	5.89	6.36	31,89
March	8,362	806	152	270	2.87	3.31	16,59
April	5,231	269	106	174	1.85	2.07	10,38
May	3,308	319	50	107	1.14	1.31	6,56
June	775	49	12	25.8	.274	.31	1,54
July	250.5	15	3.8	8.08	.086	.10	49
August	103.2	5.0	2.2	3.33	.035	.04	20
September	94.8	13	.7	3.16	.034	.04	18
Water year 1947-48	78,113.5	6,500	.7	208	2.21	30.12	151,00

Peak discharge (base, 1,600 sec.-ft.).- Jan. 3 (4 a.m.) 1,650 sec.-ft.; Jan. 7 (time unknown), 9,080 sec.-ft.; Feb. 22 (11 a.m.) 3,820 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage when available, and records for Long Tom River near Noti.

Marys River near Philomath, Oreg.

Location.- Wire-weight gage, lat. 44°31'35", long. 123°20'00", in SW¼ sec. 18, T. 12 S., R. 5 W., at bridge 2 miles upstream from Muddy Creek and 2 miles southeast of Philomath.

Drainage area.- 155 square miles (including drainage area of Evergreen Creek above road crossing 1½ miles south of station).

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 8,000 second-feet Jan. 7 (gage height, 20.57 feet, from floodmark); minimum observed, 11 second-feet Sept. 13, 14.
1940-48: Maximum discharge, 8,250 second-feet Dec. 15, 1946 (gage height, 20.67 feet, from floodmark); minimum observed, 6 second-feet Sept. 12, 13, 1944.

Remarks.- Records fair except those above 3,000 second-feet, which are poor. Records include flow of Evergreen Creek at road crossing 1½ miles south, with which overflow from Marys River may at times be mingled. Gage read twice daily. City of Corvallis diverts municipal supply from headwaters; other small diversions above station for irrigation. No regulation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Jan. 1, Sept. 23-30)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
2.9	19	5.0	243	12.0	1,540	3.0	9	5.0	280	17.5	3,500
3.1	33	6.0	395	15.0	2,300	3.2	22	7.0	650	18.5	4,290
3.3	49	7.0	570	17.4	3,320	3.4	39	10.0	1,230	19.0	4,870
3.7	87	8.0	755	17.9	3,630	3.7	72	13.0	1,850	20.0	6,670
4.3	154	9.5	1,040			4.2	146	16.0	2,750	20.4	7,570

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	1,420	229	1,270	260	952	525	442	198	59	32	21
2	23	1,140	212	3,570	253	889	517	413	188	a58	32	19
3	27	918	253	2,400	232	785	570	855	181	58	35	18
4	52	753	237	2,000	263	703	612	1,030	176	58	31	21
5	38	749	208	1,590	263	656	851	874	170	62	32	20
6	32	1,040	193	3,290	231	637	937	792	160	78	30	21
7	30	1,010	240	7,520	214	566	886	713	207	78	28	18
8	35	1,220	381	5,420	798	660	794	650	165	70	32	19
9	52	1,330	427	2,840	1,160	732	846	585	149	65	33	18
10	72	1,170	395	2,230	965	642	1,040	528	146	53	32	16
11	222	1,020	436	1,800	772	591	891	487	138	58	31	15
12	233	846	431	1,440	631	547	783	475	133	54	30	12
13	129	991	448	1,190	553	513	705	587	127	52	28	11
14	87	1,040	860	1,020	496	566	669	540	122	50	a28	11
15	132	1,380	776	882	990	490	631	479	116	47	28	19
16	1,040	1,350	647	777	956	566	593	494	112	46	29	16
17	1,080	1,210	709	694	1,020	622	646	498	110	45	35	16
18	2,020	1,030	848	623	1,190	606	639	440	109	43	41	18
19	1,900	842	1,090	563	1,030	669	576	413	103	44	47	19
20	3,020	713	945	511	912	707	532	397	108	44	34	18
21	1,840	613	793	468	2,190	753	547	348	112	41	31	14
22	1,210	529	679	435	5,880	2,270	800	338	102	41	28	16
23	875	453	566	415	4,070	1,840	846	316	92	38	30	28
24	626	405	548	381	2,370	1,590	813	294	86	38	30	38
25	485	365	480	361	1,670	1,290	783	280	80	34	29	31
26	386	327	429	329	1,530	1,060	756	260	80	34	27	31
27	306	300	393	314	1,370	908	635	260	70	34	27	33
28	373	277	458	291	1,280	796	582	254	71	39	25	28
29	332	254	534	268	1,080	703	538	251	70	39	22	34
30	454	240	509	277	-	650	487	232	65	37	21	26
31	489	-	475	260	-	578	-	215	-	35	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	17,621	3,020	21	568	3.66	4.23	34,950
November	24,935	1,420	240	831	5.36	5.98	49,460
December	15,829	1,090	193	511	3.30	3.80	31,400
Calendar year 1947	145,248	4,310	18	398	2.57	34.86	288,100
January	45,429	7,520	260	1,465	9.45	10.90	90,110
February	34,629	5,880	214	1,194	7.70	8.31	68,690
March	25,537	2,270	490	824	5.32	6.13	50,650
April	21,030	1,040	487	701	4.52	5.05	41,710
May	14,740	1,030	215	475	3.06	3.54	29,240
June	3,746	207	65	125	.806	.90	7,430
July	1,532	78	34	49.4	.319	.37	3,040
August	940	47	21	30.3	.195	.23	1,860
September	625	38	11	20.8	.134	.15	1,240
Water year 1947-48	206,593	7,520	11	564	3.64	49.59	409,800

Peak discharge (base, 2,500 sec.-ft.).- Oct. 20 (about 6 a.m.) 3,560 sec.-ft.; Jan. 7 (about 4 or 5 a.m.) 8,000 sec.-ft.; Feb. 22 (about 8 a.m.) 6,030 sec.-ft.
a No gage-height record; discharge interpolated.

Rock Creek near Philomath, Oreg.

Location.- Water-stage recorder and concrete control, lat. 44°30'05", long. 123°26'20", NE¼ sec. 29, T. 12 S., R. 6 W., 250 feet upstream from State Highway 34, a quarter o mile upstream from mouth and 4½ miles southwest of Philomath. Datum of gage is 354. feet above mean sea level (Oregon State Highway Department bench mark).

Drainage area.- 14.6 square miles.

Records available.- October 1945 to September 1948.

Extremes.- Maximum discharge during year, 1,650 second-feet Jan. 6 (gage height, 5.78 f from rating curve extended above 810 second-feet by logarithmic plotting; minimum, 0 second-foot Sept. 7-11.
1945-49: Maximum discharge, that of Jan. 6, 1948; minimum, 0.2 second-foot (revi Aug. 24, 1946.

Remarks.- Records good except those below 1 second-foot, which are poor. Flow regulate by small storage reservoir operated by city of Corvallis; most of low-water flow di verted by Corvallis water-supply system.

Cooperation.- Water-stage recorder inspected by employee of city of Corvallis.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 21 to May 26)

0.5	0.3	1.4	14	2.4	164
.6	.6	1.6	25	2.7	246
.8	2.0	1.8	45	3.0	340
1.0	4.3	2.0	76	3.5	520
1.2	7.7	2.2	116	4.1	765

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	0.6	190	34	296	34	87	53	52	25	7.3	2.3	0
2	.9	128	32	396	31	84	61	49	24	6.8	2.5	
3	1.0	97	42	232	30	78	62	134	23	6.8	2.5	
4	.8	86	33	209	31	69	68	114	23	6.8	2.3	
5	.7	86	30	182	30	66	82	89	22	7.0	2.8	
6	.7	103	29	565	28	62	84	80	24	10	2.0	
7	.7	108	45	756	30	58	76	74	27	8.8	1.8	
8	6.6	162	53	361	162	62	73	68	19	8.4	1.7	
9	12	128	51	237	128	68	91	61	18	7.7	1.8	
10	24	101	48	217	93	61	144	55	17	7.2	1.7	
11	49	99	52	187	71	55	108	52	17	7.2	1.6	
12	12	86	48	156	56	52	93	53	16	6.4	a1.6	
13	7.0	110	76	139	49	49	82	84	16	5.4	a1.5	
14	4.8	125	99	121	70	49	78	78	15	5.3	a1.5	
15	91	164	74	108	156	44	82	66	15	5.3	a1.5	
16	195	144	62	99	132	59	80	68	14	4.9	a1.6	
17	240	121	73	95	134	68	87	62	14	4.9	a2.0	
18	327	103	121	84	144	66	86	56	14	4.0	a2.5	
19	344	89	125	76	112	62	74	52	14	4.0	a4.0	
20	304	80	93	69	121	61	68	48	15	3.8	1.6	
21	154	73	82	64	317	99	71	46	11	3.8	1.6	
22	112	66	73	59	428	267	144	42	11	3.4	1.6	2
23	78	59	64	55	246	144	137	40	11	3.5	1.5	3
24	62	56	62	52	162	116	108	36	11	3.4	1.5	3
25	55	52	55	48	123	101	97	35	11	3.3	1.4	1
26	45	48	51	43	121	89	86	33	10	3.0	1.3	1
27	42	45	51	42	110	82	78	32	95	3.6	1.1	2
28	56	42	58	40	101	74	71	32	85	3.6	.8	2
29	59	38	62	40	93	69	62	31	86	3.5	.8	1
30	97	36	56	37	-	64	56	29	84	3.1	.6	
31	108	-	56	35	-	59	-	27	-	2.5	.7	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	2,489.8	344	0.6	80.3	4,9
November	2,825	190	36	94.2	5,6
December	1,890	125	29	61.0	3,7
Calendar year 1947	17,526.7	442	.6	48.0	34,7
January	5,100	756	35	165	10,1
February	3,343	428	28	115	6,6
March	2,424	267	44	78.2	4,8
April	2,542	144	53	84.7	5,0
May	1,778	134	27	57.4	3,5
June	473.0	27	8.4	15.8	9
July	164.7	10	2.5	5.31	3
August	53.7	4.0	.6	1.73	1
September	31.6	3.9	.4	1.05	
Water year 1947-48	23,114.8	756	.4	63.2	45,8

Peak discharge (base, 300 sec.-ft.).- Oct. 17 (7:30 p.m.) 584 sec.-ft.; Oct. 19 (9 p.m.) 584 se ft.; Jan. 1 (10 p.m.) 656 sec.-ft.; Jan. 6 (12 p.m.) 1,650 sec.-ft.; Feb. 21 (10:30 p.m.) 584 sec ft.; Mar. 22 (2 a.m.) 410 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Marys River near Philomath.

Calapooya River at Holley, Oreg.

Location.- Staff gage, lat. 44°21', long. 122°47', near line between secs. 14 and 15, T. 14 S., R. 1 W., a quarter of a mile southwest of Holley and 4 miles upstream from Brush Creek. Datum of gage is 527.20 feet above mean sea level, datum of 1929.
Drainage area.- 99 square miles.
Records available.- September 1935 to September 1948.
Average discharge.- 13 years, 406 second-feet.
Extremes.- Maximum discharge during year, 8,450 second-feet Jan. 7 (gage height, 11.5 feet, from graph based on gage readings), from rating curve extended above 5,300 second-feet by logarithmic plotting; minimum observed, 32 second-feet Sept. 12, 14, 19-21.
1935-48: Maximum discharge, 12,200 second-feet Dec. 28, 1945 (gage height, 14.1 feet, from floodmark), from rating curve extended above 5,300 second-feet by logarithmic plotting; minimum observed, 13 second-feet Sept. 8, 1940.
Remarks.- Records good. Gage read once daily, oftener during periods of high water. No diversion above station; slight regulation at times during low-water periods by small dam upstream.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (Water years).- W 1044: 1943.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.7	27	1.4	127	3.5	950
.8	36	1.7	200	4.5	1,580
.9	46	2.0	295	6.0	2,730
1.0	58	2.5	480	8.0	4,580
1.2	88	3.0	700	9.8	6,440

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	686	302	1,020	190	770	655	440	298	101	57	42
2	38	664	267	3,090	185	775	646	396	284	99	56	41
3	127	655	386	2,000	175	691	750	1,000	281	93	54	44
4	74	606	358	1,860	182	610	655	980	278	92	56	43
5	56	655	316	1,290	170	547	646	750	227	90	54	40
6	48	710	284	5,400	158	556	592	790	218	110	52	38
7	45	930	316	6,390	150	512	556	780	215	132	51	37
8	50	1,680	316	2,980	230	504	520	755	230	102	50	35
9	114	1,290	440	1,730	408	619	601	725	198	95	50	34
10	242	1,080	400	1,490	309	565	601	655	180	88	48	34
11	880	1,160	440	1,060	260	512	628	565	227	85	47	33
12	416	1,020	424	895	236	464	574	512	212	83	45	32
13	236	1,090	432	770	227	496	512	646	200	80	45	32
14	180	1,040	910	682	218	496	512	574	178	75	45	32
15	610	1,950	730	601	1,400	448	637	516	168	74	56	38
16	2,490	1,820	592	542	1,230	440	730	488	155	72	57	36
17	1,590	1,380	601	480	1,310	432	760	524	148	71	52	35
18	2,360	1,190	780	448	1,290	424	825	492	143	69	56	34
19	1,570	1,010	940	408	1,060	448	720	444	141	68	51	32
20	2,070	870	750	372	810	432	686	464	138	69	48	32
21	1,510	725	619	351	2,630	464	664	436	200	66	46	32
22	1,020	637	592	323	4,980	1,500	730	428	175	65	47	35
23	875	556	504	302	2,320	1,100	820	400	152	64	82	180
24	710	488	448	281	1,470	885	820	400	143	66	66	a150
25	574	448	408	267	1,120	785	920	420	129	62	54	123
26	529	404	386	251	1,860	700	800	404	127	61	50	110
27	472	376	365	236	1,370	664	700	372	123	62	46	236
28	496	348	480	224	1,070	730	610	393	114	75	44	155
29	452	316	512	212	850	795	529	351	108	65	42	143
30	655	295	472	212	-	870	480	323	104	61	38	110
31	520	-	464	195	-	760	-	323	-	58	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	21,044	2,490	35	679	6.86	7.91	41,740
November	26,079	1,950	295	869	8.78	9.80	51,730
December	15,234	940	267	491	4.96	5.72	30,220
Calendar year 1947	152,927	2,760	34	419	4.23	57.47	303,300
January	36,362	6,390	195	1,173	11.8	13.66	72,120
February	27,868	4,980	150	961	9.71	10.47	55,280
March	19,994	1,500	424	645	6.52	7.51	39,660
April	19,879	920	480	663	6.70	7.47	39,430
May	16,746	1,000	323	540	5.45	6.29	33,220
June	5,494	298	104	183	1.85	2.06	10,900
July	2,453	132	58	79.1	.799	.92	4,870
August	1,589	82	38	51.3	.518	.60	3,150
September	1,998	236	32	66.6	.673	.75	3,960
Water year 1947-48	194,740	6,390	32	532	5.37	73.16	386,300

Peak discharge (base, 2,600 sec.-ft.).- Oct. 16 (5:30 a.m.) 3,270 sec.-ft.; Jan. 2 (10:30 a.m.) 3,530 sec.-ft.; Jan. 7 (3 a.m.) 8,450 sec.-ft.; Feb. 22 (5 a.m.) 6,540 sec.-ft.
a No gage-height record; discharge computed on basis of records for South Santiam River at Cascadia and Wiley Creek near Foster.

Calapooya River at Albany, Oreg.

Location.- Wire-weight gage, lat. 44°37'15", long. 123°07'40", in NW¼ sec. 13, T. 11 R. 4 W., half a mile downstream from Oak Creek, 1½ miles southwest of Albany, and miles upstream from mouth. Datum of gage is 180.37 feet above mean sea level (dat of 1929).

Drainage area.- 362 square miles.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge observed during year, 24,900 second-feet Jan. 8; maximum gage height, 23.83 feet Jan. 8 (backwater from Willamette River); minimum discharg observed, 12 second-feet Sept. 21; minimum daily, 18 second-feet Sept. 20.
1940-48: Maximum discharge observed, that of Jan. 8, 1948; maximum gage height 25.5 feet Jan. 2, 1943, from graph based on gage readings (backwater from Willamet River); minimum discharge observed, 8 second-feet Sept. 12, Oct. 24, 1944; minimum daily, 12 second-feet Aug. 26, 1941, Sept. 11, 1944.

Remarks.- Records fair. Gage read twice daily, oftener at high stages. A few small diversions above station for irrigation. Diurnal fluctuation caused by ponds at flour mills near Shedd.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from Willamette River Jan. 8-11, Feb. 23-25)
(Shifting-control method used Mar. 25 to Sept. 13)

Oct. 1 to Oct. 16				Oct. 17 to Sept. 30							
1.4	27	3.7	360	1.2	16	2.3	101	5.5	830	17.0	7,5
1.7	49	4.5	570	1.3	20	2.7	155	6.5	1,150	18.0	9,8
2.0	78	5.6	900	1.4	25	3.0	203	8.0	1,690	19.0	13,(
2.3	114			1.6	37	3.5	298	11.0	2,970	20.0	17,1
2.6	158			1.8	51	4.0	411	14.0	4,580	21.1	23,(
3.0	224			2.0	68	4.5	535	16.0	6,190		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	45	2,270	450	1,260	397	1,500	959	647	389	128	81	
2	46	3,170	452	4,000	505	1,540	854	590	397	119	59	
3	60	2,420	614	6,420	401	1,370	1,320	563	366	142	76	
4	33	1,850	1,010	6,230	411	1,070	1,330	2,130	357	118	65	
5	87	1,850	698	5,100	540	935	1,140	1,910	350	111	61	
6	77	2,210	535	5,840	348	1,170	1,270	1,320	275	115	72	
7	79	2,000	560	20,000	300	1,120	1,440	1,340	279	138	61	
8	64	2,040	1,460	23,000	495	1,020	989	1,400	240	149	53	
9	70	2,490	1,360	9,080	1,990	2,190	1,010	1,220	306	138	46	
10	80	2,480	1,220	4,520	1,560	1,420	1,150	1,060	263	123	74	
11	155	2,200	965	3,830	770	986	1,100	881	255	100	57	
12	894	1,990	875	2,920	558	860	1,080	779	290	109	47	
13	442	2,310	809	1,940	532	1,140	875	788	271	109	48	
14	262	3,250	1,720	1,440	475	1,420	776	857	261	109	59	
15	222	3,310	1,910	1,200	935	1,530	806	755	246	99	66	
16	632	3,550	1,280	1,020	2,430	1,150	695	695	236	96	35	
17	2,180	3,640	1,300	914	2,800	1,530	1,290	680	220	88	66	
18	3,320	2 980	1,720	812	2,500	1,100	1,790	677	212	104	68	
19	3,960	2,370	2,340	740	2,340	1,200	1,380	632	205	70	63	
20	4,780	1,960	1,920	632	1,920	1,390	1,020	599	170	82	47	
21	5,700	1,830	1,370	590	2,650	1,100	923	683	176	86	59	
22	4,460	1,360	1,190	552	5,000	2,820	1,080	755	208	76	67	
23	2,880	1,010	1,010	518	8,370	3,880	1,340	635	210	76	41	
24	1,760	896	818	492	5,280	3,310	1,350	560	183	82	69	
25	1,220	779	704	460	3,400	2,150	1,250	528	170	88	77	
26	929	680	632	433	2,510	1,780	1,250	522	180	68	75	
27	860	632	555	401	2,790	1,330	1,130	502	160	76	68	
28	779	566	794	373	3,060	1,150	985	490	147	74	60	
29	863	492	1,920	355	2,190	1,050	857	508	141	72	61	
30	953	450	872	382	-	1,090	737	505	135	78	38	
31	1,000	-	857	373	-	1,140	-	438	-	73	69	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	38,892	5,700	33	1,255	3.47	4.00	77,
November	59,035	3,640	450	1,963	5.44	6.06	117,
December	33,920	2,340	450	1,094	3.02	3.48	67
Calendar year 1947	302,486	5,700	19	829	2.29	31.06	600,
January	105,827	23,000	355	3,414	9.43	10.87	209,
February	57,457	8,370	300	1,984	5.47	5.90	114,
March	46,441	3,880	860	1,498	4.14	4.77	92,
April	33,156	1,790	695	1,105	3.05	3.41	65,
May	25,649	2,130	438	827	2.28	2.64	50,
June	7,298	397	135	243	.671	.75	14,
July	3,096	149	68	99.9	.276	.32	6,
August	1,888	81	35	60.9	.168	.19	3,
September	1,903	236	18	63.4	.175	.20	3,
Water year 1947-48	414,562	23,000	18	1,133	3.13	42.59	822,

North Santiam River at Detroit, Oreg.

Location.- Water-stage recorder, lat. 44°43', long. 122°08', in NE¼ sec. 12, T. 10 S., R. 5 E., 1 mile east of Detroit, 2¾ miles upstream from Breitenbush River, and 2¾ miles downstream from Boulder Creek. Datum of gage is 1,475.68 feet above mean sea level, datum of 1929.

Drainage area.- 224 square miles.

Records available.- January 1907 to October 1909, October 1928 to September 1948. August 1910 to October 1913 at site above Boulder Creek (records not equivalent).

Average discharge.- 21 years (1907-8, 1928-48), 928 second-feet.

Extremes.- Maximum discharge during year, 16,900 second-feet Jan. 7 (gage height, 10.31 feet); minimum, 380 second-feet Sept. 12 (gage height, 0.50 foot); minimum daily, 411 second-feet Oct. 1, 7.
1907-9, 1910-11, 1928-48: Maximum discharge, 20,300 second-feet Dec. 28, 1945 (gage height, 11.24 feet); minimum, 254 second-feet Oct. 7, 1940 (gage height, 0.15 foot).

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversion above station; slight diurnal fluctuation caused by power plant at Idanha.

Revisions.- W 814: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

0.6	390	2.5	1,340	6.5	6,050
1.0	520	3.5	2,140	7.5	8,080
1.5	740	4.5	3,120	9.0	12,400
2.0	1,020	5.5	4,420		

Jan. 7 to Sept. 30

0.8	470
1.0	530
1.5	740

Note.- Same as preceding table above 1.5 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.
1	411	a1,200	948	1,530	715	1,470	1,190	1,070	1,920	942	622	509
2	435	a1,150	906	2,920	690	1,340	1,210	1,030	1,980	858	602	506
3	480	a1,130	972	2,200	682	1,210	1,210	1,680	2,100	820	590	515
4	432	a1,120	900	1,880	682	1,130	1,150	2,070	1,890	800	582	503
5	423	a1,100	852	1,650	662	1,080	1,080	1,890	1,770	815	570	500
6	414	a1,400	830	5,780	638	1,020	1,020	2,010	1,940	835	562	497
7	411	a1,700	825	12,100	642	984	966	1,990	2,120	852	558	494
8	426	a2,400	795	5,170	695	954	918	1,800	2,140	770	558	488
9	484	a2,200	790	3,270	676	936	942	1,820	1,950	740	550	488
10	544	a2,000	760	2,500	650	888	930	1,490	1,910	715	546	488
11	936	a2,000	755	2,030	626	846	900	1,380	2,230	715	542	488
12	655	a1,850	740	1,750	618	835	858	1,440	1,860	690	534	488
13	568	a1,800	883	1,570	610	830	840	1,660	1,720	682	530	485
14	536	a2,050	1,000	1,410	622	830	960	1,570	1,530	670	530	488
15	912	a2,400	918	1,280	906	805	1,120	1,500	1,390	666	538	497
16	2,330	a2,400	882	1,200	972	795	1,350	1,580	1,310	666	530	488
17	2,580	a2,200	1,030	1,130	1,150	785	1,480	1,720	1,240	666	530	488
18	3,430	2,020	1,280	1,070	1,380	785	1,520	1,650	1,250	662	530	488
19	2,340	1,750	1,400	1,020	1,260	775	1,500	1,550	1,210	646	527	482
20	2,480	1,550	1,250	972	1,150	755	1,570	1,500	1,270	642	524	482
21	2,130	1,390	1,180	936	2,080	820	1,700	1,550	1,340	634	524	479
22	1,980	1,250	1,130	906	4,160	1,140	1,890	1,540	1,180	630	546	546
23	1,450	1,150	1,070	894	2,610	1,020	1,870	1,630	1,110	622	602	610
24	1,240	1,070	1,020	882	1,950	990	1,740	1,810	1,070	610	554	586
25	1,090	1,030	966	846	1,720	936	1,820	2,060	1,040	602	546	562
26	1,030	1,030	942	820	2,700	906	1,640	2,290	1,010	594	530	670
27	a940	1,010	948	795	2,290	894	1,470	2,380	984	654	524	666
28	a1,000	972	1,070	770	1,890	936	1,340	2,710	990	646	521	642
29	a1,050	948	1,020	765	1,620	1,100	1,220	2,310	1,010	610	518	606
30	a1,200	948	960	740	-	1,320	1,150	2,050	1,010	606	516	570
31	a1,150	-	942	720	-	1,230	-	1,960	-	622	515	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	35,167	3,430	411	1,134	5.06	5.84	69,750
November	46,218	2,400	948	1,541	6.88	7.67	91,670
December	29,954	1,400	740	967	4.32	4.97	59,430
Calendar year 1947	349,874	3,430	408	959	4.28	58.08	694,000
January	61,486	12,100	720	1,983	8.85	10.21	122,000
February	37,048	4,160	610	1,278	5.71	6.15	73,480
March	30,345	1,470	755	979	4.37	5.04	60,190
April	38,554	1,890	840	1,285	5.74	6.40	76,470
May	54,490	2,710	1,030	1,758	7.85	9.05	108,100
June	45,474	2,230	984	1,516	6.77	7.55	90,200
July	21,682	942	594	699	3.12	3.60	43,010
August	16,953	822	515	547	2.44	2.81	33,630
September	15,799	670	479	527	2.35	2.62	31,340
Water year 1947-48	435,180	12,100	411	1,184	5.29	71.91	859,300

Peak discharge (base, 3,100 sec.-ft.).- Oct. 18 (3 a.m.) 4,380 sec.-ft.; Jan. 2 (5:30 a.m.) 3,310 sec.-ft.; Jan. 7 (8 a.m.) 16,900 sec.-ft., Feb. 22 (3 a.m.) 5,170 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Breitenbush River near Detroit.

North Santiam River above Mayflower Creek, near Detroit, Oreg.

Location.- Water-stage recorder, lat. 44°44', long. 122°15', in NW¼ sec. 7, T. 10 S. 5 E., 850 feet downstream from axis of Detroit dam site, 0.3 mile upstream from Ma flower Creek, and 5 miles west of Detroit. Datum of gage is 1,192.20 feet above r sea level, datum of 1929.

Drainage area.- 438 square miles.

Records available.- October 1938 to September 1948.

Average discharge.- 10 years, 1,947 second-feet.

Extremes.- Maximum discharge during year, 34,600 second-feet Jan. 7 (gage height, 16. feet), from rating curve extended above 18,000 second-feet by logarithmic plottin minimum, 564 second-feet Oct. 1.

1938-48: Maximum discharge, 41,200 second-feet Dec. 28, 1945 (gage height, 18. feet), from rating curve extended above 18,000 second-feet by logarithmic plottin minimum, 410 second-feet Oct. 25, 1942 (gage height, 2.87 feet); minimum daily, 43 second-feet Sept. 1, 1940.

Remarks.- Records good. No diversion above station; slight diurnal fluctuation by po plant at Idanha.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 23 to May 2)

Oct. 1 to Feb. 21						Feb. 22 to Sept. 30					
3.7	540	6.0	2,710	10.5	13,200	3.6	640	5.3	2,180	8.0	
4.2	875	6.8	4,020	12.5	19,300	4.0	890	6.0	3,160	9.5	1
4.7	1,270	7.8	6,100	14.6	26,700	4.5	1,300	7.0	4,860	10.9	1
5.3	1,820	9.0	9,040								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	S
1	570	2,220	1,680	4,260	1,280	3,310	2,730	2,230	3,910	1,660	968	
2	681	2,130	1,590	10,300	1,240	2,950	2,800	2,110	4,100	1,500	932	
3	1,180	2,100	1,760	6,030	1,180	2,610	2,800	4,510	4,350	1,430	911	
4	793	2,070	1,630	4,500	1,180	2,400	2,550	5,600	3,760	1,370	897	
5	695	1,980	1,520	3,810	1,140	2,220	2,360	4,600	3,420	1,400	883	
6	648	2,030	1,450	15,700	1,060	2,070	2,180	5,050	3,930	1,460	876	
7	624	4,460	1,450	26,700	1,070	1,980	2,060	4,860	4,330	1,480	848	
8	667	7,410	1,390	13,300	1,270	1,900	1,940	4,170	4,330	1,340	848	
9	860	5,260	1,400	7,930	1,240	1,880	2,040	3,690	3,880	1,260	834	
10	1,180	4,220	1,340	5,730	1,120	1,750	2,070	3,330	3,610	1,240	827	
11	3,310	4,260	1,350	4,400	1,060	1,670	2,020	3,020	4,220	1,260	820	
12	1,820	3,600	1,320	3,600	1,040	1,620	1,900	3,130	3,500	1,210	820	
13	1,370	3,430	1,760	3,090	1,020	1,610	1,790	3,820	3,220	1,180	814	
14	1,210	3,510	2,490	2,880	1,060	1,610	2,110	3,530	2,820	1,150	808	
15	2,630	5,880	2,010	2,430	2,310	1,550	2,800	3,280	2,540	1,130	820	
16	8,110	6,190	1,800	2,270	2,680	1,540	3,580	3,500	2,400	1,130	814	
17	8,470	5,140	2,310	2,100	3,450	1,520	3,840	3,820	2,260	1,140	908	
18	11,300	5,030	3,170	1,970	4,060	1,530	3,820	3,630	2,240	1,120	802	
19	6,830	4,120	3,600	1,860	3,360	1,500	3,600	3,260	2,170	1,100	802	
20	7,050	3,360	2,900	1,780	2,720	1,460	3,710	3,080	2,310	1,060	796	
21	5,750	2,850	2,510	1,700	6,480	1,630	4,110	3,250	2,510	1,050	784	
22	4,000	2,480	2,360	1,650	14,400	3,300	4,730	3,250	2,140	1,030	814	
23	3,250	2,210	2,130	1,650	7,410	2,610	4,670	3,450	2,000	1,020	890	1,
24	2,640	2,000	1,980	1,640	5,050	2,320	4,280	3,960	1,900	984	827	
25	2,210	1,840	1,860	1,580	4,260	2,160	4,600	4,650	1,840	960	814	
26	2,010	1,860	1,790	1,510	8,250	2,000	3,940	5,110	1,780	946	790	1,
27	1,860	1,850	1,800	1,450	6,070	1,990	3,340	5,090	1,730	1,050	772	1,
28	1,920	1,790	2,160	1,410	4,600	2,170	2,960	5,640	1,750	1,090	766	1,
29	1,990	1,700	2,000	1,370	3,760	2,750	2,650	4,670	1,780	984	768	1,
30	2,630	1,680	1,840	1,340	-	3,420	2,430	4,100	1,790	960	760	
31	2,250	-	1,760	1,300	-	3,000	-	3,930	-	968	754	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-
October	90,508	11,300	570	2,920	6.67	7.68	179,
November	98,640	7,410	1,680	3,288	7.51	8.38	195,
December	60,110	3,600	1,320	1,939	4.43	5.10	119,
Calendar year 1947	737,541	11,300	570	2,021	4.61	62.63	1,463,
January	141,040	26,700	1,300	4,550	10.4	11.98	279,
February	94,800	14,400	1,020	3,269	7.46	8.05	188,
March	66,030	3,420	1,460	2,130	4.86	5.61	131,
April	90,390	4,730	1,790	3,013	6.88	7.67	179,
May	121,320	5,640	2,110	3,914	8.94	10.30	240,
June	86,520	4,350	1,730	2,884	6.58	7.35	171,
July	36,662	1,660	946	1,183	2.70	3.11	72,
August	25,665	968	754	828	1.89	2.18	50,
September	24,374	1,310	682	812	1.85	2.07	48,
Water year 1947-48	936,059	26,700	570	2,558	5.84	79.48	1,856,

Peak discharge (base, 10,000 sec.-ft.).- Oct. 18 (4:30 a.m.) 14,200 sec.-ft.; Jan. 2 (5:30 a.m 12,700 sec.-ft.; Jan. 7 (7 a.m.) 34,600 sec.-ft.; Feb. 22 (3:30 a.m.) 18,300 sec.-ft.

North Santiam River at Mehama, Oreg.

Location.- Water-stage recorder, lat. 44°47', long. 122°37', in NW¼ sec. 18, T. 9 S., R. 2 E., at Mehama, half a mile downstream from Little North Santiam River. Datum of gage is 601.78 feet above mean sea level, datum of 1929.
Drainage area.- 665 square miles.
Records available.- July 1905 to March 1907, October 1910 to September 1914, September 1921 to September 1948.
Average discharge.- 32 years (1905-6, 1910-14, 1921-48), 3,180 second-feet.
Extremes.- Maximum discharge during year, 60,200 second-feet Jan. 7 (gage height, 13.50 feet), from rating curve extended above 36,000 second-feet on basis of slope-area determination at gage height 15.37 feet; minimum, 686 second-feet Oct. 2.
1905-7, 1910-14, 1921-48: Maximum discharge, 76,600 second-feet Dec. 28, 1945 (gage height, 15.37 feet), by slope-area method; minimum, 400 second-feet Sept. 29, Oct. 13, 1934; minimum daily, 420 second-feet Sept. 18, 1924.
Remarks.- Records excellent except those for period of no gage-height record, which are fair. Slight regulation of low-water by mill dam at Mill City. No diversion above station for irrigation.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (Water years).- W 634: Drainage area. W 739: 1922(M), 1923(M). W 1044: 1934-38, 1942(M), 1943.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.7	650	4.0	4,090	9.0	24,800
2.0	930	4.8	6,040	10.0	31,600
2.4	1,380	5.8	9,140	11.0	39,200
2.9	2,070	7.0	13,800	12.0	47,300
3.4	2,900	8.0	18,700		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	704	4,620	2,550	6,520	1,790	4,830	4,110	3,140	4,670	1,880	1,120	830
2	1,020	4,380	2,400	17,400	1,700	4,460	4,180	a3,050	4,760	1,710	1,040	821
3	2,580	4,240	2,760	11,000	1,640	3,900	4,310	a6,800	5,100	1,610	1,030	830
4	1,410	4,110	2,640	8,410	1,650	3,530	3,880	8,470	4,380	1,580	1,020	812
5	1,110	3,940	2,430	6,730	1,580	3,330	3,550	6,580	3,860	1,550	980	794
6	970	4,330	2,270	27,400	1,480	3,160	3,270	7,360	4,330	1,640	960	776
7	910	9,320	2,330	45,000	1,500	3,030	3,030	7,090	4,830	1,680	950	776
8	910	13,700	2,270	19,200	1,880	2,920	2,880	5,960	4,930	1,520	940	767
9	1,140	9,630	2,450	11,600	2,040	2,940	2,970	5,250	4,350	1,420	940	758
10	1,890	7,800	2,300	8,770	1,790	2,740	3,100	4,600	3,880	1,390	930	749
11	7,090	7,830	2,380	7,000	1,650	2,600	3,100	4,090	4,900	1,380	920	749
12	3,470	6,670	2,360	5,850	1,590	2,500	2,900	4,090	4,090	1,340	910	731
13	2,330	6,670	3,410	4,950	1,560	2,520	2,690	5,080	3,710	1,280	890	731
14	1,910	6,820	5,330	4,330	1,550	2,500	3,040	4,710	3,290	1,260	890	740
15	4,700	11,000	4,010	3,860	3,460	2,530	4,240	4,240	2,920	1,240	930	776
16	15,600	11,100	3,450	3,550	4,560	2,520	5,510	4,460	2,760	1,240	920	776
17	12,800	8,900	4,310	3,290	6,520	2,460	5,820	4,930	2,620	1,240	940	749
18	16,900	8,640	5,930	3,060	7,300	2,520	5,850	4,710	2,530	1,220	910	749
19	12,400	7,180	6,910	2,860	5,900	2,460	5,350	4,160	2,480	1,190	890	731
20	12,900	5,850	5,200	2,690	4,330	2,360	5,460	3,880	2,600	1,160	880	731
21	10,200	4,830	4,510	2,530	11,300	2,690	5,850	4,090	3,030	1,140	860	731
22	7,030	4,160	4,160	2,430	24,100	6,040	6,730	4,070	2,600	1,130	890	870
23	5,640	3,670	3,710	2,410	11,700	4,640	7,060	4,240	2,380	1,130	980	1,440
24	4,510	3,290	3,390	2,400	7,710	4,030	6,260	4,810	2,250	1,110	980	1,360
25	3,750	3,010	3,140	2,280	6,320	3,840	7,060	5,690	2,140	1,060	940	1,190
26	3,430	2,950	2,990	2,160	13,400	3,470	5,880	6,070	2,040	1,040	920	1,500
27	3,080	2,920	2,970	2,060	9,490	3,330	4,880	6,100	1,980	1,150	880	2,010
28	3,210	2,770	3,610	1,980	6,910	3,690	4,310	5,880	1,980	1,280	850	1,740
29	3,270	2,620	3,590	1,940	5,540	4,400	3,840	5,850	2,000	1,140	850	1,580
30	5,100	2,530	3,250	1,890	-	5,350	3,470	4,980	2,010	1,100	840	1,320
31	4,270	-	3,040	1,810	-	4,640	-	4,710	-	1,070	840	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	156,234	16,900	704	5,040	7.58	8.74	309,900
November	179,480	13,700	2,530	5,983	9.00	10.04	356,000
December	106,050	6,910	2,270	3,421	5.14	5.93	210,300
Calendar year 1947	1,147,338	16,900	680	3,143	4.73	64.17	2,276,000
January	227,360	45,000	1,810	7,334	11.0	12.72	451,000
February	151,940	24,100	1,480	5,239	7.88	8.50	301,400
March	105,930	6,040	2,360	3,417	5.14	5.92	210,100
April	134,580	7,060	2,690	4,486	6.75	7.53	266,900
May	160,140	8,470	3,050	5,166	7.77	8.96	317,600
June	99,400	5,100	1,980	3,313	4.98	5.56	197,200
July	40,880	1,880	1,040	1,319	1.98	2.29	81,080
August	28,820	1,120	840	930	1.40	1.61	57,160
September	29,117	2,010	731	971	1.46	1.63	57,750
Water year 1947-48	1,419,931	45,000	704	3,880	5.83	79.43	2,816,000

Peak discharge (base, 19,000 sec.-ft.).- Oct. 18 (5 a.m.) 21,700 sec.-ft.; Jan. 2 (6:30 a.m.) 21,100 sec.-ft.; Jan. 7 (8 a.m.) 60,200 sec.-ft.; Feb. 22 (4:30 a.m.) 33,900 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for station at Detroit.

Santiam River at Jefferson, Oreg.

Location.- Water-stage recorder, lat. 44°42'50", long. 123°00'40" in SE¼ sec. 11, T. 1 S., R. 3 W., in Jefferson, 350 feet upstream from railroad bridge, 2 miles downstrea from confluence of North Santiam and South Santiam Rivers, and 9 miles upstream from mouth. Datum of gage is 199.63 feet above mean sea level, datum of 1929.

Drainage area.- 1,790 square miles.

Records available.- July 1905 to July 1906 (gage heights only), October 1907 to Septemb 1916, and October 1939 to September 1948 in reports of Geological Survey. Gage-heig records collected at same site since April 1904 are contained in reports of U. S. Weather Bureau.

Average discharge.- 18 years (1907-16, 1939-48), 7,296 second-feet.

Extremes.- Maximum discharge during year, 130,000 second-feet Jan. 7 (gage height 21.7 feet); minimum, 650 second-feet Sept. 15.

1905-6, 1907-16, 1939-48: Maximum discharge observed, 161,000 second-feet during night of Nov. 22, 1909 (gage height, 18.2 feet, site and datum then in use), from cu of relation between gages based on readings from 1940 to 1945, and rating curve for at present site extended above 140,000 second-feet (corresponding gage height at present site 23.0 feet from curve of relation); minimum observed, 260 second-feet Aug. 15-22, Aug. 24 to Sept. 2, 1940 (gage height, -1.00 foot, site and datum then i use).

Maximum discharge known, about 202,000 second-feet Nov. 21, 1921 (gage height, 19 feet at railroad bridge 350 feet downstream, site and datum in use prior to Oct. 1, 1940, corresponding gage height at present site, 24.4 feet from curve of relation).

Remarks.- Records good. Salem Canal diverts from North Santiam River at Stayton for ir gation and power use; most of this water reaches Willamette River through Mill Creek Salem. Stayton Canal diverts from North Santiam River at Stayton for irrigation of lands near West Stayton; some return flow reaches North Santiam River above station. Albany power canal diverts from South Santiam River at Lebanon; return flow reaches Willamette River at Albany. No regulation.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).- W 904: Drainage area. W 1094: 1908, 1910, 1912, 1922(M), 1

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	709	12,400	4,940	13,200	3,440	12,900	10,400	7,360	8,410	2,530	1,140	8
2	702	12,900	4,710	44,200	3,490	12,300	9,970	6,700	8,260	2,330	1,110	7
3	2,360	11,900	5,450	36,600	3,220	10,500	11,600	8,570	8,610	2,180	1,070	7
4	2,720	11,200	5,950	26,300	3,250	9,250	10,200	22,300	7,830	2,080	1,050	8
5	1,920	11,000	5,120	20,500	3,170	8,480	9,480	16,000	6,790	2,040	1,030	7
6	1,550	11,700	4,650	47,000	2,920	8,280	8,710	15,900	6,760	2,290	986	7
7	1,440	18,400	4,710	117,000	2,760	7,970	8,190	17,200	7,430	2,470	950	7
8	1,230	33,100	5,620	70,300	3,300	7,900	7,590	14,700	7,850	2,390	926	7
9	1,370	27,800	6,020	36,000	5,340	8,640	7,660	12,800	7,200	2,090	926	7
10	2,330	20,800	6,220	25,500	4,770	8,210	8,260	11,200	6,350	2,000	902	6
11	12,900	19,900	6,260	20,000	3,970	7,430	8,540	9,700	7,290	1,920	878	6
12	10,200	17,800	6,170	15,800	3,600	6,860	7,920	8,990	7,200	1,800	862	6
13	5,950	17,500	6,580	13,000	3,400	7,410	7,220	10,600	6,200	1,690	938	6
14	4,200	18,200	13,900	11,100	3,270	7,220	7,060	10,700	5,540	1,580	830	6
15	4,130	26,000	11,400	9,750	6,950	7,450	9,060	9,450	4,870	1,530	870	7
16	34,100	33,500	9,220	8,810	12,100	7,430	11,700	9,090	4,440	1,450	934	7
17	33,000	24,600	9,750	8,140	17,200	7,250	13,100	9,970	4,100	1,430	934	7
18	45,700	22,100	13,200	7,480	16,900	6,990	14,500	9,880	3,860	1,430	977	7
19	35,800	19,100	17,400	6,900	16,200	7,090	13,200	8,940	3,810	1,420	934	7
20	37,000	15,600	13,800	6,330	12,000	6,880	12,300	8,280	3,810	1,370	902	7
21	32,200	12,800	11,200	5,910	23,000	6,920	12,800	8,540	4,580	1,330	870	6
22	20,700	10,600	10,400	5,540	73,800	15,900	14,200	8,510	4,480	1,290	878	7
23	15,300	9,140	9,090	5,320	45,800	16,200	16,100	8,380	3,860	1,270	950	1,2
24	12,100	7,990	8,070	5,170	25,600	12,600	15,500	8,810	3,500	1,260	1,120	2,5
25	9,750	7,160	7,290	4,910	18,100	11,500	15,900	10,100	3,270	1,220	1,070	2,1
26	8,580	6,600	6,760	4,600	30,900	10,300	14,500	10,900	3,110	1,120	968	1,9
27	7,730	6,240	6,530	4,310	30,000	9,380	11,900	10,800	2,930	1,140	902	3,6
28	7,640	5,870	7,990	4,080	20,800	9,480	10,300	11,600	2,820	1,420	870	3,4
29	7,730	5,430	9,450	3,910	15,600	10,500	9,220	11,100	2,720	1,400	830	3,0
30	10,300	5,000	8,410	3,900	-	13,200	8,160	9,400	2,680	1,230	822	2,4
31	9,750	-	a7,800	3,640	-	12,200	-	8,580	-	1,140	822	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	381,091	45,700	702	12,290	755,9
November	462,330	33,500	5,000	15,410	917,0
December	254,060	17,400	4,650	8,195	503,9
Calendar year 1947	2,652,899	48,000	702	7,268	5,262,0
January	595,200	117,000	5,640	19,200	1,181,0
February	414,850	73,800	2,760	14,310	822,6
March	294,620	16,200	6,860	9,504	584,4
April	325,240	16,100	7,060	10,840	645,1
May	335,050	22,300	6,700	10,810	664,6
June	160,560	8,610	2,680	5,352	318,5
July	51,840	2,530	1,720	1,672	102,8
August	29,151	1,140	822	940	57,8
September	36,589	3,670	670	1,219	72,5
Water year 1947-48	3,340,561	117,000	670	9,127	6,626,0

Peak discharge (base, 39,000 sec.-ft.).- Oct. 18 (2:30 p.m.) 54,100 sec.-ft.; Jan. 2 (5:30 p.m. 52,500 sec.-ft.; Jan. 7 (4:30 p.m.) 130,000 sec.-ft.; Feb. 22 (2 p.m.) 93,800 sec.-ft.; Feb. 26 (6:30 p.m.) 42,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for North Santiam River at Mehama and South Santiam River at Waterloo.

Breitenbush River above French Creek, near Detroit, Oreg.

Location.- Water-stage recorder, lat. 44°45', long. 122°08', in NE¼ sec. 36, T. 9 S., R. 5 E., 0.1 mile downstream from Canyon Creek, 1½ miles upstream from French Creek, and 2 miles east of Detroit Datum of gage is 1,559.64 feet above mean sea level, datum of 1929.
Drainage area.- 108 square miles.
Records available.- June 1932 to September 1948. October 1910 to October 1913 (fragmentary), at site below French Creek; records equivalent except for inflow from French Creek.
Average discharge.- 16 years, 525 second-feet.
Extremes.- Maximum discharge during year, 2,680 second-feet Jan. 7 (gage height, 10.53 feet); minimum, 125 second-feet Sept. 13 (gage height, 0.87 foot).
1932-48: Maximum discharge, 11,600 second-feet Dec. 28, 1945 (gage height, 11.86 feet); minimum, 87 second-feet Sept. 2, 1940 (gage height, 0.36 foot).
Remarks.- Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station.
Revisions (water years).- W 1044: 1943(M).

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30			
0.8	122	2.0	500	5.0	2,640	0.8	114	2.0	520
1.0	160	2.5	750	6.0	3,750	1.0	150	2.5	760
1.3	240	3.0	1,050	7.0	4,950	1.3	230	3.2	1,200
1.7	370	4.0	1,760	8.7	7,160	1.6	330	4.0	1,760

Note.- Same as preceding table above 4.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	138	a660	455	1,190	292	792	675	545	1,070	440	215	148
2	267	a640	430	2,500	278	715	700	515	1,180	375	203	144
3	378	a620	470	1,420	267	650	695	1,120	1,250	350	197	148
4	222	a600	438	1,070	264	585	635	1,400	1,020	346	195	144
5	192	a580	406	930	251	550	580	1,150	984	358	190	142
6	180	a800	382	4,610	242	510	535	1,260	1,260	370	187	142
7	175	a1,400	374	7,060	242	485	495	1,190	1,310	375	184	138
8	192	a2,000	354	3,180	281	460	470	1,000	1,190	334	182	134
9	282	a1,500	362	1,900	264	435	495	858	1,060	316	179	132
10	488	a1,200	346	1,380	245	410	510	756	996	320	177	132
11	1,100	a1,200	346	1,090	233	385	500	705	1,090	330	174	130
12	550	a1,050	342	888	230	366	465	744	906	309	172	130
13	402	a1,000	445	744	227	366	440	888	834	295	172	130
14	366	a1,100	690	690	239	366	540	798	715	288	169	134
15	1,220	a1,650	570	620	520	354	726	750	650	284	177	136
16	2,430	a1,650	505	575	595	350	978	846	620	288	172	134
17	2,720	a1,400	655	530	798	346	1,050	966	595	295	169	136
18	2,880	1,330	909	500	984	350	1,020	882	575	292	167	134
19	1,670	1,080	990	470	786	342	960	774	580	274	164	130
20	1,810	900	768	440	650	330	1,030	738	660	257	162	130
21	1,400	750	695	415	2,050	400	1,130	798	650	251	160	128
22	1,010	685	655	405	3,740	828	1,260	810	520	248	172	194
23	852	615	600	415	1,740	660	1,220	906	505	242	184	230
24	685	560	565	415	1,180	570	1,110	1,090	500	230	177	203
25	575	525	535	390	1,340	520	1,210	1,300	485	224	167	184
26	a520	545	520	362	2,280	480	1,010	1,460	465	218	162	278
27	a490	540	530	346	1,580	480	840	1,420	490	260	157	292
28	a520	505	595	334	1,170	565	726	1,540	500	245	152	264
29	a540	470	560	323	924	695	660	1,210	525	224	150	239
30	a730	460	510	312	-	822	595	1,060	515	218	150	206
31	a640	-	490	298	-	715	-	1,060	-	218	150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	25,624	2,880	138	827	7.66	8.82	50,820
November	28,015	2,000	460	934	8.65	9.65	55,570
December	16,492	990	342	532	4.93	5.68	32,710
Calendar year 1947	197,104	2,880	133	540	5.00	67.88	391,000
January	35,802	7,060	298	1,155	10.7	12.33	71,010
February	23,892	3,740	227	824	7.63	8.23	47,390
March	15,882	828	330	512	4.74	5.47	31,500
April	23,260	1,260	440	775	7.18	8.01	46,140
May	30,539	1,540	515	985	9.12	10.52	60,570
June	23,700	1,310	465	790	7.31	8.16	47,010
July	9,074	440	218	293	2.71	3.12	18,000
August	5,388	215	150	174	1.61	1.86	10,690
September	4,946	292	128	165	1.53	1.70	9,810
Water year 1947-48	242,614	7,060	128	663	6.14	83.55	481,200

Peak discharge (base, 4,000 sec.-ft.).- Oct. 18 (1 a.m.) 4,230 sec.-ft.; Jan. 7 (6 a.m.) 9,680 sec.-ft.; Feb. 22 (1:30 a.m.) 5,420 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for North Santiam River at Mehama and above Mayflower Creek, near Detroit.

Little North Santiam River near Mehama, Oreg.

Location.- Water-stage recorder, lat. 44°48', long. 122°34', in NW¼ sec. 16, T. 9 S., R. 2 E., 2 miles east of Mehama and mouth of river. Datum of gage is 655.41 feet above mean sea level, datum of 1929. Prior to June 11, 1948, staff gage at same site and datum.

Drainage area.- 110 square miles.

Records available.- October 1931 to September 1948. July to September 1924 and July to September 1931 at site 4 miles upstream.

Average discharge.- 17 years, 736 second-feet.

Extremes.- Maximum discharge during year, 14,800 second-feet Jan. 7 (gage height, 13.1 feet, from graph based on observer's readings), from rating curve extended above 1 second-feet by logarithmic plotting; minimum observed, 38 second-feet Sept. 14, 21, 1924, 1931-48: Maximum discharge, 19,900 second-feet Dec. 28, 1945 (gage height 15.20 feet), from rating curve extended above 10,000 second-feet by logarithmic plotting; minimum observed, 21 second-feet Sept. 11, 1934, Sept. 27, 28, 1938, Sept. 1940.

Remarks.- Records good except those based on wire-weight gage readings, which are fair, and those for periods of doubtful or no gage-height record, which are poor. Gage read once daily. No regulation or diversion above station.

Revisions (water years).- W 754: 1932.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 5

2.8	42	3.9	255	6.5	2,190
2.9	52	4.3	435	7.3	3,230
3.1	76	4.7	685	8.3	4,740
3.3	105	5.2	1,020	9.5	6,970
3.6	163	5.8	1,490	11.1	10,400

Jan. 6 to Sept. 30

2.6	38	3.8	265
2.8	67	4.1	370
3.0	100	4.4	515
3.4	174	4.7	685

Note.- Same as preceding table above 4.7 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	52	894	400	1,600	219	971	985	620	815	174	88	
2	51	1,070	370	4,500	213	978	957	576	796	166	83	
3	1,140	1,390	600	2,550	208	887	1,020	1,930	815	158	83	
4	887	1,230	555	1,910	206	796	887	2,310	570	152	83	
5	405	1,080	447	d1,700	204	685	750	1,500	526	152	80	
6	230	1,270	390	8,860	195	625	603	2,270	614	166	77	
7	188	4,210	395	10,300	176	643	581	1,690	631	168	73	
8	176	5,110	410	3,820	208	570	559	1,420	744	150	70	
9	299	2,830	d400	2,300	316	603	620	1,260	608	141	67	
10	672	2,240	d390	1,680	277	559	643	1,040	620	137	67	
11	3,240	2,080	d410	1,250	217	520	711	867	782	131	67	
12	1,540	1,830	626	1,120	231	470	667	880	598	126	64	
13	880	2,010	1,420	887	235	460	651	1,120	490	119	61	
14	652	a2,200	1,790	730	309	515	698	929	415	115	62	
15	724	a3,300	1,320	718	880	520	1,230	841	362	112	80	
16	5,450	a3,200	d880	631	2,210	532	1,330	908	323	107	72	
17	3,580	2,430	1,700	608	1,910	542	1,620	1,060	295	103	90	
18	5,410	a1,900	2,020	592	2,960	570	1,530	894	280	102	78	
19	5,320	a1,500	1,880	520	1,500	532	1,410	782	260	100	67	
20	3,860	a1,200	1,860	485	d1,300	495	1,350	673	289	98	67	
21	3,190	a1,000	1,020	460	5,000	d550	1,470	756	430	95	64	
22	1,910	a850	1,050	415	7,920	d1,500	1,730	776	350	92	67	
23	1,540	a750	860	402	4,080	1,260	1,890	854	295	95	77	
24	1,090	a680	770	392	1,760	1,020	1,950	957	268	95	83	
25	915	614	685	366	1,290	1,030	2,140	1,140	248	86	75	
26	756	581	633	342	6,790	848	1,400	1,090	233	83	70	
27	692	574	704	298	2,330	828	1,110	1,120	217	112	64	
28	915	501	908	286	1,350	1,080	922	1,380	208	137	61	
29	841	477	d820	271	1,310	1,330	822	1,090	197	112	56	
30	1,870	435	744	242	-	1,390	704	782	191	100	56	
31	936	-	659	240	-	985	-	776	-	95	64	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	49,409	5,450	51	1,594	14.5	16.70	98
November	49,436	5,110	435	1,648	15.0	16.71	98
December	27,116	2,020	370	875	7.95	9.17	53
Calendar year 1947	278,624	5,990	45	763	6.94	94.20	552
January	50,475	10,300	240	1,628	14.8	17.07	100
February	45,804	7,920	176	1,579	14.4	15.49	90
March	24,294	1,500	460	784	7.13	8.21	48
April	32,920	2,140	559	1,097	9.97	11.13	65
May	34,291	2,310	576	1,106	10.1	11.59	68
June	13,470	815	191	449	4.08	4.55	26
July	3,779	174	83	122	1.11	1.28	7
August	2,216	90	56	71.5	.650	.75	4
September	3,649	548	38	122	1.11	1.23	7
Water year 1947-48	336,859	10,300	38	920	8.36	113.88	668

a No gage-height record; discharge computed on basis of records for North Santiam River at Meh
d Doubtful gage-height record; discharge computed as explained in footnote a.

South Santiam River below Cascadia, Oreg.

Location.- Water-stage recorder, lat. 44°24', long. 122°30', in SE¼ sec. 36, T. 13 S., R. 2 E., 100 feet downstream from bridge at Cascadia ranger station, half a mile downstream from Tollgate Creek, three-quarters of a mile upstream from Deer Creek, and 1½ miles southwest of Cascadia. Gaging cable is 0.7 mile upstream, above Tollgate Creek. Datum of gage is 759.38 feet above mean sea level, datum of 1929.

Drainage area.- 174 square miles at gaging cable.

Records available.- September 1935 to September 1948. Records do not include runoff from 3 square miles between cable and gage.

Average discharge.- 13 years, 722 second-feet.

Extremes.- Maximum discharge during year, 17,600 second-feet Jan. 7 (gage height, 15.87 feet); minimum, 60 second-feet Sept. 13, 14 (gage height, 1.70 feet).

1935-48: Maximum discharge, 23,400 second-feet Dec. 28, 1945 (gage height, 18.65 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 23 second-feet Dec. 1, 2, 1936 (gage height, 0.98 foot).

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are fair. No diversion or regulation above station.

Cooperation.- Water-stage recorder inspected by employee of U. S. Forest Service.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
1.9	62	3.4	485	8.0	4,550	1.7	60	3.2	480	8.0	4,550
2.1	88	3.8	715	10.0	7,320	2.0	96	3.6	710	10.0	7,320
2.4	137	4.3	1,060	12.0	10,500	2.3	145	4.0	960	13.2	12,600
2.7	207	5.0	1,570			2.6	220	5.0	1,650		
3.0	300	6.5	2,830			2.9	340	6.5	2,900		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	871	480	2,290	208	1,360	1,390	869	1,160	d300	102	75
2	91	955	415	5,380	190	1,270	1,420	788	1,170	d275	99	73
3	268	990	643	3,120	180	1,100	1,420	1,550	1,120	d259	98	79
4	158	a990	573	2,570	188	966	1,240	2,030	966	d238	a98	76
5	130	a1,100	475	2,160	173	888	1,100	1,670	d895	d248	a96	72
6	116	1,240	415	10,000	162	888	1,010	1,850	d954	d271	a91	70
7	106	2,780	425	12,600	164	843	940	1,810	d983	d295	a87	70
8	119	4,510	460	5,100	275	836	882	1,590	d993	d227	a84	68
9	204	2,870	631	2,850	349	1,040	973	1,460	d895	208	a82	66
10	480	2,320	607	2,030	244	940	1,020	1,270	d902	190	a81	66
11	1,630	2,460	709	1,570	214	830	1,020	1,100	d1,010	183	a80	63
12	899	2,060	667	1,260	199	764	934	1,150	a900	171	a78	61
13	562	2,090	976	1,060	190	740	843	1,430	a810	162	a76	60
14	445	2,160	1,700	902	202	710	914	1,310	a730	151	a81	62
15	1,610	4,120	1,220	776	1,440	698	1,150	1,170	a660	143	a92	68
16	5,730	3,670	941	698	1,540	692	1,380	1,200	a600	140	87	67
17	3,760	2,680	1,100	626	1,640	668	1,500	1,380	a550	134	96	66
18	3,660	2,540	1,600	562	1,950	680	1,620	1,290	a520	129	88	64
19	2,350	2,140	1,850	508	1,530	650	1,490	1,150	a510	127	84	63
20	2,950	1,670	1,350	450	1,120	650	1,480	1,080	a570	124	83	62
21	2,550	1,290	1,110	408	4,770	794	1,540	1,200	a690	121	82	61
22	1,760	1,020	955	390	8,540	1,830	1,680	1,170	a620	117	86	120
23	1,380	850	794	380	3,660	1,430	1,790	1,170	a560	116	131	318
24	1,020	715	685	358	2,120	1,210	1,820	1,310	a520	114	108	263
25	801	607	607	331	1,750	1,100	1,970	1,480	a480	111	93	170
26	691	584	578	291	4,260	1,010	1,670	1,480	a450	106	86	394
27	607	562	590	267	2,830	999	1,390	1,400	a410	140	83	435
28	673	529	982	252	2,010	1,140	1,230	1,480	h385	151	81	326
29	722	490	990	234	1,560	1,480	1,060	1,360	d362	124	76	279
30	822	470	871	227	-	2,030	973	1,220	d331	111	77	211
31	679	-	780	217	-	1,590	-	1,200	-	106	78	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	37,039	5,730	66	1,195	6.87	7.92	73,470
November	51,333	4,510	470	1,711	9.83	10.97	101,800
December	26,159	1,890	415	844	4.85	5.59	51,890
Calendar year 1947	279,733	5,730	66	766	4.40	59.79	554,800
January	59,867	12,600	217	1,931	11.1	12.80	118,700
February	43,658	8,540	162	1,505	8.65	9.33	86,590
March	31,826	2,030	650	1,027	5.90	6.80	63,130
April	38,849	1,970	843	1,295	7.44	8.30	77,060
May	41,617	2,030	788	1,342	7.71	8.90	82,550
June	21,715	1,170	331	724	4.16	4.64	43,070
July	5,292	300	106	171	.983	1.13	10,500
August	2,744	131	76	88.5	.509	.59	5,440
September	3,929	435	60	131	.753	.84	7,790
Water year 1947-48	364,028	12,600	60	995	5.72	77.81	722,000

Peak discharge (base, 4,800 sec.-ft.).- Oct. 16 (4:30 a.m.) 7,770 sec.-ft.; Nov. 8 (6:30 a.m.) 5,200 sec.-ft.; Nov. 15 (6 p.m.) 5,410 sec.-ft.; Jan. 2 (8 a.m.) 6,330 sec.-ft.; Jan. 7 (7 a.m.) 17,600 sec.-ft.; Feb. 22 (3 a.m.) 12,900 sec.-ft.; Feb. 26 (9:30 a.m.) 5,430 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for station at Waterloo.

d Doubtful gage-height record.

h Computed from staff-gage reading.

South Santiam River at Waterloo, Oreg.

Location.- Water-stage recorder, lat. 44°29'55", long. 122°49'20", in NW¼ sec. 28, T. 7 S., R. 1 W., 200 yards downstream from bridge at Waterloo and 2½ miles upstream from Hamilton Creek. Datum of gage is 370.39 feet above mean sea level, datum of 1929.
Drainage area.- 640 square miles.
Records available.- July 1905 to March 1907, October 1910 to December 1911, July 1923 to September 1948.
Average discharge.- 26 years (1905-6, 1923-48), 2,724 second-feet.
Extremes.- Maximum discharge during year, 58,800 second-feet Jan. 7 (gage height, 19.68 feet), from rating curve extended above 37,000 second-feet; minimum, 181 second-feet Sept. 21, 22 (gage height, 2.15 feet).
1905-7, 1910-11, 1923-48: Maximum discharge, 74,200 second-feet Dec. 28, 1945 (gage height, 22.85 feet), from rating curve extended above 37,000 second-feet; minimum, 9 second-feet Sept. 1, 2, 1940 (gage height, 1.98 feet).
Remarks.- Records excellent. No diversion or regulation above station.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.1	163	4.0	1,850	9.5	16,400
2.3	241	4.5	2,610	11.0	21,700
2.5	349	5.0	3,500	13.0	29,600
2.7	490	6.0	5,650	15.0	38,100
3.0	745	7.0	8,350	17.1	47,200
3.4	1,130	8.0	11,400		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	228	3,870	1,930	6,730	1,250	4,950	4,320	2,730	3,000	826	382	
2	241	4,200	1,810	20,600	1,220	4,730	4,300	2,460	2,930	781	369	
3	1,070	4,320	2,310	12,500	1,130	4,010	4,770	5,530	2,920	745	349	
4	862	4,220	2,280	9,790	1,150	3,500	4,110	8,060	2,470	727	349	
5	587	4,360	2,000	7,690	1,110	3,200	3,690	5,800	2,160	709	349	
6	475	4,840	1,820	31,200	1,020	3,130	3,390	6,200	2,190	808	337	
7	415	8,590	1,930	47,000	1,000	3,020	3,130	6,230	2,280	871	314	
8	415	14,800	2,180	19,900	1,210	3,000	2,930	5,510	2,490	754	308	
9	530	10,800	2,640	11,400	1,920	3,560	3,170	4,930	2,170	673	303	
10	1,350	8,120	2,630	8,350	1,530	3,310	3,480	4,240	1,960	638	291	
11	7,820	8,150	2,780	6,590	1,340	2,930	3,560	3,670	2,640	604	291	
12	3,870	7,100	2,710	5,410	1,240	2,680	3,220	3,500	2,220	570	281	
13	2,250	6,970	3,130	4,550	1,170	2,780	2,860	4,510	1,920	546	276	
14	1,680	7,240	6,670	3,950	1,160	2,590	3,020	4,090	1,720	514	276	
15	2,450	13,200	4,860	3,480	5,160	2,610	4,090	3,670	1,550	498	326	
16	19,100	13,500	3,850	3,180	6,100	2,580	4,950	3,630	1,450	490	349	
17	14,100	9,730	4,320	2,930	7,860	2,510	5,390	4,070	1,350	475	343	
18	18,200	8,830	5,780	2,660	7,570	2,460	5,820	3,830	1,330	468	356	
19	12,000	7,490	7,180	2,440	6,460	2,510	5,180	3,390	1,280	445	303	
20	13,000	6,080	5,390	2,250	4,770	2,440	4,970	3,130	1,340	438	286	
21	11,000	4,930	4,360	2,090	14,900	2,750	5,180	3,440	1,720	430	281	
22	7,240	4,090	4,050	1,960	36,400	6,990	5,880	3,270	1,590	422	286	
23	5,700	3,480	3,460	1,880	15,700	5,700	6,570	3,200	1,390	415	375	1,
24	4,450	3,000	3,060	1,820	9,280	4,730	6,330	3,480	1,250	415	452	1,
25	3,610	2,710	2,780	1,720	6,940	4,260	6,670	3,950	1,160	408	362	
26	3,200	2,470	2,610	1,590	14,300	3,750	5,630	4,030	1,080	395	308	1,
27	2,880	2,380	2,520	1,520	10,800	3,560	4,530	3,830	1,020	408	286	1,
28	2,990	2,240	3,480	1,460	7,550	3,950	3,970	3,970	965	570	266	1,
29	3,040	2,090	3,890	1,410	5,750	4,600	3,460	3,750	916	498	251	1,
30	3,810	1,960	3,420	1,370	-	6,150	3,040	3,240	871	430	246	
31	3,270	-	3,020	1,300	-	5,090	-	3,040	-	402	256	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	151,833	19,100	228	4,898	7.65	8.82	301,2
November	185,760	14,800	1,960	6,192	9.68	10.79	368,4
December	104,850	7,180	1,810	3,382	5.28	6.09	208,0
Calendar year 1947	1,043,539	19,100	224	2,859	4.47	60.62	2,070,0
January	230,720	47,000	1,300	7,443	11.6	13.41	457,6
February	176,990	36,400	1,000	6,103	9.54	10.28	351,1
March	114,030	6,990	2,440	3,678	5.75	6.63	226,2
April	131,610	6,670	2,860	4,387	6.85	7.65	261,0
May	128,380	8,060	2,460	4,141	6.47	7.46	254,6
June	53,332	3,000	871	1,778	2.78	3.10	105,8
July	17,373	871	395	560	.875	1.01	34,4
August	9,807	452	246	316	.494	.57	19,4
September	13,893	1,780	185	463	.723	.81	27,5
Water year 1947-48	1,318,578	47,000	185	3,603	5.63	76.62	2,615,0

Peak discharge (base, 21,000 sec.-ft.).- Oct. 16 (8 a.m.) 23,800 sec.-ft.; Jan. 7 (10 a.m.) 58, sec.-ft.; Feb. 22 (7 a.m.) 48,100 sec.-ft.

Wiley Creek near Foster, Oreg.

Location.- Water-stage recorder, lat. 44°22', long. 122°38', in NE¼ sec. 12, T. 14 S., R. 1 E., 0.4 mile downstream from Little Wiley Creek and 3½ miles southeast of Foster.

Drainage area.- 52 square miles.

Records available.- October 1947 to September 1948.

Extremes.- Maximum discharge during year, 5,410 second-feet Jan. 7 (gage height, 7.52 feet); minimum, 13 second-feet Sept. 13, 14, 19-22 (gage height, 1.00 foot).

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversions or regulation above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.0	13	1.8	132	3.5	960
1.1	20	2.0	187	4.2	1,500
1.2	29	2.3	292	5.2	2,440
1.4	52	2.6	430	6.2	3,620
1.6	86	3.0	640		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	a15	a310	113	711	73	357	309	197	120	44	24	19
2	a17	a290	104	1,790	68	348	357	175	110	44	24	19
3	a56	a290	167	1,020	65	277	390	416	104	42	24	24
4	a35	a270	142	855	68	240	330	500	97	41	24	20
5	a23	292	122	682	63	230	288	375	90	42	23	18
6	a21	395	113	3,210	62	222	258	380	86	51	22	17
7	a20	500	132	3,620	62	206	236	366	86	60	21	16
8	a22	700	153	1,370	143	226	219	366	86	45	20	16
9	a40	590	187	790	164	292	265	362	77	41	20	15
10	a120	500	178	618	118	258	281	309	86	40	20	15
11	a400	530	206	495	97	226	273	262	118	38	19	14
12	a200	500	193	395	88	206	236	258	97	37	19	14
13	a120	580	269	313	84	213	213	300	84	36	19	13
14	a85	574	465	265	90	193	230	262	79	34	19	15
15	a300	883	343	230	748	178	284	233	73	32	34	18
16	a1,150	841	273	206	682	172	330	226	68	32	25	16
17	a800	652	281	181	629	167	395	230	65	31	34	15
18	a1,100	563	405	164	682	170	371	213	65	30	26	14
19	a750	485	480	148	510	170	326	203	60	30	23	14
20	a1,000	395	357	132	415	167	300	200	77	29	22	14
21	a700	317	300	122	1,680	209	305	219	95	28	20	13
22	a500	262	254	115	2,450	596	352	206	79	27	25	40
23	a400	226	219	108	1,140	480	395	190	70	28	52	104
24	a330	193	190	101	670	410	430	175	65	27	33	97
25	a280	170	170	97	530	352	495	172	60	25	26	62
26	a240	153	158	90	1,320	300	405	158	57	25	24	127
27	a210	140	158	86	700	288	326	153	54	34	22	120
28	a220	125	230	82	515	313	292	175	50	32	20	93
29	a200	113	262	81	400	366	254	150	48	26	19	79
30	a290	108	222	81	-	430	226	140	46	25	21	62
31	a220	-	206	73	-	362	-	130	-	24	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	9,864	1,150	15	318	6.12	7.05	19,560
November	11,947	883	108	398	7.65	8.54	23,700
December	7,052	480	104	227	4.37	5.04	13,990
Calendar year	-	-	-	-	-	-	-
January	18,231	3,620	73	588	11.3	13.04	36,160
February	14,316	2,450	62	494	9.50	10.24	28,400
March	8,624	596	167	278	5.35	6.17	17,110
April	9,371	495	213	312	6.00	6.70	18,590
May	7,701	500	130	248	4.77	5.51	15,270
June	2,352	120	46	78.4	1.51	1.68	4,670
July	1,080	60	24	34.8	.669	.77	2,140
August	745	52	19	24.0	.462	.53	1,480
September	1,123	127	13	37.4	.719	.80	2,230
Water year 1947-48	92,406	3,620	13	252	4.85	66.07	183,300

Peak discharge (base, 1,400 sec.-ft.).- Oct. 16 (time and discharge unknown); Jan. 2 (8 a.m.) 2,000 sec.-ft.; Jan. 7 (4:30 a.m.) 5,410 sec.-ft.; Feb. 22 (1 a.m.) 3,560 sec.-ft.

a No gage-height record; discharge computed on basis of records for Calapooya River at Holley.

Albany power canal near Lebanon, Oreg.

Location.- Water-stage recorder, lat. 44°32'55", long. 122°54'20", in SW¼ sec. 2, T. 12 S., R. 2 W., an eighth of a mile downstream from spillway and 1 mile north of Lebanon. Datum of gage is 322.90 feet above mean sea level, datum of 1929.

Records available.- April 1926 to September 1948. February to December 1919 at site near Albany.

Average discharge.- 22 years, 220 second-feet.

Extremes.- Maximum discharge during year, 314 second-feet May 3 (gage height, 3.99 feet); minimum, 14 second-feet Sept. 1.
1919, 1926-48: Maximum discharge, 354 second-feet Dec. 12, 1946 (gage height, 4.35 feet); no flow at times.

Remarks.- Records excellent except those for periods of backwater from vegetation or no gage-height record, which are fair. Canal diverts from South Santiam River at Lebanon and discharges into Calapooya River at mouth. Lebanon ditch discharges into canal just below canal intake. Water is used for power and water supply at Albany.

Cooperation.- Recorder inspected by employee of Mountain States Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	147	106	247	253	249	271	277	269	257	210	210	182
2	156	78	244	144	248	265	275	263	252	209	206	191
3	156	78	254	249	244	254	279	275	251	202	206	192
4	112	85	255	250	243	266	276	286	246	203	206	192
5	110	98	253	242	242	270	271	276	242	203	207	191
6	116	96	266	118	240	271	265	278	241	209	206	191
7	124	100	273	79	231	269	267	280	242	215	205	180
8	124	102	266	a80	219	260	266	276	189	210	203	177
9	125	100	260	a190	209	257	266	272	223	199	201	172
10	131	102	260	a190	221	255	270	268	248	195	198	172
11	142	101	263	a190	243	255	272	263	258	187	197	173
12	134	100	262	a250	243	255	268	261	256	183	195	173
13	130	65	265	257	245	270	263	267	252	180	194	169
14	128	57	287	257	242	268	261	268	241	175	193	168
15	116	91	276	255	276	268	272	263	239	174	198	177
16	95	86	266	256	276	264	281	258	241	179	206	191
17	93	84	262	257	270	260	286	260	238	175	208	187
18	93	84	267	259	263	263	288	262	235	174	211	181
19	88	86	262	257	260	262	283	257	233	168	206	182
20	93	88	246	255	254	263	283	255	234	166	200	176
21	92	100	239	254	225	264	284	258	245	164	198	172
22	89	140	240	253	144	235	282	260	248	162	199	178
23	104	146	238	252	195	246	261	265	241	161	209	230
24	125	144	237	250	260	265	248	265	234	159	221	250
25	127	140	238	250	278	262	263	267	231	194	210	240
26	132	160	239	249	289	257	280	268	226	212	203	238
27	109	242	241	248	266	265	295	268	225	214	197	259
28	150	244	249	245	272	271	283	268	220	227	193	251
29	150	248	255	242	278	275	279	265	215	225	192	243
30	149	248	252	243	-	281	273	264	211	220	192	235
31	148	-	246	249	-	278	-	261	-	213	197	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,788	156	88	122	7,510
November	3,599	248	57	120	7,140
December	7,908	287	237	255	15,690
Calendar year 1947	68,561	302	57	188	136,000
January	7,023	259	79	227	13,930
February	7,125	289	144	246	14,130
March	8,165	281	235	263	16,200
April	8,217	295	248	274	16,300
May	8,269	286	255	267	16,400
June	7,114	258	189	237	14,110
July	5,967	227	159	192	11,840
August	6,267	221	192	202	12,430
September	5,913	259	168	197	11,730
Water year 1947-48	79,355	295	57	217	157,400

a No gage-height record; discharge computed on basis of recorded range in stage.
Note.- Backwater from vegetation Oct. 16 to Nov. 29.

Luckiamute River near Hoskins, Oreg.

Location.- Water-stage recorder, lat. 44°43', long. 123°30', in NE¼ sec. 11, T. 10 S., R. 7 W., a quarter of a mile downstream from Benton County line and 3½ miles northwest of Hoskins. Datum of gage is 378.7 feet above mean sea level (from river-profile survey).

Drainage area.- 34 square miles.

Records available.- May 1934 to September 1948.

Average discharge.- 14 years, 191 second-feet.

Extremes.- Maximum discharge during year, 3,220 second-feet Feb. 22 (gage height, 9.34 feet); minimum, 10 second-feet Sept. 10 (gage height, 1.26 feet).
1934-48: Maximum discharge, 5,560 second-feet Dec. 14, 1946 (gage height, 13.22 feet); minimum, 7 second-feet Sept. 2-5, 10, 21, 22, 1934.

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station; log ponds upstream cause diurnal fluctuation at times.

Revisions (water years).- W 834: 1936(M).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Sept. 1-30)

1.2	7.0	1.7	74	4.0	735
1.3	14	2.0	133	6.0	1,510
1.4	25	2.4	228	8.0	2,440
1.5	39	3.0	400		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	a600	117	845	89	406	180	178	82	28	18	13
2	155	a500	111	1,370	84	355	192	166	76	26	18	13
3	228	a400	123	854	80	313	192	528	72	26	18	15
4	115	a350	113	746	82	279	195	525	70	26	18	13
5	85	a325	103	595	76	260	218	412	69	28	17	13
6	67	337	99	1,070	74	236	236	412	65	38	17	12
7	58	409	146	1,820	76	215	233	382	61	32	17	12
8	85	567	173	1,010	304	228	233	343	58	31	17	11
9	140	466	166	696	319	220	268	299	56	28	17	11
10	218	403	164	637	277	205	391	266	56	28	17	11
11	556	346	190	564	225	195	364	236	53	28	16	11
12	299	299	190	484	192	178	316	225	53	28	16	11
13	210	334	271	412	171	171	277	207	49	25	16	11
14	162	385	355	352	207	178	260	192	48	24	15	13
15	359	714	299	304	522	173	242	173	46	23	15	15
16	690	598	258	263	584	185	225	192	44	22	16	14
17	896	481	290	231	672	192	247	180	44	21	25	13
18	1,230	400	364	207	630	233	228	166	42	21	23	13
19	1,440	337	424	192	478	242	212	160	41	22	17	13
20	1,310	293	361	173	460	255	197	148	44	22	16	13
21	808	260	328	160	1,630	623	197	137	42	22	15	12
22	553	231	282	151	2,240	1,400	277	133	39	22	15	21
23	451	210	271	137	1,090	780	352	125	38	22	16	29
24	355	188	302	131	707	564	361	115	36	21	15	20
25	302	173	268	121	550	433	358	111	36	20	15	14
26	263	160	244	115	718	361	316	105	35	20	15	20
27	236	146	233	109	606	310	274	101	33	23	14	32
28	228	137	244	101	532	274	239	101	31	22	14	23
29	225	129	244	99	454	242	215	97	29	22	14	20
30	a300	121	231	95	-	223	195	91	29	20	14	15
31	a425	-	242	91	-	202	-	85	-	20	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	12,473	1,440	24	402	11.8	13.64	24,740
November	10,299	714	121	343	10.1	11.27	20,430
December	7,206	424	99	232	6.82	7.88	14,290
Calendar year 1947	73,097	1,860	16	200	5.88	79.96	145,000
January	14,135	1,820	91	456	13.4	15.46	28,040
February	14,129	2,240	74	487	14.3	15.45	28,020
March	10,131	1,400	171	327	9.62	11.08	20,090
April	7,690	391	180	256	7.53	8.41	15,250
May	6,591	528	85	213	6.26	7.21	13,070
June	1,477	82	29	49.2	1.45	1.62	2,930
July	761	38	20	24.5	.721	.83	1,510
August	510	25	14	16.5	.485	.56	1,010
September	457	32	11	15.2	.447	.50	906
Water year 1947-48	85,859	2,240	11	235	6.91	93.91	170,300

Peak discharge (base, 2,000 sec.-ft.).- Jan. 7 (3:30 a.m.) 2,300 sec.-ft.; Feb. 22 (1:30 a.m.) 3,220 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, 1 discharge measurement, and records for station at Pedee.

Luckiamute River at Pedee, Oreg.

Location.- Staff gage, lat. 44°44'45", long. 123°25'05", near line between SW¼ sec. 34 and SE¼ sec. 33, T. 9 S., R. 6 W., half a mile southwest of Pedee and three-quarters of a mile downstream from Pedee Creek. Datum of gage is 243.07 feet above mean sea level, datum of 1929.
Drainage area.- 115 square miles.
Records available.- October 1940 to September 1948.
Extremes.- Maximum discharge observed during year, 7,150 second-feet Feb. 22 (gage height, 14.50 feet); minimum observed, 16 second-feet Sept. 8-10.
1940-48: Maximum discharge, 12,000 second-feet Dec. 14, 1946 (gage height, 17.99 feet), from rating curve extended above 7,800 second-feet by logarithmic plotting; minimum observed, 7 second-feet Sept. 12, 1944.
Remarks.- Records fair. Gage read once daily. Small diversions above station for irrigation. Some diurnal fluctuation in summer caused by log ponds above station.
Revision (water years).- W 964: 1941. W 1044: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-15, Oct. 22 to Nov. 14, Nov. 16 to Jan. 1)

Oct. 1 to Jan. 7

1.2	31	2.7	261	9.5	3,030
1.4	47	3.2	382	11.5	4,350
1.6	66	4.0	650	13.3	5,900
1.8	92	5.5	1,200		
2.1	144	7.5	2,000		

Jan. 8 to Sept. 30

1.1	13	1.6	75	2.9	350
1.2	21	1.8	108	4.0	685
1.3	31	2.0	143	5.5	1,210
1.4	44	2.4	220	7.5	2,000

Note.- Same as preceding table above 7.5 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	1,580	232	1,240	216	1,040	470	476	180	65	36	21
2	234	1,090	216	3,090	212	797	464	380	172	62	34	21
3	348	839	212	2,050	212	685	542	1,040	165	59	31	21
4	214	790	216	1,840	212	678	590	1,210	157	59	29	21
5	142	657	196	1,480	212	590	626	895	150	62	29	21
6	88	685	192	2,910	212	614	590	825	147	98	29	19
7	74	734	283	5,330	216	620	584	748	122	85	27	18
8	94	776	335	2,910	374	638	620	685	122	72	27	16
9	149	769	325	1,920	825	614	685	602	132	65	29	16
10	194	762	316	1,770	734	536	776	536	129	62	29	16
11	720	720	350	1,490	602	470	685	524	125	62	29	18
12	405	692	382	1,190	482	458	638	500	122	62	29	19
13	253	650	430	1,050	458	446	596	488	118	59	29	19
14	220	818	538	878	416	446	560	428	115	53	29	21
15	382	1,590	608	685	446	440	554	422	111	a50	29	23
16	1,490	1,040	594	644	902	452	488	416	108	a50	31	23
17	1,440	916	580	614	1,340	488	476	410	105	a47	36	25
18	2,300	804	860	566	1,400	720	464	380	105	a45	53	25
19	2,740	692	1,000	524	1,070	895	458	344	101	44	50	25
20	2,800	629	780	440	1,100	972	458	320	101	31	44	21
21	1,720	524	678	386	2,910	1,440	464	310	105	31	36	21
22	1,170	462	580	374	5,900	3,150	584	290	98	34	31	41
23	713	436	517	a350	2,870	1,880	671	255	91	39	29	59
24	643	366	475	a320	1,890	1,400	632	255	88	36	29	53
25	580	330	455	a300	1,150	895	614	a240	85	34	29	44
26	468	311	436	a280	1,570	867	596	a230	81	36	27	47
27	442	283	455	a270	1,220	720	542	a220	78	59	27	69
28	468	270	482	a260	1,270	684	494	212	72	72	25	69
29	517	257	475	245	1,200	596	488	a210	72	65	23	53
30	559	244	468	235	-	530	482	a210	69	50	21	44
31	1,000	-	449	220	-	488	-	a200	-	39	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	22,600	2,800	33	729	6.34	7.31	44,830
November	20,719	1,590	244	691	6.01	6.70	41,090
December	14,115	1,000	192	455	3.96	4.56	28,000
Calendar year 1947	148,003	4,750	25	405	3.52	47.86	293,600
January	35,861	5,330	220	1,157	10.1	11.60	71,130
February	31,621	5,900	212	1,090	9.48	10.23	62,720
March	25,229	3,150	440	814	7.08	8.16	50,040
April	16,891	776	458	563	4.90	5.46	33,500
May	14,261	1,210	200	460	4.00	4.61	28,290
June	3,426	180	69	114	.99i	1.11	6,800
July	1,687	98	31	54.4	.473	.55	3,350
August	957	53	21	30.9	.269	.31	1,900
September	909	69	16	30.3	.263	.29	1,800
Water year 1947-48	188,273	5,900	16	514	4.47	60.89	373,400

Peak discharge (base, 3,500 sec.-ft.).- Jan. 2 (about 4 a.m.) 3,930 sec.-ft.; Jan. 7 (about 5 a.m.) 6,710 sec.-ft.; Feb. 22 (7 a.m.) 7,150 sec.-ft.; Mar. 22 (about 9 a.m.) 3,930 sec.-ft.
a No gage-height record; discharge computed on basis of records for stations near Hoskins and near Suver.

Luckiamute River near Suver, Oreg.

Location.- Water-stage recorder, lat. 44°47'00", long. 123°14'00", in SW¼SW¼ sec. 18, T. 9 S., R. 4 W., at highway bridge at Helmick State Park, 3 miles downstream from Little Luckiamute River and 3 miles northwest of Suver. Datum of gage is 171.37 feet above mean sea level, datum of 1929.
Drainage area.- 240 square miles.
Records available.- August 1905 to October 1911, July 1940 to September 1948.
Average discharge.- 14 years (1905-11, 1940-48), 874 second-feet.
Extremes.- Maximum discharge during year, 13,100 second-feet Jan. 7 (gage height, 29.42 feet); minimum, 33 second-feet Sept. 14, 15.
1905-11, 1940-48: Maximum discharge, 20,200 second-feet Dec. 15, 1946 (gage height, 31.86 feet), from rating curve extended above 14,000 second-feet by logarithmic plotting; minimum, 21 second-feet feet Sept. 10, 1944 (gage height, 1.78 feet).
Maximum stage known at present site, 33.5 feet from floodmark, probably on Dec. 29, 1937 (discharge not determined).
Remarks.- Records good except those for periods of no gage-height record, which are fair. A few small diversions above station for irrigation; no diversion around station.
Some diurnal fluctuation during periods of low flow caused by millpond above station.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (water years).- W 1044: Drainage area. W 1094: 1945, 1946.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.9	32	3.4	139	10.0	1,025	24.0	4,520
2.0	38	4.3	229	13.0	1,500	25.5	5,380
2.3	57	5.4	362	16.0	2,050	26.5	6,300
2.6	78	6.6	524	19.0	2,770	27.2	7,300
3.0	107	8.0	725	22.0	3,670	27.9	8,800

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	2,200	520	a2,000	454	1,850	982	785	357	117	66	45
2	57	2,580	488	a3,500	440	1,690	928	725	336	115	64	44
3	409	1,970	507	a5,500	411	1,470	956	1,130	318	113	64	43
4	368	1,610	513	a4,000	426	1,310	984	2,280	311	110	63	48
5	214	1,480	458	a3,000	419	1,210	1,130	1,770	299	111	62	48
6	156	1,420	430	a4,500	376	1,160	1,220	1,610	282	131	58	43
7	133	1,380	457	8,800	353	1,050	1,160	1,500	269	153	58	41
8	133	1,630	692	8,550	665	1,080	1,080	1,380	251	131	57	40
9	250	1,690	680	a6,000	1,590	1,300	1,180	1,220	240	120	57	37
10	397	1,490	654	a4,000	1,490	1,120	1,360	1,250	237	111	57	36
11	956	1,350	762	a3,200	1,190	1,020	1,440	1,000	230	107	57	35
12	1,090	1,200	778	a2,600	992	953	1,310	935	226	106	57	35
13	587	1,240	800	a2,100	886	893	1,190	990	219	100	56	34
14	426	1,390	a1,050	a1,800	972	1,010	1,130	929	210	97	57	33
15	404	2,160	a1,150	a1,600	1,520	942	1,150	830	199	92	52	34
16	1,580	2,470	a1,250	a1,400	1,920	989	1,130	815	191	91	54	40
17	1,990	2,040	a1,100	1,260	2,890	1,140	1,170	912	184	88	63	43
18	2,960	1,720	a1,300	1,130	2,880	1,130	1,220	806	182	85	82	40
19	3,660	1,460	a1,700	1,020	2,430	1,250	1,080	744	176	84	78	39
20	4,440	1,290	a2,000	929	1,880	1,310	990	724	180	84	64	39
21	4,370	1,140	a1,400	854	3,260	1,460	935	664	189	79	59	38
22	2,900	1,020	a1,200	796	7,640	3,790	1,080	618	173	78	57	39
23	1,930	924	a1,050	743	7,500	5,090	1,380	581	162	79	56	57
24	1,540	840	a1,000	692	5,050	3,560	1,340	542	154	76	55	88
25	1,250	761	a950	646	3,440	2,520	1,340	506	149	72	55	74
26	1,080	716	a900	598	2,940	1,910	1,240	479	144	71	55	62
27	958	668	a950	560	2,900	1,610	1,130	464	139	71	51	71
28	960	621	a1,000	530	2,610	1,420	1,020	476	134	78	49	95
29	916	581	a950	509	2,180	1,280	940	451	129	78	49	79
30	1,020	546	a900	502	-	1,180	852	411	123	74	46	67
31	1,300	-	a850	468	-	1,080	-	379	-	69	45	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	38,485	4,440	51	1,241	5.17	5.96	76,330
November	41,587	2,580	546	1,386	5.78	6.44	82,490
December	28,439	2,000	430	917	3.82	4.41	56,410
Calendar year 1947	282,906	7,640	46	775	3.23	43.84	561,100
January	73,787	8,800	468	2,380	9.92	11.43	146,400
February	61,704	7,640	353	2,128	8.87	9.56	122,400
March	48,777	5,090	393	1,573	6.55	7.56	96,750
April	34,047	1,440	852	1,135	4.73	5.28	67,530
May	27,906	2,280	379	900	3.75	4.32	55,350
June	6,393	357	123	213	.888	.99	12,680
July	2,970	153	69	95.8	.399	.46	5,890
August	1,803	82	45	58.2	.243	.28	3,580
September	1,467	95	33	48.9	.204	.23	2,910
Water year 1947-48	367,365	8,800	33	1,004	4.18	56.92	728,700

Peak discharge (base, 6,600 sec.-ft.).- Jan. 7 (6 p.m.) 13,100 sec.-ft.; Feb. 22 (6 p.m.) 11,200 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage, when available, weather records, and records for station at Pedee.

Mill Creek at penitentiary annex, near Salem, Oreg.

Location.- Water-stage recorder, lat. 44°52'55", long. 122°58'35", in NE¼ sec. 18, T. 8 S., R. 2 W., at State penitentiary annex, 2½ miles downstream from Battle Creek, 5 miles southeast of Salem, and 7 miles upstream from mouth.

Drainage area.- 103 square miles.

Records available.- October 1940 to September 1948 in reports of Geological Survey. November 1938 to September 1941 in reports of Oregon State engineer.

Extremes.- Maximum discharge during year, 4,860 second-feet Jan. 7 (gage height, 7.43 feet) minimum, 71 second-feet July 11.

1938-48: Maximum discharge, that of Jan. 7, 1948; minimum, 44 second-feet July 13, 1939.

Maximum discharge known, 8,320 second-feet Dec. 29, 1937, computed by velocity-area method on basis of discharge measurement of 7,300 second-feet made that day.

Remarks.- Records good except those for periods of no gage-height record and those below 11 second-feet, which are fair. Salem power canal diverts water from North Santiam River at Stayton into Mill Creek; some diversions from canal and creek above station for irrigation. Flow diverted for irrigation on left bank between gage and control is not included in record. Diurnal fluctuation caused by changes at head gates and small power plants above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 21

0.9	118	2.1	430	4.5	1,680
1.0	132	2.5	590	5.0	2,180
1.2	166	3.0	790	6.0	3,210
1.4	208	3.5	1,000	6.8	4,100
1.7	292	4.0	1,280		

Feb. 22 to Sept. 30

0.8	72	1.4	177
1.0	98	1.7	270
1.2	132	2.1	430

Note.- Same as preceding table above 2.1 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	121	1,080	186	795	276	530	298	201	201	165	180	177
2	135	992	174	1,660	206	526	310	226	193	160	182	167
3	157	766	261	1,050	190	430	470	516	193	160	182	170
4	162	654	241	1,130	213	362	406	586	188	158	182	172
5	159	674	199	942	204	346	538	466	180	142	182	172
6	155	698	180	2,310	208	330	418	558	180	85	180	175
7	150	a650	208	4,100	204	298	346	506	180	85	180	172
8	148	a620	255	2,390	420	406	306	526	177	77	182	170
9	161	a570	283	1,360	562	430	334	438	177	79	182	167
10	182	a600	255	1,180	430	310	334	370	177	76	185	163
11	218	a550	253	1,050	342	270	302	326	182	73	182	163
12	197	a530	226	798	308	256	256	318	204	149	180	160
13	184	a750	312	670	299	406	235	370	201	160	177	158
14	174	a900	420	614	299	438	235	322	180	170	177	155
15	213	a1,050	315	526	550	526	235	263	177	172	185	158
16	546	a940	283	454	538	550	270	249	172	172	188	158
17	614	a800	438	406	542	514	402	249	170	177	190	155
18	960	690	526	360	590	522	330	226	172	177	190	153
19	1,130	638	550	312	490	530	266	216	175	177	190	151
20	1,770	590	442	280	486	470	235	216	170	177	185	149
21	1,240	518	409	267	1,120	490	246	204	177	182	182	147
22	790	442	409	247	2,030	1,720	298	196	177	185	177	153
23	694	395	346	236	1,090	1,170	306	185	182	185	185	170
24	570	360	302	226	802	902	252	177	180	188	175	182
25	454	328	267	216	666	884	286	177	180	188	188	180
26	420	280	241	204	762	762	260	210	182	185	180	190
27	378	236	247	197	702	610	252	213	177	185	177	193
28	446	216	423	190	710	518	249	270	172	190	175	188
29	416	199	462	201	574	442	235	242	170	190	172	177
30	470	188	356	208	-	390	210	220	165	185	177	175
31	482	-	342	197	-	342	-	207	-	180	177	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	13,896	1,770	121	448	27,560
November	17,884	1,080	188	596	35,470
December	9,811	550	174	316	19,460
Calendar year 1947	112,649	1,770	92	309	223,400
January	24,776	4,100	190	799	49,140
February	15,813	2,030	190	545	31,360
March	16,680	1,720	256	538	33,080
April	9,120	538	210	304	18,090
May	9,449	586	177	305	18,740
June	5,411	204	165	180	10,730
July	4,834	190	73	156	9,590
August	5,626	190	172	181	11,160
September	5,020	193	147	167	9,960
Water year 1947-48	138,320	4,100	73	378	274,300

a No gage-height record; discharge computed on basis of recorded range in stage and records for Mil Creek at Salem.

Mill Creek at Salem, Oreg.

Location.- Water-stage recorder, lat. 44°56'05", long. 123°01'00", in NE¼ sec. 26, T. 7 S., R. 3 W., at State Bridge in Salem, 220 feet downstream from 19th Street diversion. Datum of gage is 165.50 feet above mean sea level (datum of 1929).

Drainage area.- 108 square miles.

Records available.- October 1940 to September 1948 in reports of Geological Survey. July 1938 to September 1941 in reports of Oregon State engineer.

Extremes.- Maximum discharge during year, 1,040 second-feet Jan. 7 (gage height, 5.46 feet minimum, 1.1 second-feet July 11.
1938-48: Maximum discharge recorded, 1,110 second-feet Feb. 7, 1943; maximum gage height, 5.63 feet Dec. 15, 1946; no flow Oct. 2, 1939.

Remarks.- Records good. Salem power canal diverts water into Mill Creek near Stayton; several diversions from Mill Creek, including Shelton flood bypass 1¼ miles upstream, and 19th Street power diversion 220 feet upstream. Diurnal fluctuation caused by power plants above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris June 11 to Sept. 30)

0.4	4	1.2	80	2.9	450
.5	8	1.4	115	3.4	575
.6	13	1.7	172	3.9	700
.8	29	2.1	258	4.5	850
1.0	52	2.5	351	5.1	970

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.4	518	82	412	101	185	170	76	62	29	41	38
2	16	508	70	762	56	178	168	101	57	28	48	33
3	27	402	122	598	31	150	240	222	56	26	46	33
4	33	358	129	582	50	131	229	294	52	26	44	39
5	31	368	94	548	40	124	283	270	44	28	46	109
6	26	375	72	768	37	115	258	311	45	19	45	141
7	23	363	85	962	32	122	210	295	45	19	40	42
8	24	361	131	688	201	164	176	297	45	21	41	38
9	31	337	141	465	320	197	197	260	44	19	45	38
10	55	341	133	408	251	176	189	227	51	12	48	23
11	80	332	129	400	199	146	176	197	42	4.0	46	16
12	65	311	110	322	172	124	137	182	57	8.5	44	15
13	60	432	158	276	160	218	111	234	58	16	45	14
14	47	505	270	258	156	229	108	191	42	24	44	15
15	29	590	197	229	292	299	108	156	41	30	52	17
16	196	560	166	206	297	311	139	146	34	39	55	16
17	358	478	229	178	309	311	221	142	36	46	56	16
18	518	438	316	162	309	297	195	110	38	46	56	13
19	590	385	361	144	279	311	144	94	37	50	57	14
20	735	370	299	135	267	281	119	106	38	52	57	15
21	638	337	276	120	495	286	97	88	42	53	51	16
22	458	302	276	102	708	682	158	71	42	53	47	16
23	395	276	238	97	530	638	172	65	47	47	52	32
24	322	240	182	77	455	500	139	56	48	51	50	46
25	263	208	148	65	320	475	158	44	50	57	50	44
26	258	176	129	42	247	442	144	68	48	52	50	52
27	229	137	126	23	236	373	139	76	53	58	44	70
28	270	119	238	19	236	325	128	111	47	58	38	57
29	249	106	274	23	201	254	120	108	45	58	38	52
30	274	72	214	37	-	225	95	92	37	56	39	47
31	297	-	197	34	-	201	-	70	-	46	39	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,603.4	735	6.4	213	13,100
November	10,305	590	72	344	20,440
December	5,592	361	70	180	11,090
Calendar year 1947	48,515.4	735	4	133	96,200
January	9,142	962	19	295	18,130
February	6,987	708	31	241	13,860
March	8,470	682	115	273	16,800
April	4,928	283	95	164	9,770
May	4,760	311	44	154	9,440
June	1,383	62	34	46.1	2,740
July	1,131.5	58	4.0	36.5	2,240
August	1,454	57	38	46.9	2,880
September	1,117	141	13	37.2	2,220
Water year 1947-48	61,872.9	962	4.0	169	122,700

South Yamhill River near Willamina, Oreg.

Location.- Water-stage recorder, lat. 45°03', long. 123°30', in sec. 14, T. 6 S., R. 7 W., 2 miles upstream from Willamina Creek and 2 miles southwest of Willamina. Datum of gage is 235.01 feet above mean sea level, datum of 1929.
Drainage area.- 133 square miles.
Records available.- May 1934 to September 1948.
Average discharge.- 14 years, 568 second-feet.
Extremes.- Maximum discharge during year, 10,000 second-feet Jan. 7 (gage height, 11.43 feet); minimum, 15 second-feet Sept. 10 (gage height, 0.57 foot).
1934-48: Maximum discharge, 14,000 second-feet Dec. 27, 1937 (gage height, 14.08 feet); minimum, 3 second-feet Aug. 22, 1938, Oct. 16, 1942; minimum daily, 7 second-feet Aug. 22, 1938.
Remarks.- Records good. Slight regulation occasionally during summer by millpond upstream, no diversion above station.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions.- W 814: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 10 to Nov. 7)

0.5	11	1.1	87	3.5	1,110
.6	17	1.2	112	4.5	1,800
.7	25	1.5	198	5.5	2,660
.8	36	2.0	366	7.5	4,830
.9	49	2.5	580	10.0	8,030
1.0	66	3.0	830		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	34	1,920	291	3,120	251	1,060	486	548	217	83	41	2
2	119	1,340	274	4,470	235	940	494	494	204	81	40	2
3	261	1,090	351	2,770	226	790	544	1,480	195	83	37	2
4	142	946	322	2,620	235	700	590	1,350	186	83	40	2
5	102	902	284	1,970	242	625	720	1,140	177	90	39	2
6	85	1,050	281	4,010	220	566	740	1,290	168	92	36	2
7	72	1,910	359	7,660	207	504	715	1,180	159	92	36	2
8	188	3,040	445	4,130	360	544	715	1,030	145	83	36	1
9	366	2,080	494	2,480	a1,400	494	956	890	139	79	35	1
10	393	1,590	494	2,310	a900	441	1,440	770	142	74	35	1
11	795	1,380	615	2,020	a700	405	1,200	580	139	74	35	1
12	405	1,130	576	1,610	a550	382	1,040	630	136	70	34	2
13	268	1,270	964	1,310	a500	362	956	700	134	68	32	2
14	232	1,400	1,160	1,070	481	458	936	615	128	68	30	2
15	742	1,990	962	907	1,840	437	924	540	126	66	32	3
16	1,350	1,740	863	775	1,640	476	868	566	120	51	36	3
17	2,290	1,470	1,120	665	2,220	486	1,000	517	117	51	46	2
18	2,490	1,280	1,590	571	2,340	585	885	463	120	51	59	2
19	3,310	1,050	1,710	499	1,620	665	765	437	115	52	49	2
20	3,210	918	1,330	450	1,500	680	680	413	126	54	42	2
21	1,890	780	1,180	405	4,450	1,620	775	374	131	54	40	2
22	1,240	675	1,040	370	7,100	4,460	1,400	348	123	48	37	4
23	1,010	585	956	348	3,740	2,290	1,520	326	112	46	33	1
24	755	522	1,190	315	2,210	1,640	1,380	301	126	44	32	13
25	605	463	990	294	1,650	1,240	1,350	294	112	44	33	6
26	522	421	858	284	2,180	990	1,150	274	107	44	32	5
27	441	382	810	281	1,690	841	968	271	102	45	28	6
28	522	351	968	271	1,450	725	830	298	92	58	25	6
29	494	315	1,030	268	1,180	640	725	287	92	51	24	5
30	780	301	929	264	-	610	630	255	87	46	23	4
31	1,120	-	924	251	-	535	-	232	-	42	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	26,233	3,310	34	846	6.36	7.34	52,030
November	34,271	3,040	301	1,142	8.59	9.58	67,980
December	25,360	1,710	274	818	6.15	7.09	50,300
Calendar year 1947	196,073	5,920	23	537	4.04	54.82	388,900
January	48,768	7,660	251	1,573	11.8	13.64	96,730
February	43,317	7,100	207	1,494	11.2	12.11	85,920
March	27,191	4,460	362	877	6.59	7.60	53,930
April	27,382	1,520	486	913	6.86	7.66	54,310
May	18,993	1,480	232	613	4.61	5.31	37,670
June	4,077	217	87	136	1.02	1.14	8,090
July	1,967	92	42	63.5	.477	.55	3,900
August	1,100	59	23	35.5	.267	.31	2,180
September	1,151	131	16	38.4	.289	.32	2,280
Water year 1947-48	259,810	7,660	16	710	5.34	72.65	515,300

Peak discharge (base, 5,700 sec.-ft.).- Jan. 1 (11:30 p.m.) 6,170 sec.-ft.; Jan. 7 (5:30 a.m.) 10,000 sec.-ft.; Feb. 22 (3:30 a.m.) 8,780 sec.-ft.; Mar. 22 (3 a.m.) 6,310 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for South Yamhill River near Whiteson.

South Yamhill River near Whiteson, Oreg.

Location.- Water-stage recorder, lat. 45°10'10", long. 123°12'25", in NW¼ sec. 5, T. 5 S., R. 4 W., at Whiteson Bridge on Pacific Highway West, 1 mile downstream from Salt Creek and 1¼ miles northwest of Whiteson. Datum of gage is 82.30 feet above mean sea level, datum of 1929.

Drainage area.- 502 square miles.

Records available.- July 1940 to September 1948.

Extremes.- Maximum discharge during year, 24,500 second-feet Jan. 7 (gage height, 42.12 feet); minimum, 33 second-feet Sept. 12.

1940-48: Maximum discharge, that of Jan. 7, 1948; minimum, 18 second-feet Aug. 23, 1941, Sept. 14, 1944.

Remarks.- Records good except those above 3,000 second-feet, which are fair. Slight regulation during low-water periods from log ponds upstream. Small diversions above station for irrigation.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 18-23, Nov. 1-18, Jan. 1-14, Feb. 9, 15-28, Mar. 22-26)

1.3	30	5.0	445	33.0	8,870
1.5	42	7.0	810	35.0	10,300
1.7	55	10.0	1,440	37.0	12,500
2.0	81	15.0	2,660	39.0	15,900
3.0	180	25.0	5,480	41.0	21,000
4.0	295	29.0	6,800		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	4,400	866	3,730	736	3,720	1,640	1,530	650	166	77	52
2	68	5,000	795	9,110	711	3,330	1,520	1,380	602	162	76	51
3	253	3,790	838	11,300	664	2,840	1,570	1,610	561	157	70	44
4	366	2,950	962	8,310	700	2,430	1,780	4,020	523	157	65	47
5	238	3,010	838	6,920	709	2,140	2,210	3,610	503	161	66	60
6	190	3,150	768	6,790	635	1,950	2,500	3,710	474	177	64	55
7	162	3,420	814	19,200	588	1,780	2,440	3,590	443	198	62	49
8	156	5,180	1,420	17,500	1,080	1,810	2,180	3,170	403	185	67	46
9	421	5,420	1,410	12,100	3,540	2,140	2,500	2,680	381	177	66	40
10	723	4,130	1,510	9,230	3,920	1,860	3,530	2,280	366	162	63	37
11	1,400	3,670	1,660	7,860	3,090	1,640	3,950	1,970	356	152	64	35
12	1,430	3,100	1,780	6,640	2,280	1,450	3,370	1,750	339	146	63	35
13	810	2,830	1,740	5,150	1,780	1,350	2,900	1,780	328	135	58	37
14	575	3,350	3,310	4,080	1,560	1,670	2,610	1,870	318	126	52	37
15	515	4,650	3,210	3,380	3,760	2,350	2,690	1,660	303	115	66	37
16	2,660	5,020	2,670	2,800	4,620	2,210	2,650	1,520	292	115	68	48
17	3,450	4,200	2,760	2,360	5,870	2,370	2,610	1,660	278	110	76	61
18	4,800	3,750	3,040	2,060	5,620	2,240	2,800	1,460	271	108	104	55
19	5,420	3,290	4,410	1,820	5,420	2,510	2,410	1,340	263	109	113	52
20	6,470	2,750	4,170	1,600	4,230	2,580	2,090	1,300	a270	104	85	47
21	5,970	2,360	3,430	1,430	5,940	2,630	1,880	1,170	a280	100	72	44
22	4,200	2,020	3,100	1,310	14,000	6,530	2,470	1,060	a270	97	72	48
23	2,900	1,770	2,650	1,220	16,800	9,760	3,530	988	a260	94	72	80
24	2,340	1,560	2,820	1,140	10,900	6,510	3,620	920	a240	91	70	290
25	1,800	1,370	2,870	1,050	7,370	4,910	3,310	850	a230	93	63	216
26	1,480	1,250	2,490	972	5,990	3,650	3,000	799	a220	91	65	148
27	1,260	1,150	2,180	890	5,550	3,010	2,610	772	a210	82	66	147
28	1,240	1,060	2,380	832	4,980	2,520	2,240	848	a195	88	63	187
29	1,270	966	3,220	800	4,270	2,200	1,980	952	a185	96	58	161
30	1,500	900	3,030	804	-	2,000	1,750	834	177	90	54	142
31	2,260	-	2,690	753	-	1,830	-	724	-	80	52	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	56,397	6,470	68	1,819	3.62	4.18	111,900
November	91,466	5,420	900	3,049	6.07	6.78	181,400
December	69,831	4,410	768	2,253	4.49	5.17	138,500
Calendar year 1947	530,297	12,700	46	1,453	2.89	39.30	1,052,000
January	153,141	19,200	753	4,940	9.84	11.35	303,800
February	127,513	16,800	588	4,397	8.76	9.45	252,900
March	89,920	9,760	1,350	2,901	5.78	6.66	178,400
April	76,340	3,950	1,520	2,545	5.07	5.66	151,400
May	53,807	4,020	724	1,736	3.46	3.99	106,700
June	10,199	650	177	340	.677	.76	20,230
July	3,924	198	80	127	.253	.29	7,780
August	2,132	113	52	68.8	.137	.16	4,230
September	2,388	290	35	79.6	.159	.18	4,740
Water year 1947-48	737,058	19,200	35	2,014	4.01	54.63	1,462,000

Peak discharge (base, 9,300 sec.-ft.).- Jan. 3 (9 a.m.) 11,700 sec.-ft.; Jan. 7 (9 p.m.) 24,500 sec.-ft.; Feb. 23 (3 a.m.) 18,200 sec.-ft.; Mar. 23 (10:30 a.m.) 10,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for South Yamhill River near Willamina.

Willamina Creek near Willamina, Oreg.

Location.- Water-stage recorder, lat. 45°08'35", long. 123°29'40", in N½ sec. 13, T. 5 S R. 7 W., 4 miles north of Willamina. Datum of gage is 315.1 feet above mean sea leve (from river-profile survey).
Drainage area.- 65 square miles.
Records available.- June 1934 to September 1948.
Average discharge.- 14 years, 229 second-feet.
Extremes.- Maximum discharge during year, 3,420 second-feet Feb. 22 (gage height, 7.99 feet); minimum, 14 second-feet Sept. 10-14.
1934-48: Maximum discharge, 5,720 second-feet Dec. 27, 1937 (gage height, 9.83 feet, present datum), from rating curve extended above 3,400 second-feet by logarithm plotting; minimum, 9 second-feet Sept. 3, 4, 1934, Sept. 9, 1935, Aug. 8-10, 19, Sept 22-27, 1939, Aug. 17, 18, 1940.
Remarks.- Records good. No regulation or diversion above station.
Revisions.- W 964: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1-20				Oct. 20 to Sept. 30					
1.4	16	2.1	77	1.3	12	1.9	49	4.0	580
1.5	20	2.3	110	1.4	15	2.0	61	4.5	795
1.6	25	2.7	195	1.5	19	2.3	106	5.0	1,040
1.7	31	3.1	300	1.6	24	2.6	163	6.0	1,620
1.8	39	3.8	525	1.7	31	3.0	260	7.0	2,410
1.9	49	4.7	895	1.8	39	3.5	400	7.3	2,700

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	19	718	163	873	138	560	265	258	a125	53	28	
2	45	536	155	1,360	131	494	260	240	a115	51	28	
3	68	446	185	1,000	127	432	268	494	a110	51	29	
4	38	414	167	955	131	382	282	494	a105	50	29	
5	30	432	152	795	121	349	322	498	a98	55	28	
6	27	522	144	1,320	116	316	352	584	a93	65	28	a
7	26	818	212	2,370	114	292	343	536	a90	59	28	a
8	54	1,080	250	1,470	208	310	334	477	a86	55	27	
9	108	826	258	1,030	268	292	414	a430	a80	51	27	
10	154	660	255	995	242	268	604	a390	a79	48	27	
11	255	548	275	935	205	252	530	a350	a79	47	26	
12	130	460	265	804	183	238	474	a330	a78	46	26	
13	90	494	343	669	172	232	428	a365	a74	44	25	
14	72	576	452	556	223	298	410	a330	a72	43	25	
15	331	840	410	474	536	305	391	a290	a70	41	28	
16	550	714	379	407	632	305	373	a295	a70	38	30	
17	620	628	404	361	795	298	397	a270	a68	37	41	
18	696	556	508	322	786	322	358	a255	a70	37	37	
19	864	474	552	290	596	334	340	a235	a68	37	29	
20	1,000	418	480	268	592	340	295	a220	a70	37	27	
21	604	364	435	245	1,740	648	302	a210	a75	36	25	
22	428	322	382	228	2,670	1,410	442	a195	a74	34	27	
23	358	290	370	215	1,510	930	488	a185	72	34	25	
24	285	262	432	200	1,010	718	474	a170	68	33	25	
25	240	242	376	188	818	564	460	a165	67	32	27	
26	208	222	340	174	980	470	421	a155	65	30	25	
27	190	208	319	165	822	404	382	a155	62	33	24	
28	230	190	379	159	741	364	343	a160	59	35	22	
29	208	176	414	157	620	328	310	a155	55	33	22	
30	275	172	370	152	-	308	282	a145	53	31	21	
31	364	-	379	144	-	285	-	a135	-	30	20	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	8,567	1,000	19	276	4.25	4.90	16,99
November	14,608	1,080	172	487	7.49	8.36	28,97
December	10,205	552	144	329	5.06	5.84	20,24
Calendar year 1947	82,913	2,000	16	227	3.49	47.43	164,40
January	19,281	2,370	144	622	9.57	11.03	38,24
February	17,227	2,670	114	594	9.14	9.86	34,17
March	13,048	1,410	232	421	6.48	7.47	25,88
April	11,344	604	260	378	5.82	6.49	22,50
May	9,171	584	135	296	4.55	5.25	18,19
June	2,350	125	53	78.3	1.20	1.34	4,66
July	1,306	65	30	42.1	.648	.75	2,59
August	836	41	20	27.0	.415	.48	1,66
September	789	90	14	26.3	.405	.45	1,56
Water year 1947-48	108,732	2,670	14	297	4.57	62.22	215,60

Peak discharge (base, 2,300 sec.-ft.).- Jan. 7 (3 a.m.) 3,110 sec.-ft.; Feb. 22 (2 a.m.) 3,420 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for South Yamhill River near Willamina.

North Yamhill River near Pike, Oreg.

Location.- Water-stage recorder, lat. 45°22'15", long. 123°17'10", in NE¼ sec. 27, T. 2 S., R. 5 W., 1½ miles downstream from Haskins Creek and 1½ miles west of Pike. Datum of gage is 249.2 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.- 48 square miles.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 2,450 second-feet Mar. 21; maximum gage height, 6.75 feet Feb. 21 (backwater from debris); minimum discharge, 9.8 second-feet Sept. 11. 1940-48: Maximum discharge, 3,830 second-feet Dec. 18, 1941 (gage height, 8.24 feet), affected by release of water from log pond upstream; mirimum, 4.2 second-feet Sept. 11, 1944; minimum daily, 6.0 second-feet Sept. 10, 1944.

Remarks.- Records good except those for period of no gage-height record, which are fair. Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Dec. 13-18, Feb. 21)
(Shifting-control method used Aug. 1 to Sept. 30)

0.9	5	1.6	77	3.1	475
1.0	11	1.8	113	3.6	675
1.1	18	2.0	157	4.5	1,120
1.2	27	2.3	232	5.4	1,660
1.4	49	2.7	345		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	620	105	893	111	412	216	176	102	35	20	14
2	35	422	102	1,150	104	369	209	167	96	35	19	14
3	42	333	119	835	104	333	204	396	91	34	19	16
4	31	284	102	720	111	302	211	360	89	34	20	16
5	30	259	94	574	100	279	227	408	86	36	18	14
6	23	270	92	1,000	91	256	219	450	80	41	18	14
7	21	360	146	1,650	96	237	211	375	77	38	18	13
8	35	518	150	1,000	242	246	211	293	74	37	18	13
9	66	h399	150	702	296	222	293	251	72	35	18	12
10	85	a320	152	790	229	204	366	219	70	33	18	11
11	146	a270	198	724	188	194	313	198	70	32	18	10
12	84	a240	188	598	167	181	284	243	68	31	17	10
13	62	a270	318	496	152	174	259	313	66	29	17	10
14	52	a300	366	419	226	209	270	276	65	27	17	12
15	202	a560	293	360	526	196	265	251	64	28	20	14
16	319	a415	265	319	572	209	262	265	61	27	21	15
17	484	a355	281	281	702	206	276	243	59	25	23	14
18	482	a315	490	254	698	229	248	219	58	26	22	14
19	644	h287	472	229	506	243	229	211	57	26	19	14
20	662	a250	378	209	528	248	211	194	64	26	18	13
21	406	222	333	196	1,290	872	219	176	58	26	18	13
22	299	198	302	181	1,640	1,290	302	164	56	26	18	20
23	267	179	290	171	970	680	322	152	53	25	17	39
24	216	164	330	162	662	518	330	139	50	24	17	26
25	194	152	293	152	558	416	330	128	49	23	19	17
26	186	141	259	141	674	351	299	126	47	22	17	21
27	174	132	243	132	590	313	265	124	45	25	17	25
28	219	121	296	128	530	281	240	155	43	25	17	26
29	216	115	284	126	447	262	214	130	39	23	16	22
30	279	111	256	119	-	251	194	117	35	22	15	17
31	405	-	284	113	-	232	-	107	-	21	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	6,379	662	13	206	4.29	4.94	12,650
November	8,582	620	111	286	5.96	6.65	17,020
December	7,631	490	92	246	5.12	5.91	15,140
Calendar year 1947	59,362	1,760	11	163	3.40	45.99	117,700
January	14,824	1,650	113	478	9.96	11.49	29,400
February	13,111	1,640	91	452	9.42	10.16	26,010
March	10,415	1,290	174	336	7.00	8.07	20,660
April	7,699	366	194	257	5.35	5.97	15,270
May	7,026	450	107	227	4.73	5.44	13,940
June	1,943	102	35	64.8	1.35	1.51	3,850
July	896	41	21	28.9	.602	.69	1,780
August	563	23	14	18.2	.379	.44	1,120
September	489	39	10	16.3	.340	.38	970
Water year 1947-48	79,558	1,650	10	217	4.52	61.65	157,800

Peak discharge (base, 1,800 sec.-ft.).- Jan. 7 (3 a.m.) 2,320 sec.-ft.; Feb. 21 (11 p.m.) 2,240 sec.-ft.; Mar. 21 (11:30 p.m.) 2,450 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Haskins Creek near McMinnville and Tualatin River near Gaston.

h Computed from staff-gage reading.

Haskins Creek near McMinnville, Oreg.

Location.- Water-stage recorder and wooden control, lat. 45°18'50", long. 123°21'55", in NE¼ sec. 13, T. 3 S., R. 6 W., 300 feet upstream from high-water line of McMinnville water-supply reservoir and 11 miles northwest of McMinnville.
Drainage area.- 5.7 square miles.
Records available.- October 1928 to September 1948.
Average discharge.- 20 years, 24.9 second-feet (adjusted for diversion, 1937-48).
Extremes (not adjusted for diversion).- Maximum discharge during year, 285 second-feet Feb. 21 (gage height, 3.06 feet); minimum, 0.6 second-foot Sept. 8 (gage height, 1.18 feet).
1928-48: Maximum discharge, 610 second-feet Mar. 31, 1931 (gage height, 4.00 feet, before control was built); minimum prior to diversion above station, 1.0 second-foot Oct. 8, 1932.
Remarks.- Records fair except those for periods of no gage-height record, which are poor. Since Sept. 2, 1937, a small amount of water has been diverted at a point 800 feet upstream into a 12-inch steel pipe, which delivers it into intake of McMinnville water-supply pipe line reservoir. No regulation.
Cooperation.- Water-stage recorder inspected by employees of city of McMinnville.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.2	0.8	1.6	16	2.1	76
1.3	2.5	1.7	25	2.3	111
1.4	5.5	1.8	35	2.6	172
1.5	10	1.9	47	2.9	245

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.7	34	15	d110	16	75	30	28	15	4.9	2.8	1.3
2	12	28	15	d140	15	65	29	25	15	4.9	2.5	1.5
3	9.6	25	15	d110	15	55	28	52	14	4.9	2.8	1.8
4	6.4	24	14	d90	15	50	29	48	14	4.9	3.1	1.5
5	5.5	24	13	d75	14	45	30	50	13	5.5	2.8	1.3
6	5.2	25	13	120	14	40	29	55	13	6.4	2.5	1.3
7	4.9	30	19	202	13	35	28	51	13	h6.4	2.3	1.1
8	9.6	40	19	144	27	35	28	46	12	h6.4	2.3	.8
9	14	35	19	79	26	32	40	41	11	6.0	2.3	1.3
10	18	32	19	d95	22	30	50	36	11	5.5	2.3	2.0
11	21	30	22	d80	18	28	45	33	11	5.5	2.3	2.0
12	11	29	22	73	17	26	42	34	11	5.5	2.3	2.0
13	9.6	31	33	70	16	25	39	39	11	5.2	2.2	2.0
14	8.6	34	40	66	28	29	40	34	11	4.9	2.0	2.3
15	33	70	35	57	51	27	40	31	10	4.6	4.0	2.5
16	39	58	33	48	62	29	39	33	9.6	4.6	3.1	2.5
17	42	50	36	43	81	28	41	31	9.1	4.3	4.0	2.3
18	31	43	60	39	90	30	37	28	8.6	4.3	3.1	2.3
19	48	38	54	35	68	35	34	27	8.6	4.3	2.3	2.2
20	46	34	47	32	72	40	32	25	9.1	4.3	2.3	2.2
21	47	31	42	29	156	120	33	23	9.1	4.3	2.3	2.3
22	36	28	39	27	238	160	42	22	8.2	4.3	2.3	4.9
23	31	26	39	25	154	100	47	21	8.2	4.3	2.3	11
24	26	23	42	24	109	75	48	20	7.3	4.0	2.3	6.4
25	22	22	36	22	97	60	50	19	6.8	4.0	2.2	4.3
26	19	20	33	19	102	50	47	18	6.4	3.4	1.8	5.2
27	18	19	31	20	95	45	42	17	6.8	4.6	1.6	6.0
28	22	17	37	19	90	40	36	21	6.0	3.7	1.6	5.5
29	20	16	36	17	85	36	33	18	5.2	3.4	1.5	4.6
30	32	15	33	16	-	33	31	16	4.9	3.1	1.5	3.7
31	42	-	36	16	-	31	-	16	-	3.1	1.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	693.1	48	3.7	22.4	1,370
November	931	70	15	31.0	1,850
December	947	60	13	30.5	1,880
Calendar year 1947	7,351.0	144	1.5	20.1	14,580
January	1,942	202	16	62.6	3,850
February	1,806	238	13	62.3	3,580
March	1,509	160	25	48.7	2,990
April	1,119	50	28	37.3	2,220
May	958	55	16	30.9	1,900
June	298.9	15	4.9	9.96	593
July	145.5	6.4	3.1	4.69	289
August	74.0	4.0	1.3	2.39	147
September	90.1	11	0.8	3.00	179
Water year 1947-48	10,513.6	238	0.8	28.7	20,850

Peak discharge (base, 180 sec.-ft.).- Jan. 7 (2:30 a.m.) 245 sec.-ft.; Feb. 21 (11 p.m.) 285 sec. ft.; Mar. 21 or 22 (time unknown) 268 sec.-ft.
d Doubtful gage-height record; discharge computed on basis of records for North Yamhill River nea Pike.
h Computed from staff-gage reading.
Note.- No gage-height record Nov. 8-20, Feb. 27 to Apr. 4; discharge computed as explained in foo note d.

Molalla River above Pine Creek, near Wilhoit, Oreg.

Location.- Water-stage recorder, lat. 45°01', long. 122°29', near line between secs. 30 and 31, T. 6 S., R. 3 E., 1,700 feet upstream from Pine Creek and 5 miles southeast of Wilhoit.

Drainage area.- 96 square miles.

Records available.- October 1935 to September 1948.

Average discharge.- 13 years, 486 second-feet.

Extremes.- Maximum discharge during year, 12,200 second-feet Jan. 7, from rating curve extended above 4,800 second-feet; maximum gage height, 13.41 feet Feb. 22; minimum discharge, 35 second-feet Sept. 14.
1935-48: Maximum discharge, that of Jan. 7, 1948; maximum gage height, that of Feb. 22, 1948; minimum discharge, 19 second-feet Aug. 30 to Sept. 2, 1940.

Remarks.- Records good except those for periods of no gage-height record or shifting control, which are fair. No diversion or regulation above station.

Rating tables, water year 1947-48, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 22						Mar. 23 to Sept. 30					
0.9	42	2.4	300	5.5	2,000	1.3	30	2.2	124	5.0	809
1.1	59	2.8	430	6.5	2,880	1.5	45	2.7	200	6.0	1,200
1.3	81	3.5	725	8.0	4,510	1.7	62	3.3	318	7.0	1,680
1.6	125	4.0	970	9.5	6,470	1.9	84	4.0	490		
2.0	203	4.5	1,270	10.7	8,190						

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	1,130	309	2,190	178	815	593	457	518	124	58	46
2	62	1,070	285	3,660	186	689	653	420	493	120	55	44
3	149	915	416	1,880	174	604	666	1,640	476	114	54	51
4	98	800	381	1,370	174	562	593	1,680	408	110	54	49
5	81	694	339	1,080	160	550	536	1,240	364	109	54	45
6	70	761	309	5,190	143	538	490	1,500	364	124	52	43
7	65	1,910	315	8,110	149	546	441	1,320	369	134	51	43
8	70	2,390	298	3,230	217	566	420	1,040	360	113	50	40
9	149	1,670	318	1,940	275	554	457	879	320	105	50	39
10	362	1,420	306	1,440	250	502	493	742	296	98	50	37
11	1,220	1,330	321	1,130	210	466	501	643	386	96	50	37
12	510	1,130	330	915	195	438	459	672	318	93	48	36
13	312	1,320	710	766	182	446	423	842	286	88	47	36
14	250	1,340	1,040	644	188	470	524	732	254	83	47	39
15	1,140	2,030	734	566	590	470	813	643	231	80	60	47
16	3,000	1,860	590	518	998	522	1,020	650	213	77	55	43
17	2,720	1,440	915	462	1,190	586	1,050	675	200	73	71	39
18	4,410	1,320	1,520	420	1,400	590	980	637	187	71	62	39
19	3,490	1,140	1,500	378	1,130	608	850	578	176	73	54	37
20	3,340	940	1,040	345	955	a560	868	548	209	71	54	36
21	2,220	770	835	315	4,340	a1,000	924	575	266	66	51	36
22	1,370	644	730	300	4,510	a1,900	1,130	563	236	64	54	106
23	1,030	550	622	300	1,990	a1,200	1,260	551	213	66	61	238
24	775	482	546	292	1,660	a900	1,160	618	194	68	62	195
25	608	430	490	272	1,320	714	1,160	725	179	62	59	147
26	554	398	454	245	2,230	630	924	711	168	59	54	184
27	486	381	454	228	1,610	608	753	659	159	72	51	278
28	534	354	526	217	1,170	704	659	756	150	84	47	240
29	644	330	482	210	920	816	578	666	141	72	46	211
30	994	309	426	201	-	767	510	587	135	64	46	166
31	865	-	446	184	-	662	-	551	-	60	47	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	31,620	4,410	42	1,020	10.6	12.25	62,720
November	31,258	2,390	309	1,042	10.9	12.11	62,000
December	17,987	1,520	285	580	6.04	6.97	35,680
Calendar year 1947	179,276	4,410	42	491	5.11	69.45	355,600
January	38,998	8,110	184	1,258	13.1	15.11	77,350
February	28,694	4,510	143	989	10.3	11.12	56,910
March	20,983	1,900	438	677	7.05	8.13	41,620
April	21,888	1,260	420	730	7.60	8.48	43,410
May	24,500	1,680	420	790	8.23	9.49	48,600
June	8,269	518	135	276	2.88	3.20	16,400
July	2,693	134	59	86.9	.905	1.04	5,340
August	1,654	71	46	53.4	.556	.64	3,280
September	2,627	278	36	87.6	.913	1.02	5,210
Water year 1947-48	231,171	8,110	36	632	6.58	89.56	458,500

Peak discharge (base, 3,600 sec.-ft.).- Oct. 18 (5:30 a.m.) 5,620 sec.-ft.; Jan. 2 (2 a.m.) 5,160 sec.-ft.; Jan. 7 (3 a.m.) 12,200 sec.-ft.; Feb. 22 (1:30 a.m.) 9,590 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations near Molalla and near Canby.

Note.- Shifting-control method used Jan. 23 to Mar. 19.

Molalla River near Canby, Oreg.

Location.- Water-stage recorder, lat. 45°15', long. 122°41', in NE¼ sec. 9, T. 4 S., R. 1 E., at bridge 1½ miles south of Canby. Datum of gage is 104.56 feet above mean sea level, datum of 1929.
Drainage area.- 323 square miles.
Records available.- August 1928 to September 1948.
Average discharge.- 20 years, 1,019 second-feet.
Extremes.- Maximum discharge during year, 25,100 second-feet Jan. 7 (gage height, 14.9 feet); minimum, 82 second-feet Sept. 12 (gage height, 1.60 feet).
1928-48: Maximum discharge, that of Jan. 7, 1948; minimum, 25 second-feet Sept. 1 1938; minimum daily, 38 second-feet Sept. 7, 1935.
Remarks.- Records good. A few small diversions above station for irrigation.
Cooperation.- Staff gage read once daily October to March by employees of U. S. Weather Bureau.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 26 to Nov. 1, Jan. 11 to Feb. 21)

Oct. 1 to Jan. 6						Jan. 7 to Sept. 30					
1.8	90	2.6	370	5.5	3,510	1.6	82	2.7	430	6.0	4,090
1.9	110	2.9	560	7.0	5,840	1.8	115	3.1	675	7.0	5,690
2.0	135	3.2	790	9.1	9,710	2.0	160	3.5	1,000	9.0	9,400
2.2	200	3.7	1,260			2.2	215	4.0	1,520	11.0	13,700
2.4	275	4.5	2,180			2.4	290	5.0	2,720	13.8	21,500

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	98	3,310	616	2,120	485	2,020	1,520	1,090	1,120	258	129	11
2	98	3,430	574	6,700	468	1,860	1,480	982	1,040	246	123	10
3	162	2,720	766	4,360	436	1,610	1,610	1,970	982	232	121	10
4	210	2,460	799	3,310	430	1,420	1,430	3,440	878	226	123	11
5	179	2,350	718	2,690	420	1,310	1,360	2,730	774	218	121	10
6	162	2,300	654	9,090	385	1,310	1,250	3,070	735	236	117	10
7	144	4,040	670	21,500	380	1,320	1,160	3,160	720	286	113	9
8	141	5,450	750	10,600	458	1,300	1,080	2,690	698	250	111	9
9	179	4,160	799	5,670	742	1,370	1,110	2,220	640	222	111	8
10	365	3,370	835	4,280	647	1,280	1,170	1,870	581	209	110	8
11	1,650	3,100	871	3,480	569	1,210	1,180	1,620	675	200	110	8
12	979	2,720	853	2,920	533	1,120	1,100	1,520	661	194	108	8
13	595	3,310	1,250	2,360	515	1,160	1,030	1,780	587	182	106	8
14	484	3,880	2,820	2,020	503	1,160	1,080	1,630	527	175	101	8
15	957	5,000	2,130	1,680	1,350	1,260	1,460	1,450	474	170	108	9
16	5,600	4,910	1,680	1,500	1,750	h1,200	1,900	1,400	436	165	129	9
17	4,680	3,640	2,000	1,300	3,100	h1,410	1,990	1,410	410	160	148	9
18	9,310	3,160	2,870	1,180	3,280	h1,410	1,990	1,340	380	148	168	9
19	8,160	2,770	3,620	1,020	2,880	h1,410	1,810	1,240	362	155	138	8
20	9,710	2,290	2,660	928	2,110	h1,300	1,740	1,200	380	155	138	8
21	6,010	1,840	2,050	846	3,630	g1,520	1,840	1,190	587	148	127	8
22	3,660	1,490	1,740	790	11,000	4,780	2,000	1,180	557	142	135	9
23	2,640	1,250	1,400	742	6,390	3,440	2,220	1,140	491	142	145	32
24	1,920	1,060	1,190	712	3,800	2,680	2,220	1,150	436	148	148	34
25	1,460	925	1,020	668	2,880	2,380	2,220	1,300	395	140	140	28
26	1,260	835	934	619	5,050	2,100	1,880	1,320	371	131	133	30
27	1,060	774	889	581	4,440	1,900	1,630	1,270	344	135	125	56
28	1,110	726	1,020	557	3,240	1,930	1,490	1,490	317	178	117	52
29	1,130	662	979	539	2,490	2,080	1,300	1,400	294	170	111	53
30	2,130	616	880	533	-	1,920	1,190	1,240	278	150	108	40
31	1,980	-	835	497	-	1,680	-	1,200	-	138	111	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	68,223	9,710	98	2,201	6.81	7.86	135,300
November	78,548	5,450	616	2,618	8.11	9.04	155,800
December	40,872	3,620	574	1,318	4.08	4.71	81,070
Calendar year 1947	405,272	9,710	92	1,110	3.44	46.68	803,800
January	95,792	21,500	497	3,090	9.57	11.03	190,000
February	64,361	11,000	380	2,219	6.87	7.41	127,700
March	53,850	4,780	1,120	1,737	5.38	6.20	106,800
April	46,440	2,220	1,030	1,548	4.79	5.35	92,110
May	51,692	3,440	982	1,667	5.16	5.95	102,500
June	17,130	1,120	278	571	1.77	1.97	33,980
July	5,709	286	131	184	.570	.66	11,320
August	3,833	168	101	124	.384	.44	7,600
September	5,363	569	82	179	.554	.62	10,640
Water year 1947-48	531,813	21,500	82	1,453	4.50	61.24	1,055,000

Peak discharge (base, 7,200 sec.-ft.).- Oct 18 (11 a.m.) 11,400 sec.-ft.; Jan. 2 (9 a.m.) 7,780 sec.-ft.; Jan. 7 (10 a.m. and 11:30 a.m.) 25,100 sec.-ft.; Feb. 22 (10 a.m.) 14,000 sec.-ft.
g Computed from graph based on gage readings.
h Computed from staff-gage readings.

Molalla River near Molalla, Oreg.

Location.- Water-stage recorder, lat. 45°07', long. 122°32', in SW¼ sec. 23, T. 5 S., R. 2 E., 1½ miles downstream from Little Clear Creek and 3 miles southeast of Molalla. Prior to Oct. 1, 1947, at datum 2.13 feet higher.

Drainage area.- 201 square miles.

Records available.- November 1905 to July 1909, October 1946 to September 1948. July 1938 to September 1942 (irrigation seasons only) at site 3½ miles downstream.

Extremes.- Maximum discharge during year, 23,700 second-feet Jan. 7 (gage height, 12.87 feet); minimum, 62 second-feet Sept. 12-14 (gage height, 1.20 feet).
1905-9, 1946-48: Maximum discharge, that of Jan. 7, 1948; minimum, 40 second-feet July 28-31, 1907.

Remarks.- Records good except those for periods of no gage-height record, which are fair. No regulation. A few small diversions for domestic use or irrigation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	2,150	545	2,720	338	1,500	1,050	838	920	220	105	85
2	78	2,170	500	5,660	320	1,350	1,100	766	850	210	100	83
3	207	1,810	758	3,250	305	1,200	1,150	2,430	800	200	98	101
4	163	1,580	710	2,470	305	1,050	1,050	2,860	750	195	97	93
5	140	1,420	634	2,060	293	950	950	2,300	680	190	96	84
6	124	1,540	569	8,750	268	900	900	2,500	650	210	94	80
7	113	3,650	585	14,200	275	900	800	2,600	610	250	92	77
8	116	4,470	585	5,550	439	900	830	2,200	600	220	90	72
9	196	3,210	625	3,220	498	950	810	1,900	555	200	88	70
10	372	2,640	617	2,420	417	900	810	1,600	503	185	86	68
11	1,800	2,460	659	1,890	363	850	850	1,400	625	175	h81	64
12	815	2,120	659	1,540	338	780	820	1,250	555	170	81	63
13	515	2,690	1,290	1,260	329	780	790	1,450	503	160	h80	63
14	399	2,800	2,070	1,060	338	800	886	1,350	457	155	84	64
15	1,460	3,870	1,510	938	1,270	850	1,250	1,200	417	150	90	85
16	4,980	3,540	1,200	904	1,640	830	1,670	1,150	391	140	h98	77
17	4,230	2,740	1,610	856	2,310	900	1,730	1,100	370	140	h147	71
18	7,510	2,530	2,470	790	2,750	950	1,650	1,050	352	135	h114	68
19	6,550	2,200	2,730	715	2,110	950	1,430	1,000	335	140	h104	65
20	6,690	1,800	1,950	650	1,550	900	1,430	1,000	384	135	109	64
21	4,320	1,450	1,540	595	4,660	1,250	1,550	980	535	130	102	64
22	2,690	1,190	1,320	555	8,280	3,480	1,790	980	477	125	114	134
23	1,960	1,010	1,100	526	3,920	2,230	2,000	960	429	125	117	346
24	1,460	875	958	512	2,510	1,730	1,980	960	391	130	118	281
25	1,130	776	855	481	2,150	1,520	1,940	1,050	360	120	117	221
26	1,020	710	805	437	4,490	1,310	1,560	1,100	320	110	108	308
27	885	676	776	413	3,010	1,230	1,260	1,100	300	120	98	445
28	947	634	895	394	2,150	1,410	1,110	1,250	270	140	93	413
29	947	577	835	380	2,000	1,610	1,030	1,150	235	130	88	356
30	1,490	538	748	370	-	1,470	917	1,050	230	125	88	275
31	1,360	-	738	346	-	1,250	-	1,000	-	115	93	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	54,740	7,510	73	1,766	8.79	10.13	108,600
November	59,826	4,470	538	1,994	9.92	11.07	118,700
December	32,846	2,730	500	1,060	5.27	6.08	65,150
Calendar year 1947	319,861	7,510	73	876	4.36	59.19	634,500
January	65,912	14,200	346	2,126	10.6	12.20	130,700
February	49,626	8,280	268	1,711	8.51	9.18	98,430
March	37,680	3,480	780	1,215	6.04	6.97	74,740
April	37,093	2,000	790	1,236	6.15	6.86	73,570
May	43,524	2,860	766	1,404	6.99	8.05	86,330
June	14,854	920	230	495	2.46	2.75	29,460
July	4,950	250	110	160	.796	.92	9,820
August	3,070	147	80	99.0	.493	.57	6,090
September	4,340	445	63	145	.721	.80	8,610
Water year 1947-48	408,461	14,200	63	1,116	5.55	75.58	810,200

Peak discharge (base, 3,800 sec.-ft.).- Oct. 18 (7:30 a.m.) 9,250 sec.-ft.; Nov. 8 (7 a.m.) 4,960 sec.-ft.; Jan. 2 (4 a.m.) 8,940 sec.-ft.; Jan. 7 (4:30 a.m.) 23,700 sec.-ft.; Feb. 22 (1:30 a.m.) 11,500 sec.-ft.; Feb. 26 (7 a.m.) 5,330 sec.-ft.; May 3 (4:30 p.m.) 4,380 sec.-ft.
h Computed from staff-gage reading.
Note.- No gage-height record Feb. 29 to Mar. 21, Mar. 31 to Apr. 11, May 6 to June 6, June 26-28, June 30 to Aug. 10, Aug. 12, 14, 15; discharge computed on basis of 1 discharge measurement, recorded range in stage when available, and records for station near Canby.

Pudding River near Mount Angel, Oreg.

Location.- Water-stage recorder, lat. 45°03'49", long. 122°49'45", in SE¼ sec. 8, T. 6 S., R. 1 W., at Cline Bridge, 2 miles west of Mount Angel and 4 miles upstream from Little Pudding River. Datum of gage is 119.76 feet above mean sea level, datum of 1929.

Drainage area.- 207 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge during year, 10,000 second-feet Jan. 7 (gage height, 29.71 feet); minimum, 23 second-feet Sept. 14.
1939-48: Maximum discharge 10,700 second-feet Dec. 15, 1946 (gage height, 29.99 feet); minimum observed, 9 second-feet Sept. 13, 1944 (gage height, 0.49 foot)

Remarks.- Records good. Small diversions for irrigation above station; no regulation.

Revisions (water years).- W 1094: 1943.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 3						May 4 to Sept. 30					
1.0	27	5.0	398	22.0	3,620	0.7	22	2.0	88	8.0	7
1.2	36	6.0	545	24.0	4,320	.9	29	3.0	170	10.0	1,1
1.5	53	8.0	876	26.5	5,580	1.2	42	4.0	271	11.6	1,3
2.0	88	11.0	1,410	28.1	6,910	1.7	69	6.0	515		
3.0	170	15.0	2,150								
4.0	271	20.0	3,150								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	29	1,540	491	1,210	362	1,500	1,070	694	388	94	42	
2	30	1,920	464	2,590	350	1,420	1,040	638	354	90	41	
3	177	1,850	522	2,900	323	1,230	1,180	876	329	87	39	
4	165	1,670	548	2,610	334	1,060	1,120	1,380	316	86	40	
5	122	1,560	473	2,400	322	967	1,100	1,230	298	86	40	
6	103	1,500	437	2,980	293	920	1,060	1,290	280	94	38	
7	87	1,600	470	6,850	279	862	992	1,370	256	125	35	
8	81	1,970	592	6,260	443	822	920	1,290	239	117	35	
9	92	2,080	632	4,570	815	879	927	1,140	257	98	36	
10	219	1,890	635	3,630	713	811	990	993	217	86	36	
11	833	1,740	634	3,170	614	743	1,070	880	251	81	36	
12	653	1,570	610	2,730	550	696	1,010	819	258	79	35	
13	391	1,570	670	2,300	509	764	927	900	236	74	33	
14	295	1,740	1,140	1,910	491	822	902	824	217	68	32	
15	332	2,090	1,080	1,570	811	1,010	1,010	728	198	63	36	
16	1,520	2,430	961	1,310	1,060	1,070	1,120	675	188	59	46	
17	1,870	2,230	1,080	1,100	1,520	1,140	1,200	654	180	56	48	
18	2,650	2,010	1,370	949	1,640	1,100	1,260	603	171	56	69	
19	3,190	1,750	1,630	840	1,580	1,130	1,160	560	163	56	52	
20	3,670	1,540	1,480	760	1,350	1,110	1,050	553	172	56	48	
21	3,500	1,360	1,290	692	1,960	1,110	1,000	518	224	52	45	
22	2,890	1,150	1,210	637	3,770	2,220	1,100	480	189	49	42	
23	2,330	1,000	1,060	594	3,790	2,630	1,260	453	166	48	48	1
24	1,860	890	922	552	3,070	2,320	1,250	433	150	47	56	1
25	1,430	800	825	514	2,510	2,060	1,210	425	141	47	50	1
26	1,180	723	747	472	2,490	1,860	1,100	406	135	44	45	
27	992	658	698	433	2,390	1,640	999	388	127	42	42	1
28	950	602	815	406	2,070	1,480	918	537	118	56	39	1
29	903	551	908	392	1,760	1,370	862	538	117	56	36	1
30	1,090	515	849	415	-	1,290	772	444	101	51	35	1
31	1,130	-	786	376	-	1,180	-	425	-	45	35	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	34,764	3,670	29	1,121	5.42	6.25	68,9
November	44,499	2,430	515	1,483	7.16	7.99	88,2
December	26,029	1,630	437	840	4.06	4.68	51,6
Calendar year 1947	233,005	3,670	22	638	3.08	41.87	462,2
January	58,122	6,850	376	1,875	9.06	10.44	115,3
February	38,169	3,790	279	1,316	6.36	6.86	75,7
March	39,216	2,630	696	1,265	6.11	7.05	77,7
April	31,559	1,260	772	1,052	5.08	5.67	62,6
May	23,144	1,380	388	747	3.61	4.16	45,9
June	6,436	388	101	215	1.04	1.16	12,7
July	2,148	125	42	69.3	.335	.39	4,2
August	1,290	69	32	41.6	.201	.23	2,5
September	1,812	180	24	60.4	.292	.33	3,5
Water year 1947-48	307,188	6,850	24	839	4.05	55.21	609,3

Peak discharge (base, 2,000 sec.-ft.).- Oct. 20 (6 to 7 p.m.) 3,750 sec.-ft.; Nov. 9 (3:30 a.m.) 2,130 sec.-ft.; Nov. 16 (8 a.m.) 2,460 sec.-ft.; Jan. 7 (2 p.m.) 10,000 sec.-ft.; Feb. 22 (8 to 10 p.m.) 4,180 sec.-ft.; Mar. 23 (5 a.m.) 2,700 sec.-ft.

Pudding River at Aurora, Oreg.

Location.- Wire-weight gage, lat. 45°14', long. 122°45', in SE¼ sec. 12, T. 4 S., R. 1 W., at highway bridge at Aurora, half a mile upstream from Mill Creek. Datum of gage is 76.79 feet above mean sea level, datum of 1929.

Drainage area.- 493 square miles.

Records available.- October 1928 to September 1948.

Average discharge.- 20 years, 1,098 second-feet.

Extremes.- Maximum discharge observed during year, 14,600 second-feet Jan. 7 (gage height, 21.84 feet); minimum observed, 77 second-feet Oct. 1, 2.

1928-48: Maximum discharge, 25,400 second-feet Dec. 30, 1937 (gage height, 24.5 feet, from graph based on gage readings), from rating curve extended above 16,000 second-feet; minimum, 37 second-feet Sept. 9, 12, 1935.

Maximum stage known, 25.0 feet Jan. 9, 1923 (discharge, 27,900 second-feet, from subsequent rating curve extended above 16,000 second-feet).

Remarks.- Records good. Gage read twice daily Oct. 1 to June 30, once daily thereafter. Small diversions above station; slight regulation at times in summer by mills on tributaries.

Revisions (water years).- W 1094: 1932(M), 1931, 1934, 1936(M), 1938, 1943.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

0.4	77	5.0	975	17.0	5,950
.7	112	8.0	1,870	19.0	7,700
1.3	192	11.0	2,900	20.0	9,200
2.0	306	13.0	3,700	21.0	11,800
3.5	605	15.0	4,650	21.4	13,000

Jan. 7 to Sept. 30

0.2	75	1.4	207
.4	92	2.0	306
.8	131		

Note.- Same as preceding table above 2.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	2,330	838	1,660	685	3,600	1,850	1,220	785	186	115	99
2	77	3,430	808	3,270	665	3,000	1,730	1,100	695	175	109	96
3	80	3,470	780	4,470	635	2,530	1,730	1,050	621	175	105	96
4	146	3,160	892	4,710	605	2,080	1,860	2,190	577	162	106	94
5	238	3,420	895	4,620	607	1,810	1,830	2,550	549	163	99	96
6	189	2,890	795	4,600	577	1,690	1,840	2,590	521	165	104	99
7	167	2,640	750	12,800	533	1,690	1,750	2,760	489	175	101	96
8	148	2,680	945	11,000	531	1,720	1,620	2,670	451	206	101	91
9	146	2,930	1,100	9,700	1,170	1,720	1,530	2,410	425	213	98	88
10	175	2,950	1,150	7,700	1,570	1,730	1,440	2,080	401	186	99	85
11	369	2,810	1,120	7,070	1,440	1,540	1,720	1,800	389	170	99	81
12	1,000	2,590	1,090	6,250	1,140	1,400	1,700	1,590	431	163	98	83
13	852	2,410	1,040	5,500	992	1,320	1,590	1,580	445	160	96	81
14	565	2,820	1,500	4,780	922	1,480	1,470	1,640	413	154	95	81
15	459	3,190	2,200	4,140	1,110	1,890	1,510	1,500	381	142	95	78
16	990	3,520	1,930	3,500	1,890	2,360	1,700	1,330	353	141	97	a80
17	1,910	3,540	1,790	2,580	2,590	2,390	1,930	1,260	327	128	111	82
18	3,010	3,390	2,340	2,020	2,850	2,380	2,170	1,190	314	122	123	86
19	3,870	3,140	2,970	1,650	2,610	2,270	2,040	1,090	301	124	131	89
20	4,730	2,780	3,110	1,450	2,710	2,200	1,850	1,020	292	122	143	88
21	5,610	2,440	2,620	1,280	2,670	2,140	1,690	978	310	124	123	85
22	5,370	2,050	2,260	1,170	4,280	2,980	1,680	920	367	121	119	88
23	4,790	1,760	2,000	1,090	5,690	4,510	1,820	850	339	117	115	97
24	4,270	1,540	1,760	1,020	5,230	4,490	1,980	795	292	117	114	139
25	3,640	1,370	1,550	970	5,060	4,140	1,940	760	268	116	130	108
26	2,960	1,240	1,380	880	4,300	3,870	1,840	745	251	115	128	a96
27	2,150	1,120	1,260	805	5,000	3,440	1,700	700	240	112	117	124
28	1,730	1,030	1,370	750	4,720	2,950	1,560	738	228	108	110	259
29	1,580	950	1,640	705	4,250	2,530	1,470	1,020	214	119	105	321
30	1,680	880	1,670	705	-	2,230	1,360	950	199	128	100	317
31	2,020	-	1,510	725	-	2,000	-	828	-	121	99	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	55,000	5,610	77	1,774	3.60	4.15	109,100
November	74,470	3,540	880	2,482	5.03	5.62	147,700
December	47,063	3,110	750	1,518	3.08	3.55	93,350
Calendar year 1947	405,136	5,610	71	1,110	2.25	30.57	804,000
January	113,570	12,800	705	3,664	7.43	8.57	225,300
February	67,032	5,690	531	2,311	4.69	5.06	133,000
March	76,080	4,510	1,320	2,454	4.98	5.74	150,900
April	51,900	2,170	1,360	1,730	3.51	3.92	102,900
May	43,904	2,760	700	1,416	2.87	3.31	87,080
June	11,868	786	199	396	.803	.90	23,540
July	4,530	213	108	146	.296	.34	8,990
August	3,385	143	95	109	.221	.26	6,710
September	3,493	321	78	116	.235	.26	6,930
Water year 1947-48	552,295	12,800	77	1,509	3.06	41.68	1,096,000

a No gage-height record; discharge computed on basis of records for station near Mount Angel.

Butte Creek at Monitor, Oreg.

Location.- Staff gage, lat. 45°06', long. 122°45', in SE¼SE¼ sec. 25, T. 5 S., R. 1 W., at highway bridge in Monitor, 5 miles upstream from mouth.

Drainage area.- 64 square miles.

Records available.- October 1940 to September 1948 in reports of Geological Survey. January to December 1936 in reports of State engineer.

Extremes.- Maximum discharge during year, 4,830 second-feet Jan. 7 (gage height, 13.20 feet, from floodmark); minimum observed, 9 second-feet Sept. 11-13.
1936, 1940-48: Maximum discharge, that of Jan. 7, 1948; minimum observed, 5 second feet Sept. 7-12, 1944, Aug. 20-24, 1945.

Remarks.- Records fair. Staff gage read twice daily Oct. 1 to Mar. 31 and once daily thereafter. Small diversions above station for irrigation. Some diurnal fluctuation caused by mills at Scotts Mills.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	14	731	132	547	90	431	316	236	180	34	17	1
2	29	557	127	1,430	84	400	310	222	157	33	16	1
3	39	304	151	982	84	346	316	251	141	33	17	1
4	48	322	146	708	81	316	319	718	130	33	19	1
5	29	419	149	531	75	292	328	589	118	34	18	1
6	26	431	141	2,140	69	277	307	659	110	35	18	1
7	23	560	154	3,840	68	266	271	570	95	41	17	1
8	24	791	162	1,520	102	260	263	484	84	37	16	1
9	33	634	164	1,320	183	268	274	412	81	33	16	1
10	154	563	157	906	149	263	298	358	76	31	16	1
11	425	474	159	637	123	257	310	310	81	29	16	
12	208	440	149	570	114	257	292	292	81	28	15	
13	127	450	194	465	106	266	286	334	80	28	15	
14	100	589	388	349	239	286	292	310	66	27	14	1
15	266	797	328	310	459	298	364	274	63	26	18	1
16	1,270	744	286	280	688	304	412	263	61	22	23	1
17	g1,130	599	376	257	650	307	453	245	58	21	26	1
18	1,950	531	456	228	837	310	443	222	56	21	29	1
19	2,030	474	608	205	586	316	364	214	54	20	25	1
20	1,870	419	471	183	519	316	346	205	58	21	22	1
21	1,080	367	388	170	1,160	419	346	200	63	19	21	1
22	751	322	355	151	1,750	1,120	382	191	56	18	19	1
23	602	268	298	146	1,240	751	456	183	52	18	18	2
24	459	228	d280	139	764	618	443	178	49	18	21	3
25	376	211	d225	127	631	573	394	194	48	18	22	3
26	346	189	d187	116	913	468	346	178	43	21	21	2
27	286	175	d185	106	647	416	334	159	41	25	18	5
28	268	159	222	100	589	400	310	d190	39	23	18	3
29	292	146	216	108	493	391	274	d240	38	21	17	4
30	388	136	200	102	-	373	251	d220	37	19	18	3
31	391	-	194	91	-	340	-	200	-	17	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	15,034	2,030	14	485	7.58	8.74	29,820
November	13,030	797	136	434	6.78	7.57	25,840
December	7,648	608	127	247	3.86	4.44	15,170
Calendar year 1947	78,781	2,030	10	216	3.38	45.79	156,200
January	18,764	3,840	91	605	9.45	10.90	37,220
February	13,493	1,750	68	465	7.27	7.84	26,760
March	11,905	1,120	257	384	6.00	6.92	23,610
April	10,100	456	251	337	5.27	5.87	20,030
May	9,301	718	159	300	4.69	5.40	18,450
June	2,296	180	37	76.5	1.20	1.33	4,550
July	804	41	17	25.9	.405	.47	1,590
August	582	29	14	18.8	.294	.34	1,150
September	535	51	9	17.8	.278	.31	1,060
Water year 1947-48	103,492	3,840	9	283	4.42	60.13	205,200

d Douftful gage-height record; discharge computed on basis of records for nearby streams.
g Computed from graph based on gage readings.

Tualatin River at Gaston, Oreg.

Location.- Staff gage, lat. 45°26'10", long. 123°10'05", in W½ sec. 34, T. 1 S., R. 4 W., 1.5 miles west of Gaston.

Drainage area.- 51 square miles at measuring section at Gaston.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 2,540 second-feet Jan. 7 (gage height, 10.2 feet, from floodmark); minimum observed, 7.2 second-feet Sept. 13, 14 (gage height, -0.16 foot).

1940-48: Maximum discharge, 3,540 second-feet Dec. 19, 1941 (gage height, 13.88 feet, site and datum then in use), from rating curve extended above 2,500 second-feet; minimum observed, that of Sept. 13, 14, 1948.

Remarks.- Records fair. Staff gage read twice daily. Slight diurnal fluctuation caused by log ponds upstream. Small diversions above station for irrigation.

Revisions.- W 1044: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-17)

Oct. 1 to Feb. 21						Feb. 22 to Sept. 30					
0.1	14	1.5	107	6.5	1,020	-0.2	6.0	0.8	50	5.0	715
.3	20	2.0	182	8.0	1,320	- .1	9.0	1.0	65	7.0	1,050
.5	28	3.0	378	9.0	1,770	0.0	12	1.3	95	8.0	1,270
.8	44	4.0	568	9.4	2,010	.1	15	1.6	134	8.6	1,500
1.1	65	5.0	748			.3	23	2.0	208		
						.5	33	3.0	414		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	849	112	712	100	420	223	186	100	32	19	13
2	48	463	114	1,590	94	393	221	166	95	33	18	12
3	136	334	128	1,030	90	354	208	400	91	34	18	13
4	63	280	110	824	93	318	208	414	87	34	18	14
5	44	258	100	624	85	298	221	424	84	36	19	15
6	36	284	97	892	80	270	230	488	78	42	19	14
7	31	346	130	1,970	76	243	230	420	73	38	17	12
8	40	474	159	1,140	137	250	219	358	70	37	17	11
9	128	358	162	782	266	230	292	300	67	35	18	8.4
10	112	298	148	761	196	204	375	272	65	32	19	9.0
11	270	262	189	802	157	192	338	256	70	32	17	7.8
12	157	242	193	649	137	184	307	248	67	31	17	8.4
13	100	278	234	497	127	168	298	287	62	29	17	7.5
14	74	292	444	440	124	188	329	270	59	28	17	9.0
15	155	734	336	346	298	184	340	252	56	27	20	13
16	493	470	290	298	478	186	336	252	56	25	22	13
17	527	396	290	262	653	206	346	261	54	24	24	13
18	744	314	398	256	926	206	309	230	54	24	26	12
19	788	282	608	215	516	221	267	212	53	24	20	11
20	827	256	400	194	380	223	252	198	58	24	17	12
21	550	227	314	179	1,060	442	248	170	56	24	18	11
22	304	198	288	170	1,500	1,280	322	163	54	23	19	10
23	264	179	276	159	928	660	364	150	49	24	18	34
24	219	165	334	159	673	484	350	142	46	22	17	25
25	186	157	300	143	492	397	358	144	45	21	18	15
26	159	143	266	128	866	350	322	121	43	21	17	14
27	142	134	242	121	660	316	272	131	40	24	16	30
28	186	126	252	116	544	296	243	128	38	25	16	29
29	168	119	244	110	457	285	217	140	36	24	15	23
30	213	114	234	107	-	270	206	123	32	21	15	16
31	398	-	246	102	-	241	-	105	-	20	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	7,578	827	16	244	4.78	5.53	15,030
November	9,032	849	114	301	5.90	6.59	17,910
December	7,638	608	97	246	4.82	5.57	15,150
Calendar year 1947	62,321	1,830	13	171	3.35	45.46	123,600
January	15,759	1,970	102	508	9.96	11.49	31,260
February	12,193	1,500	76	420	8.24	8.89	24,180
March	9,959	1,280	168	321	6.29	7.26	19,750
April	8,451	375	206	282	5.53	6.16	16,760
May	7,411	488	105	239	4.69	5.40	14,700
June	1,838	100	32	61.3	1.20	1.34	3,650
July	870	42	20	28.1	.551	.63	1,730
August	560	26	12	18.1	.355	.41	1,110
September	435.1	34	7.5	14.5	.284	.32	863
Water year 1947-48	81,724.1	1,970	7.5	223	4.37	59.59	162,100

Peak discharge (base, 2,000 sec.-ft.). Jan. 2 (about 4 a.m.) 2,330 sec.-ft.; Jan. 7 (about 6 a.m.) 2,540 sec.-ft.; Feb. 22 (8 a.m.) 2,470 sec.-ft.; Mar. 22 (about 5 a.m.) 2,170 sec.-ft.

Tualatin River near Dilley, Oreg.

Location.- Wire-weight gage, lat. 45°28'25", long. 123°07'20", in NW¼ sec. 24, T. 1 S., R. 4 W., at county road bridge three-quarters of a mile downstream from Scoggin Cre and 1½ miles south of Dilley. Datum of gage is 151.10 feet above mean sea level, d of 1929.

Drainage area.- 133 square miles.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge observed during year, 3,800 second-feet Feb. 22; maximum gage height, 12.2 feet Jan. 7, from floodmark; minimum discharge observed, 9 second feet Sept. 9.

1940-48: Maximum discharge, 5,360 second-feet Dec. 19, 1941 (gage height, 12.90 feet, from floodmark); minimum observed, 4 second-feet Aug. 21, 1941.

Remarks.- Records good except those for periods of no gage-height record, which are fa Gage read once daily. Diversions above station for irrigation, chiefly in Wapato L area. Diurnal fluctuation cuased by dam below Gaston.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	20	930	200	774	217	1,020	408	305	170	60	35	
2	20	968	190	2,290	207	962	422	300	160	60	31	
3	34	718	188	2,580	198	698	386	700	150	60	28	
4	48	657	193	1,990	192	605	378	740	150	60	30	
5	53	550	178	1,650	196	566	398	800	140	61	30	
6	56	498	172	1,800	184	505	430	880	140	75	28	
7	40	497	191	3,190	174	505	446	780	130	67	25	
8	60	624	224	3,430	250	466	429	660	120	66	26	
9	95	545	263	2,080	510	469	485	600	120	64	24	
10	126	499	252	1,740	555	418	703	540	110	66	26	
11	354	431	276	1,960	448	379	687	492	120	60	30	
12	210	375	316	1,700	385	362	635	510	110	55	26	
13	95	401	303	1,350	342	344	560	540	110	52	26	
14	99	452	763	1,080	314	341	499	510	100	49	28	
15	89	568	689	952	769	379	526	490	100	46	30	
16	564	932	630	818	932	383	552	470	98	41	32	
17	624	830	582	715	1,470	402	586	460	95	40	40	
18	900	727	576	629	1,700	423	583	420	92	39	50	
19	934	634	992	548	1,440	448	520	380	92	38	42	
20	1,080	545	962	484	1,020	453	472	350	104	38	33	
21	1,020	513	830	433	1,830	510	428	310	100	38	31	
22	768	405	936	392	3,800	2,320	481	270	96	37	34	
23	645	352	628	359	3,380	1,810	607	260	94	38	33	
24	582	313	707	336	2,150	1,360	595	250	90	39	34	
25	451	280	669	311	1,670	1,070	570	240	88	38	34	
26	291	244	594	288	1,530	846	545	230	84	37	33	
27	241	227	511	266	1,630	750	484	220	85	36	34	
28	302	216	523	252	1,300	783	437	220	76	40	32	
29	244	206	565	244	1,150	579	388	240	63	38	32	
30	296	206	505	238	-	512	347	210	60	38	24	
31	609	-	471	228	-	455	-	180	-	37	18	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	10,950	1,080	20	353	2.65	3.06	21,
November	15,343	968	206	511	3.84	4.29	30,
December	15,079	992	172	486	3.65	4.22	29,
Calendar year 1947	127,078	4,380	17	348	2.62	35.54	252,
January	35,107	3,430	228	1,132	8.51	9.82	69,
February	29,943	3,800	174	1,033	7.77	8.37	59,
March	21,123	2,320	341	681	5.12	5.91	41,
April	14,987	703	347	500	3.76	4.19	29,
May	13,557	880	180	437	3.29	3.79	26,
June	3,247	170	60	108	.812	.91	6,
July	1,513	75	36	48.8	.367	.42	3,
August	959	50	18	30.9	.232	.27	1,
September	942	100	9	31.4	.236	.26	1,
Water year 1947-48	162,750	3,800	9	445	3.35	45.51	322,

Note.- No gage-height record May 2-10, May 12 to June 26, July 1-3; discharge computed on basi records for station at Gaston.

Tualatin River at Farmington, Oreg.

Location.- Staff gage, lat. 45°27'00", long. 122°57'00", in SE¼ sec. 29, T. 1 S., R. 2 W., at highway bridge at Farmington, 7½ miles southwest of Beaverton. Auxiliary staff gage at highway bridge 6½ miles downstream, 1 mile northeast of Scholls. Datum of each gage is 100.42 feet above mean sea level, datum of 1929. All discharge measurements made at Farmington.

Drainage area.- 568 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge observed during year, 11,800 second-feet Jan. 9 (gage height, 32.76 feet); minimum observed, 53 second-feet Sept. 12.

1939-48: Maximum discharge observed, 14,500 second-feet Dec. 20, 1941; maximum gage height observed, 33.45 feet Dec. 21, 1941; minimum discharge observed, 28 second-feet Sept. 13, 14, 1944.

Maximum stage known, about 37 feet at Farmington and 33.4 feet at gage near Scholls, Dec. 22 or 23, 1933.

Remarks.- Records good. Gages read twice daily. For gage heights above 8 feet, discharge computed by using fall, as determined by twice-daily readings of auxiliary gage, as a factor. Slight regulation by log ponds and dam below Gaston have little effect at this station; considerable pondage between this station and station near Willamette. Some diversions by pumping for irrigation above station, chiefly at Wapato Lake, near Gaston.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	1,510	736	2,030	763	4,940	1,910	1,110	689	199	110	78
2	92	2,110	701	2,730	770	4,660	1,590	1,070	646	189	108	71
3	90	2,760	670	3,540	741	4,010	1,590	1,030	590	185	100	71
4	206	3,020	703	4,350	726	3,640	1,570	1,530	548	182	98	74
5	206	3,040	720	5,520	722	3,160	1,540	1,690	506	182	95	74
6	163	2,450	640	6,400	712	2,840	1,570	2,260	458	187	86	76
7	143	1,920	572	a6,750	646	2,480	1,660	2,770	436	218	84	75
8	143	1,620	717	a8,140	647	2,110	1,600	2,880	388	227	84	69
9	131	1,610	909	9,680	1,210	1,870	1,560	2,850	394	223	84	67
10	195	1,670	949	a9,450	1,760	1,640	1,840	2,580	386	216	86	59
11	292	1,640	978	a8,830	1,850	1,490	1,910	2,510	376	200	85	54
12	514	1,570	1,110	7,140	1,700	1,330	1,870	2,470	374	190	84	53
13	469	1,420	1,090	6,820	1,520	1,310	1,850	2,020	391	178	84	55
14	311	1,610	1,470	6,370	1,330	1,230	1,750	1,810	379	168	84	57
15	248	1,960	1,710	5,920	1,650	1,320	1,720	1,730	353	153	86	64
16	324	2,340	1,750	5,380	2,140	1,310	1,770	1,580	338	147	100	62
17	926	2,440	1,660	4,680	2,540	1,330	1,790	1,490	324	138	107	62
18	1,200	2,530	1,690	4,000	2,920	1,380	1,940	1,480	316	136	114	71
19	1,520	2,570	2,150	3,490	3,120	1,400	1,930	1,400	306	136	152	75
20	1,690	2,480	2,460	3,080	3,310	1,390	1,860	1,340	304	136	164	74
21	2,070	2,240	2,510	2,650	3,630	1,380	1,640	1,290	337	136	110	73
22	2,250	2,090	2,470	2,230	4,600	2,100	1,590	1,220	341	136	103	74
23	2,260	1,670	2,410	1,710	6,350	3,060	1,650	1,080	312	134	104	84
24	2,090	1,360	2,270	1,420	7,770	3,650	1,660	983	290	125	105	125
25	1,650	1,220	2,180	1,320	7,310	3,980	1,610	871	278	123	101	177
26	1,210	1,100	2,050	1,290	6,800	4,160	1,580	852	263	120	101	157
27	900	1,030	1,940	1,070	6,410	3,920	1,520	751	256	119	104	148
28	703	889	1,880	1,030	6,080	3,590	1,440	741	248	115	100	150
29	770	805	1,920	897	5,600	3,210	1,350	892	226	118	88	172
30	790	752	1,890	860	-	2,820	1,250	854	208	120	84	155
31	880	-	1,730	838	-	2,400	-	738	-	117	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	24,532	2,260	90	791	1.39	1.61	48,660
November	55,426	3,040	752	1,848	3.25	3.63	109,900
December	46,635	2,510	572	1,504	2.65	3.05	92,500
Calendar year 1947	380,064	8,210	47	1,041	1.83	24.89	753,800
January	129,615	9,680	838	4,181	7.36	8.49	257,100
February	85,327	7,770	646	2,942	5.18	5.59	169,200
March	79,110	4,940	1,230	2,552	4.49	5.18	156,900
April	50,110	1,940	1,250	1,670	2.94	3.28	99,390
May	47,872	2,880	738	1,544	2.72	3.13	94,950
June	11,261	689	208	375	.660	.74	22,340
July	4,953	227	115	160	.282	.32	9,820
August	3,078	164	81	99.2	.175	.20	6,100
September	2,656	177	53	88.5	.156	.17	5,270
Water year 1947-48	540,573	9,680	53	1,477	2.60	35.39	1,072,000

a No gage-height record; discharge computed on basis of auxiliary gage readings.

Note.- Discharge computed using fall as determined by twice-daily readings of auxiliary gage as a factor Oct. 17 to May 31.

Tualatin River near Willamette, Oreg.

Location.- Water-stage recorder, lat. 45°21'05", long. 122°40'35", in SW¼ sec. 34, T. 1 S., R. 1 E., 300 feet upstream from county bridge and 1 mile northwest of Willamette. Datum of gage is 85.61 feet above mean sea level, datum of 1929 (Levels by Corps of Engineers).
Drainage area.- 710 square miles.
Records available.- July 1928 to September 1948.
Average discharge.- 20 years, 1,358 second-feet (including flow of Oswego Canal).
Extremes (river only).- Maximum discharge during year, 10,400 second-feet Jan. 10 (gage height, 12.32 feet); minimum, 13 second-feet Oct. 1.
1928-48: Maximum discharge, 23,300 second-feet Dec. 23, 1933 (gage height, 17.7 feet, present datum); minimum observed, 2 second-feet Aug. 14-21, 1928 (gage height, 1.27 feet, present datum).
Remarks.- Records excellent above 50 second-feet and good below. Oswego Canal (see p. diverts water 4½ miles above station for recreational use in Oswego Lake and develop ment of power between outlet of that lake and Willamette River, to which water is re turned. Several small diversions above station for irrigation. Some regulation in low-water season by flashboards on crest of diversion dam of Oswego Canal.
Revisions (water years).- W 1014: 1943.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 17 to Jan. 1, Aug. 1 to Sept. 30)

1.6	13	2.2	80	3.6	500	7.5	3,370
1.7	20	2.5	135	4.1	750	9.0	5,110
1.8	29	2.8	208	5.0	1,290	10.5	7,290
2.0	52	3.2	336	6.0	2,020	12.4	10,500

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	16	1,630	756	2,410	993	5,870	2,560	1,420	888	179	76	
2	29	2,340	717	4,040	975	5,400	2,180	1,310	838	167	76	
3	31	2,600	700	4,520	927	4,920	1,980	1,370	794	159	71	
4	56	2,640	700	4,770	915	4,380	1,930	1,700	734	159	68	
5	129	2,570	712	5,160	904	3,890	1,920	2,140	695	157	65	
6	117	2,410	685	6,100	893	3,460	1,950	2,760	645	162	61	
7	92	2,130	675	8,530	827	3,080	2,040	3,220	425	174	57	
8	82	1,860	756	8,800	860	2,720	2,020	3,410	378	184	53	
9	82	1,720	927	9,800	1,150	2,410	2,030	3,360	418	186	52	
10	99	1,740	1,020	10,400	1,750	2,130	2,110	3,240	410	184	51	
11	211	1,750	1,040	10,100	2,060	1,880	2,220	3,070	398	176	50	
12	312	1,700	1,050	9,240	2,030	1,700	2,250	2,840	398	164	47	
13	434	1,700	1,170	8,460	1,870	1,570	2,250	2,590	410	150	46	
14	329	1,780	1,430	7,720	1,740	1,510	2,180	2,290	410	139	44	
15	268	2,280	1,720	7,110	2,040	1,600	2,100	2,080	386	127	42	
16	382	2,640	1,930	6,480	2,520	1,650	2,090	1,910	366	111	41	
17	734	2,730	2,020	5,780	3,170	1,710	2,260	1,800	347	106	48	
18	1,250	2,740	2,110	5,140	3,520	1,760	2,410	1,730	329	102	61	
19	1,660	2,710	2,380	4,410	3,610	1,780	2,400	1,640	318	97	82	
20	2,220	2,650	2,620	3,750	3,810	1,760	2,280	1,540	315	94	94	
21	2,500	2,480	2,700	3,230	4,680	1,790	2,130	1,470	329	94	88	
22	2,400	2,240	2,710	2,760	5,650	3,280	1,990	1,390	344	90	78	
23	2,400	1,890	2,640	2,320	5,660	3,970	1,930	1,270	336	90	72	
24	2,280	1,570	2,530	1,900	5,970	4,090	1,920	1,170	301	90	71	12
25	2,000	1,350	2,400	1,640	6,580	4,200	1,900	1,100	278	88	70	15
26												
26	1,570	1,190	2,270	1,480	7,000	4,320	1,840	1,050	259	87	72	16
27	1,190	1,070	2,150	1,350	6,960	4,300	1,820	993	243	85	71	17
28	981	975	2,120	1,210	6,660	4,090	1,740	981	234	83	66	15
29	876	888	2,120	1,130	6,260	3,740	1,630	1,020	225	82	60	16
30	915	816	2,120	1,080	-	3,360	1,540	1,060	200	80	53	15
31	969	-	2,080	1,040	-	2,960	-	975	-	78	55	-

Month	Observed				Diversion by Oswego Canal in acre-feet	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Run i inc
	Maximum	Minimum	Mean				Mean	Per square mile	
October	2,500	16	859	52,790	2,380	55,170	897	1.26	
November	2,740	816	1,960	116,600	2,260	118,900	1,998	2.81	
December	2,710	675	1,644	101,100	4,800	105,900	1,722	2.43	
Calendar year 1947	7,070	8	1,124	813,500	50,980	864,500	1,194	1.68	22
January	10,400	1,040	4,899	301,200	6,290	307,500	5,001	7.04	
February	7,000	827	3,172	182,400	5,190	187,600	3,261	4.59	
March	5,870	1,510	3,074	189,000	5,760	194,800	3,168	4.46	
April	2,560	1,540	2,053	122,200	4,080	126,300	2,123	2.99	
May	3,410	975	1,868	114,800	4,190	119,000	1,935	2.73	
June	888	200	422	25,090	4,120	29,210	491	.692	
July	186	78	127	7,780	4,160	11,940	194	.273	
August	94	41	62.6	3,850	3,860	7,710	125	.176	
September	176	21	64.4	3,830	3,520	7,350	124	.175	
Water year 1947-48	10,400	16	1,882	1,221,000	50,610	1,272,000	1,752	2.47	33

Scoggin Creek near Gaston, Oreg.

Location.- Staff gage, lat. 45°27', long. 123°09', in NW¼ sec. 26, T. 1 S., R. 4 W., 200 feet upstream from highway bridge, 1½ miles upstream from mouth, and 1.7 miles northwest of Gaston. Prior to Aug. 2, 1947, water-stage recorder at site 300 feet upstream at same datum and referred to present gage. Datum of gage is 168.44 feet above mean sea level, datum of 1929.
Drainage area.- 44.0 square miles.
Records available.- October 1940 to September 1948.
Extremes.- Maximum discharge observed during year, 1,530 second-feet Jan. 7 (gage height, 12.76 feet); minimum observed, 3.5 second-feet Sept. 9 (gage height, 2.00 feet).
1940-48: Maximum discharge, 1,610 second-feet Jan. 18, 1941; maximum gage height, 14.45 feet Feb. 7, 1945; minimum discharge, 1.2 second-feet Aug. 22, 1941, Oct. 7, 8, 1943.
Remarks.- Records fair. Gage read twice daily October to March; once daily April to September. Small diversions by pumping above station for irrigation. Water supply for Hillsboro is diverted from Sein Creek above station; some diurnal fluctuation caused by log ponds above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 20 to Nov. 28)

2.0	3.5	2.6	22	4.5	252
2.1	4.8	2.7	30	5.0	300
2.2	6.4	2.9	49	6.0	405
2.3	8.8	3.3	93	8.0	667
2.4	12	3.6	132	10.0	980
2.5	17	4.0	192	12.3	1,430

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	552	79	427	82	305	141	118	80	27	12	7.8
2	7.4	331	78	1,080	80	261	147	110	78	27	11	12
3	27	255	76	749	80	226	147	177	75	27	8.8	8.8
4	14	199	74	604	82	218	144	a270	71	27	9.5	11
5	14	162	69	453	76	202	147	280	69	27	10	11
6	11	147	69	800	70	188	162	370	264	28	a11	8.8
7	8.8	150	83	1,410	69	168	162	a320	64	28	12	8.6
8	12	174	83	855	156	176	150	264	60	25	12	4.8
9	53	158	83	566	178	154	198	214	53	26	10	3.5
10	36	140	91	653	146	144	252	192	49	24	8.3	6.9
11	60	129	105	618	129	135	231	168	49	a22	12	6.4
12	53	115	108	495	112	a130	206	177	47	21	12	6.4
13	37	118	117	390	105	a125	180	198	49	17	11	6.4
14	28	156	241	334	108	147	203	177	47	17	11	6.4
15	30	423	205	271	346	132	192	168	45	17	12	4.8
16	262	315	180	242	d420	129	177	177	47	17	a13	a6.5
17	d310	272	195	219	534	146	206	168	47	16	a15	8.3
18	410	229	310	192	570	165	200	165	39	16	17	8.3
19	474	192	334	174	431	159	177	162	a40	17	12	7.8
20	594	166	269	158	320	162	162	144	a40	16	12	6.1
21	310	146	231	147	730	246	162	132	39	16	12	5.8
22	212	135	210	132	1,180	998	206	a125	39	17	12	4.8
23	d180	124	203	125	912	503	206	115	39	16	11	28
24	d150	109	230	118	538	372	206	108	39	15	11	17
25	121	106	210	113	400	295	192	98	39	15	10	12
26	100	93	190	104	517	252	177	100	34	15	9.5	12
27	92	92	176	99	434	224	159	100	30	16	9.5	22
28	109	89	169	93	393	196	147	100	30	17	9.5	27
29	101	81	190	90	349	182	132	100	28	16	8.8	27
30	249	80	159	83	-	164	126	a90	28	15	5.4	14
31	236	-	160	82	-	152	-	80	-	12	5.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	4,307.1	594	5.9	139	3.16	3.64	8,540
November	5,438	552	80	181	4.11	4.60	10,790
December	4,997	334	69	161	3.66	4.22	9,910
Calendar year 1947	40,892.1	1,200	-	112	2.55	34.57	81,120
January	11,876	1,410	82	383	8.70	10.04	23,560
February	9,547	1,180	69	329	7.48	8.07	18,940
March	7,056	998	125	228	5.18	5.96	14,000
April	5,297	252	126	177	4.02	4.48	10,510
May	5,167	370	80	167	3.80	4.37	10,250
June	1,459	80	28	48.6	1.10	1.23	2,890
July	612	28	12	19.7	.448	.52	1,210
August	336.1	17	5.4	10.8	.245	.28	667
September	320.2	28	3.5	10.7	.243	.27	635
Water year 1947-48	56,412.4	1,410	3.5	154	3.50	47.68	111,900

Peak discharge (base, 1,100 sec.-ft.).- Jan. 2 (10 a.m.) 1,120 sec.-ft.; Jan. 7 (10 a.m.) 1,530 sec.-ft.; Feb. 22 (4 p.m.) 1,310 sec.-ft.; Mar. 22 (10:30 a.m.) 1,120 sec.-ft.
a No gage-height record; discharge computed on basis of records for Tualatin River at Gaston and near Dilley.
d Doubtful gage-height record; discharge computed as explained in footnote a.

Gales Creek near Forest Grove, Oreg.

Location.- Water-stage recorder, lat. 45°33'10", long. 123°11'10", in E½ sec. 21, T. 1 R. 4 W., at bridge 2½ miles southeast of village of Gales Creek and 4½ miles northw of Forest Grove. Datum of gage is 203.01 feet above mean sea level, datum of 1929.

Drainage area.- 66 square miles.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 2,220 second-feet Jan. 7 (gage height, 6.45 feet); minimum, 13 second-feet Sept. 11, 12 (gage height, 1.68 feet).
1940-48: Maximum discharge, 4,040 second-feet Feb. 7, 1945 (gage height, 8.38 minimum, 1 second-foot Aug. 19, 1947.

Remarks.- Records good. Small diversions above station for irrigation; some diurnal fluctuation at low flow caused by log ponds upstream.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 1 to Jan. 1)

1.7	14	2.2	57	3.7	435
1.8	20	2.3	72	4.1	610
1.9	27	2.5	110	4.5	825
2.0	35	2.9	200	5.3	1,320
2.1	45	3.3	305	6.3	2,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	15	660	106	921	133	435	212	195	112	39	22	
2	27	495	98	1,750	125	390	218	181	100	41	22	
3	37	379	106	1,250	120	344	205	362	96	39	24	
4	28	317	100	1,020	125	314	212	407	94	39	23	
5	25	272	92	798	116	290	235	428	88	40	23	
6	28	235	88	1,010	106	265	232	511	83	44	22	
7	20	225	100	2,030	108	248	228	471	79	42	21	
8	21	262	118	1,420	278	248	218	400	72	41	21	
9	47	275	120	982	353	228	296	344	74	41	21	
10	68	262	127	1,100	314	208	428	302	72	37	21	
11	110	242	151	1,020	268	195	376	268	74	32	20	
12	53	225	158	820	238	183	338	268	72	34	23	
13	41	235	255	655	218	174	305	302	70	32	19	
14	35	278	335	528	245	183	302	275	69	30	20	
15	119	503	296	443	676	176	290	260	66	29	23	
16	299	443	268	386	704	183	278	262	62	28	25	
17	533	382	299	341	1,010	190	314	255	62	26	27	
18	570	335	414	305	964	205	284	232	60	26	27	
19	630	290	524	272	698	220	262	225	57	28	24	
20	781	260	435	252	910	232	248	212	64	28	22	
21	459	230	376	235	1,190	633	250	195	62	26	23	
22	323	208	329	218	1,670	1,550	290	181	56	26	23	
23	281	188	314	202	1,240	864	296	167	52	26	21	
24	228	169	386	193	864	610	290	158	50	26	21	
25	190	155	350	181	704	463	293	149	51	25	27	
26	167	142	314	167	748	382	275	140	49	24	20	
27	144	129	287	158	655	335	262	135	47	25	19	
28	176	120	299	151	575	299	245	149	45	29	19	
29	153	114	290	146	487	268	230	158	43	26	18	
30	186	110	262	140	-	252	212	125	39	25	17	
31	341	-	287	135	-	228	-	116	-	23	17	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-
October	6,135	781	15	198	3.00	3.46	12,
November	8,140	660	110	271	4.11	4.59	16,
December	7,684	524	88	248	3.76	4.33	15,
Calendar year 1947	64,572	2,400	10	177	2.68	36.39	128,
January	19,229	2,030	135	620	9.39	10.84	38,
February	16,042	1,870	106	553	8.38	9.04	31,
March	10,795	1,550	174	348	5.27	6.08	21,
April	8,124	428	205	271	4.11	4.58	16,
May	7,813	511	116	252	3.82	4.40	15,
June	2,020	112	39	67.3	1.02	1.14	4,
July	977	44	23	31.5	.477	.55	1,
August	675	27	17	21.8	.330	.38	1,
September	610	42	14	20.3	.308	.34	1,
Water year 1947-48	88,244	2,030	14	241	3.65	49.73	175,

Peak discharge (base, 1,100 sec.-ft.).- Jan. 1 (11:30 p.m.) 2,080 sec.-ft.; Jan. 7 (4:30 a.m.) 2,220 sec.-ft.; Feb. 22 (3 to 4 a.m.) 2,060 sec.-ft.; Mar. 22 (3 a.m.) 1,990 sec.-ft.

East Fork Dairy Creek at Mountaindale, Oreg.

Location.- Water-stage recorder, lat. 45°38'05", long. 123°02'35", in NW¼ sec. 27, T. 2 N., R. 3 W., at dam site three-quarters of a mile north of village of Mountaindale. Datum of gage is 183.04 feet above mean sea level, datum of 1929.

Drainage area.- 43.0 square miles, including two small streams on left bank which enter creek below station.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 1,110 second-feet Jan. 7 (gage height, 11.98 feet); minimum, 12 second-feet Oct. 1, 2, 5-8, Sept. 9-14.
1940-48: Maximum discharge, 1,380 second-feet Feb. 6, 1946 (gage height, 12.46 feet); minimum, 7 second-feet Sept. 10-12, 1944.

Remarks.- Records good except those for periods of shifting-control or no gage-height record, which are fair. Records include measured or estimated discharge of two small streams which flow through dam site at station and enter creek from left bank about a mile below station. Probably some pumping for irrigation above station. Diurnal fluctuation at low stages caused by log pond upstream.

Rating table, water year 1947-48, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

0.5	12	3.5	111	10.5	689
.7	15	5.0	199	11.2	820
1.2	25	7.0	356	11.8	1,020
1.8	43	9.0	530		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	226	73	305	93	291	128	105	80	34	20	14
2	14	203	67	681	89	258	135	102	75	34	19	14
3	15	166	76	598	86	223	129	154	73	34	19	15
4	13	134	71	549	89	201	126	157	71	33	20	14
5	13	118	64	470	84	188	131	218	69	34	19	14
6	12	112	61	500	80	171	131	383	65	36	19	13
7	12	130	73	989	79	158	133	359	62	37	19	13
8	14	152	75	767	144	158	136	289	60	34	18	13
9	20	152	76	551	161	146	155	236	59	32	19	13
10	31	158	77	524	143	134	176	198	58	30	19	13
11	40	145	84	497	127	128	179	171	59	30	18	12
12	18	138	83	453	118	122	166	171	58	30	17	12
13	15	173	107	396	112	118	154	170	57	28	17	12
14	14	198	146	336	119	115	145	152	55	27	18	13
15	29	310	149	283	264	112	134	142	53	26	20	14
16	75	290	139	244	306	114	129	145	51	24	20	14
17	118	250	135	212	473	112	158	136	a50	24	19	14
18	147	210	161	188	512	111	148	127	a50	24	18	14
19	171	a190	184	164	408	112	146	127	a48	25	17	14
20	272	a170	181	155	356	111	142	122	a55	24	16	13
21	186	a150	166	141	541	180	139	114	a50	24	16	13
22	129	a130	145	134	830	625	147	109	47	23	17	15
23	109	a120	132	125	672	462	138	105	45	23	16	21
24	86	a110	138	120	510	362	132	101	43	23	17	17
25	72	101	121	113	427	289	132	97	42	22	18	14
26	65	93	118	109	409	236	127	94	42	21	16	18
27	58	88	116	105	381	205	124	92	40	23	15	22
28	69	83	123	103	356	181	122	103	38	22	15	18
29	60	78	116	100	316	162	118	91	36	22	15	17
30	71	76	111	97	-	149	111	85	35	21	14	14
31	103	-	124	93	-	136	-	82	-	20	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,063	272	12	66.5	1.55	1.78	4,090
November	4,654	310	76	155	3.60	4.03	9,230
December	3,492	184	61	113	2.63	3.02	6,930
Calendar year 1947	32,170	1,050	11	88.1	2.05	27.82	63,800
January	10,102	989	93	326	7.58	8.74	20,040
February	8,285	830	79	286	6.65	7.17	16,430
March	6,070	625	111	196	4.56	5.25	12,040
April	4,171	179	111	139	3.23	3.61	8,270
May	4,737	383	82	153	3.56	4.10	9,400
June	1,626	80	35	54.2	1.26	1.41	3,230
July	844	37	20	27.2	.633	.73	1,670
August	544	20	14	17.5	.407	.47	1,080
September	437	22	12	14.6	.340	.38	867
Water year 1947-48	47,025	989	12	128	2.98	40.69	93,280

Peak discharge (base, 700 sec.-ft.).- Jan. 2 (5:30 p.m.) 704 sec.-ft.; Jan. 7 (12 m.) 1,110 sec.-ft.; Feb. 22 (4 to 6 p.m.) 878 sec.-ft.; Mar. 22 (9 a.m.) 701 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for nearby stations.

Note.- Shifting-control method used Oct. 1 to Dec. 31, July 1 to Sept. 30.

Oswego Canal near Oswego, Oreg.

Location.- Water-stage recorder, lat. 45°23'30", long. 122°43'10", in NW¼ sec. 20, T. 2 S., R. 1 E., half a mile downstream from point of diversion from Tualatin River, 1 mile upstream from Oswego Lake, and 3 miles southwest of Oswego. Datum of gage is 96.50 feet above mean sea level, datum of 1929. Auxiliary gage at outlet of Oswego Lake for determination of backwater effect of lake on stages at canal gage.

Records available.- October 1928 to September 1948.

Average discharge.- 20 years, 66.3 second-feet.

Extremes.- Maximum daily discharge during year, 226 second-feet Jan. 6; minimum daily, 1.0 second-foot Oct. 16, 21, 22 (head gate closed).
1928-48: Maximum discharge, 6,000 second-feet Dec. 23, 1933 (gage height, 16.1 feet, site and datum then in use), computed from slope, area, and lake spillway data; practically no flow at times.

Remarks.- Records good. Oswego Canal diverts water from Tualatin River in NW¼ sec. 20, but diversion dam is in NE¼ sec. 33, about 3 miles downstream. Water used for development of power below Oswego Lake and returned to Willamette River at that point.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	70	6.0	48	108	36	151	82	52	33	73	64	
2	70	3.5	46	156	35	143	71	48	31	72	63	
3	71	2.5	46	169	33	134	67	52	28	71	62	
4	74	2.5	46	179	33	123	66	62	25	71	60	
5	80	2.0	46	192	32	114	66	78	24	71	59	
6	79	1.5	46	226	31	105	67	99	23	71	58	
7	78	1.5	45	125	29	96	68	115	41	72	58	
8	77	2.0	47	74	32	88	68	121	82	74	58	
9	77	1.5	54	110	45	80	68	120	84	74	58	
10	79	2.0	57	140	63	72	70	115	84	74	58	
11	87	1.5	57	137	71	66	73	110	84	73	58	
12	90	1.5	58	129	70	60	74	102	84	71	58	
13	92	2.5	61	122	67	57	74	93	85	70	58	
14	88	3.0	69	117	63	56	72	83	84	68	58	
15	53	3.0	81	111	71	58	70	75	83	67	59	
16	1.0	2.5	87	106	83	59	69	69	84	66	60	
17	1.5	65	90	100	98	61	74	66	83	66	63	
18	1.5	112	93	93	105	62	77	63	82	65	67	
19	2.5	112	103	87	108	63	77	60	81	65	69	
20	1.5	110	111	79	112	62	74	57	81	65	69	
21	1.0	105	114	85	131	65	69	55	82	65	69	
22	1.0	96	114	84	148	103	67	52	83	65	69	
23	1.5	85	112	71	148	116	66	47	82	66	68	
24	1.5	74	108	60	154	118	65	45	81	65	68	
25	1.5	66	104	54	162	121	64	42	80	63	68	
26	2.0	61	100	51	169	122	63	39	79	62	67	
27	2.0	57	96	47	168	122	62	37	78	62	67	
28	3.0	54	96	43	164	118	60	37	77	61	66	
29	3.5	52	95	41	157	111	57	38	76	61	64	
30	4.0	49	95	38	-	103	56	41	74	62	63	
31	5.0	-	94	37	-	93	-	37	-	64	61	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff acre-fe
October	1,199	92	1.0	38.7	2,3
November	1,137	112	1.5	37.9	2,2
December	2,419	114	45	78.0	4,8
Calendar year 1947	25,701	258	1.0	63.8	50,9
January	3,171	226	37	102	6,2
February	2,618	169	29	90.3	5,1
March	2,902	151	56	93.6	5,7
April	2,056	82	56	68.5	4,0
May	2,110	121	37	68.1	4,1
June	2,078	85	23	69.3	4,1
July	2,095	74	61	67.6	4,1
August	1,947	69	58	62.8	3,8
September	1,775	73	52	59.2	3,5
Water year 1947-48	25,507	226	1.0	69.7	50,6

Clackamas River at Big Bottom, Oreg.

Location.- Water-stage recorder, lat. 45°01', long. 121°55', in sec. 26, T. 6 S., R. 7 E., just downstream from Pot Creek at lower end of Big Bottom, half a mile upstream from site of proposed dam, and 28 miles southeast of Estacada.
Drainage area.- 132 square miles.
Records available.- April 1920 to September 1948.
Average discharge.- 28 years, 446 second-feet.
Extremes.- Maximum discharge during year, 6,620 second-feet Jan. 7 (gage height, 8.49 feet), from rating curve extended above 1,700 second-feet; minimum, 228 second-feet Oct. 6, 7 (gage height, 1.59 feet).
1920-48: Maximum discharge, 6,750 second-feet Mar. 31, 1931, Dec. 15, 1946, from rating curves extended above 3,500 and 1,700 second-feet, respectively; maximum gage height, 8.58 feet Dec. 15, 1946; minimum discharge, 184 second-feet Sept. 12, 1942.
Remarks.- Records fair. No regulation or diversion above station.
Cooperation.- Water-stage recorder graph and 9 discharge measurements furnished by Portland General Electric Co.
Revisions.- W 594: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.6	230	2.8	640	5.4	2,520
1.9	305	3.2	835	6.3	3,530
2.2	400	3.8	1,180	7.5	5,130
2.5	510	4.6	1,760		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a230	518	418	676	376	715	463	510	912	379	302	288
2	232	486	396	1,360	365	658	490	490	923	376	300	285
3	238	466	424	928	353	600	494	768	984	372	300	288
4	232	446	404	780	347	564	470	901	901	365	298	285
5	230	424	382	700	338	538	456	805	852	362	298	285
6	230	421	372	2,420	329	514	438	825	890	368	298	285
7	230	530	370	5,060	329	490	424	815	934	376	298	285
8	235	700	356	2,650	350	474	414	760	923	359	298	285
9	262	644	356	1,670	338	463	421	700	874	350	300	282
10	285	590	347	1,280	326	442	421	662	852	344	298	282
11	460	582	344	1,070	320	432	410	631	918	341	295	280
12	302	530	335	912	317	421	400	654	815	335	292	278
13	270	595	400	800	317	414	390	725	820	332	292	278
14	258	595	456	730	329	414	424	676	715	329	292	280
15	416	805	410	662	428	400	460	654	672	326	298	282
16	896	815	390	618	442	400	518	680	672	323	295	282
17	1,170	765	442	572	538	396	572	745	604	320	292	282
18	1,580	755	550	542	604	393	586	720	568	317	295	285
19	956	685	582	514	542	382	582	672	550	317	295	282
20	1,080	626	510	490	498	379	600	672	542	317	292	280
21	901	572	478	470	862	407	654	695	538	311	292	280
22	700	526	460	460	1,780	586	770	705	498	311	298	308
23	649	494	438	460	1,110	506	785	760	470	311	308	332
24	546	470	428	452	879	474	740	830	456	308	300	317
25	482	452	414	435	800	449	775	945	442	305	295	314
26	452	442	404	418	1,180	428	700	1,070	428	305	292	359
27	432	432	404	407	1,010	424	649	1,150	418	311	290	350
28	452	428	438	400	874	424	604	1,340	407	320	290	320
29	456	414	418	396	775	442	564	1,110	400	311	288	308
30	595	414	400	386	-	482	538	994	390	305	290	298
31	510	-	396	379	-	466	-	928	-	302	288	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	15,967	1,580	230	515	3.90	4.50	31,670
November	16,622	815	414	554	4.20	4.68	32,970
December	12,922	582	335	417	3.16	3.64	25,630
Calendar year 1947	168,074	1,580	230	460	3.48	47.35	333,400
January	29,097	5,060	379	939	7.11	8.20	57,710
February	17,056	1,780	317	588	4.45	4.81	33,830
March	14,577	715	379	470	3.56	4.11	28,910
April	16,212	785	390	540	4.09	4.57	32,160
May	24,592	1,340	490	793	6.01	6.93	48,780
June	20,368	984	390	679	5.14	5.74	40,400
July	10,308	379	302	333	2.52	2.90	20,450
August	9,159	308	288	295	2.23	2.58	18,170
September	8,845	359	278	295	2.23	2.49	17,540
Water year 1947-48	195,725	5,060	230	535	4.05	55.15	388,200

Peak discharge (base, 1,200 sec.-ft.).- Oct. 18 (2 a.m.) 2,180 sec.-ft.; Oct. 20 (1 p.m.) 1,250 sec.-ft.; Jan. 2 (6 a.m.) 1,610 sec.-ft.; Jan. 7 (8 a.m.) 6,620 sec.-ft.; Feb. 22 (4 a.m.) 2,290 sec.-ft.; May 28 (7 a.m.) 1,460 sec.-ft.
a No gage-height record; discharge computed on basis of records for Clackamas River above Three Lynx Creek and Oak Grove Fork above power plant intake.

Clackamas River above Three Lynx Creek, Oreg.

Location.- Water-stage recorder, lat. 45°07', long. 122°04', in NE¼ sec. 21, T. 5 S., R. 6 E., just downstream from power plant, 500 feet upstream from Three Lynx Creek and miles southeast of Estacada. Datum of gage is 1,098 feet above mean sea level (lev by Portland General Electric Co.).

Drainage area.- 488 square miles.

Records available.- October 1911 to December 1913, October 1921 to September 1948.

Average discharge.- 29 years, 1,827 second-feet.

Extremes.- Maximum discharge during year, 32,200 second-feet Jan. 7 (gage height, 14.7 feet), from rating curve extended above 11,000 second-feet; minimum, 491 second-fe Sept. 8 (gage height, 0.66 foot); minimum daily, 710 second-feet Oct. 1.

1911-13, 1921-48: Maximum discharge, 34,800 second-feet Mar. 31, 1931 (gage he 15.5 feet), from rating curve extended above 11,000 second-feet; minimum observed, second-feet Aug. 10, 16, 1924, Sept. 20, 1936; minimum daily, 536 second-feet Oct. 1930.

Remarks.- Records excellent except those for periods of no gage-height record and thos above 12,000 second-feet, which are fair. Water diverted from Oak Grove Fork is us in power plant on Clackamas River just above station. Considerable diurnal fluctua during periods of low flow.

Cooperation.- Water-stage recorder graph and 10 discharge measurements furnished by Po land General Electric Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.1	665	3.0	2,120	7.0	8,560
1.3	765	4.0	3,340	9.0	13,600
1.7	1,010	5.0	4,730	11.0	19,600
2.3	1,460	6.0	6,440	12.6	24,700

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Se
1	h710	2,310	1,670	3,520	1,400	3,090	2,100	2,040	3,470	a1,250	982	
2	a720	2,140	1,600	8,860	1,340	2,780	2,160	1,940	3,500	1,220	910	
3	a730	2,070	1,740	5,230	1,280	2,500	2,210	3,520	3,730	1,210	898	
4	a730	1,980	1,680	4,010	1,300	2,270	2,070	4,680	3,300	1,210	874	
5	a730	1,870	1,590	3,370	1,250	2,140	1,970	3,900	3,020	1,190	874	
6	a740	1,880	1,540	12,200	1,180	2,040	1,850	4,050	3,110	1,210	874	
7	a760	3,680	1,530	24,700	1,210	1,940	1,750	4,020	3,300	1,210	862	
8	a820	5,260	1,510	11,500	1,360	1,860	1,680	3,550	3,290	1,160	874	
9	a950	4,120	1,480	9,300	1,380	1,800	1,690	3,200	3,110	1,160	820	
10	a1,250	3,600	1,430	5,360	1,260	1,680	1,700	2,910	2,830	1,130	826	
11	a2,500	3,440	1,440	4,420	1,180	1,630	1,680	2,660	3,220	1,090	844	
12	a1,600	3,020	1,440	3,770	1,170	1,600	1,600	2,680	2,740	1,090	838	
13	1,150	3,370	1,770	3,280	1,160	1,600	1,530	3,070	2,640	1,060	844	
14	982	3,400	2,520	2,920	1,180	1,580	1,860	2,900	2,320	1,010	844	
15	2,070	4,800	2,180	2,650	2,100	1,570	2,050	2,710	2,130	989	826	
16	5,650	5,200	1,970	2,450	2,360	1,540	2,640	2,820	2,130	982	868	
17	6,380	a4,800	2,250	2,270	3,380	1,540	2,900	3,050	1,960	968	862	
18	9,270	a4,500	3,220	2,120	3,940	1,550	2,910	3,020	1,850	947	856	
19	5,990	a3,800	3,760	2,010	3,340	1,520	2,770	2,850	a1,800	968	832	
20	6,360	3,210	3,000	1,920	2,720	1,490	2,850	2,750	a1,800	961	832	
21	4,980	2,810	2,590	1,850	5,010	1,570	3,200	2,880	a1,750	947	832	
22	3,480	2,500	2,380	1,820	11,600	3,070	3,760	2,920	a1,600	940	850	
23	2,960	2,260	2,180	1,840	6,230	2,560	3,830	3,080	a1,550	940	868	
24	2,420	2,080	2,050	1,830	4,420	2,250	3,550	3,400	a1,500	961	862	
25	2,050	1,960	1,930	1,750	3,760	2,110	3,770	3,970	a1,450	916	856	
26	1,840	1,890	1,870	1,650	6,480	1,940	3,310	4,330	a1,400	892	838	
27	1,690	1,830	1,870	1,600	5,280	1,870	2,910	4,480	a1,350	947	850	
28	1,750	1,780	2,070	1,550	4,160	1,900	2,620	4,800	a1,350	989	826	
29	1,820	1,690	2,030	1,490	3,480	2,060	2,350	4,160	a1,300	934	804	
30	2,520	1,650	1,880	1,480	-	2,280	2,190	3,690	a1,300	916	809	
31	2,240	-	1,800	1,420	-	2,200	-	3,500	-	910	804	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-f
October	77,842	9,270	710	2,511	5.15	5.93	154
November	88,900	5,260	1,650	2,963	6.07	6.77	176,
December	61,970	3,760	1,430	1,999	4.10	4.72	122,
Calendar year 1947	668,891	9,270	662	1,833	3.76	50.96	1,327
January	134,140	24,700	1,420	4,327	8.87	10.22	266,
February	85,910	11,600	1,160	2,962	6.07	6.55	170
March	61,530	3,090	1,490	1,985	4.07	4.69	122,
April	73,260	3,830	1,530	2,442	5.00	5.58	145,
May	103,530	4,800	1,940	3,340	6.84	7.89	205
June	69,800	3,730	1,300	2,327	4.77	5.32	138
July	32,307	1,250	892	1,042	2.14	2.46	64,
August	26,439	982	804	853	1.75	2.01	52
September	25,019	1,200	735	834	1.71	1.91	49
Water year 1947-48	840,647	24,700	710	2,297	4.71	64.05	1,667

Peak discharge (base, 8,100 sec.-ft.).- Oct. 18 (2 to 3 a.m.) 11,900 sec.-ft.; Jan. 2 (6 a.m.) 10,800 sec.-ft.; Jan. 7 (7:30 a.m.) 32,200 sec.-ft.; Feb. 22 (5 a.m.) 14,800 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, when availab and records for Clackamas River at Big Bottom and Oak Grove Fork above powerplant intake.

h Computed from staff-gage reading.

Clackamas River near Cazadero, Oreg.

Location.- Water-stage recorder, lat. 45°14', long. 122°16', in NE¼ sec. 11, T. 4 S., R. 4 E., half a mile upstream from backwater from Cazadero Dam of Portland General Electric Co. and 3 miles southeast of Cazadero. Datum of gage is 532.0 feet above mean sea level (levels by Portland General Electric Co.); gage readings have been reduced to elevations above mean sea level.
Drainage area.- 665 square miles.
Records available.- January 1909 to September 1948.
Average discharge.- 39 years, 2,578 second-feet.
Extremes.- Maximum discharge during year, 53,400 second-feet Jan. 7 (elevation, 554.9 feet), from rating curve extended above 24,000 second-feet; minimum observed, 480 second-feet Oct. 1 (elevation, 533.05 feet); minimum daily, 822 second-feet Oct. 1.
1909-48: Maximum discharge, 60,800 second-feet Mar. 31, 1931 (elevation, 556.5 feet), by computation of flow over dam; minimum, 410 second-feet Oct. 20, 1925, Sept. 28, 1930 (elevation, 532.03 feet), caused by shut-down in power plant at Three Lynx; minimum daily, 587 second-feet Aug. 17, 1930.
Remarks.- Records fair. Some diurnal fluctuation during low flow caused by Oak Grove power plant. No diversion above station.
Cooperation.- Water-stage recorder graph and 9 discharge measurements furnished by Portland General Electric Co.
Revisions.- W 594: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 22 to June 29)

Oct. 1 to Feb. 21						Feb. 22 to Sept. 30			
533.7	795	537.0	3,800	542.0	13,600	534.1	860	538.0	4,920
534.0	970	538.0	5,280	545.0	21,400	534.8	1,310	539.0	6,670
535.0	1,670	539.0	7,020	548.0	30,300	535.7	2,040	541.0	10,900
536.0	2,620	540.0	9,000	551.1	40,300	537.0	3,490	544.4	19,700

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	822	3,880	2,440	3,570	1,780	4,710	2,950	2,570	4,390	1,730	1,210	980
2	850	3,930	2,380	11,500	1,750	4,160	2,870	2,410	4,320	1,680	1,190	980
3	964	3,630	2,610	7,940	1,690	3,660	2,990	3,150	4,540	1,630	1,140	992
4	946	3,480	2,630	6,160	1,670	3,260	2,840	6,610	4,260	1,590	1,150	980
5	910	3,360	2,450	5,090	1,640	2,960	2,670	5,830	3,780	1,560	1,150	974
6	880	3,430	2,380	16,600	1,560	2,780	2,480	5,920	3,630	1,590	1,120	950
7	850	7,270	2,310	40,300	1,530	2,690	2,320	6,190	3,800	1,620	1,100	944
8	856	10,300	2,210	17,700	1,640	2,530	2,180	5,470	3,940	1,580	1,100	926
9	958	7,860	2,310	10,400	1,980	2,430	2,130	4,710	3,820	1,510	1,080	902
10	1,150	6,570	2,310	7,650	1,780	2,290	2,130	4,080	3,520	1,460	1,060	896
11	2,780	6,530	2,340	6,480	1,640	2,150	2,110	3,650	3,660	1,430	1,050	896
12	2,280	5,760	2,380	5,700	1,530	2,060	2,040	3,420	3,560	1,400	1,050	890
13	1,590	6,100	2,730	4,960	1,520	2,030	1,950	3,780	3,260	1,370	1,050	890
14	1,320	6,300	4,640	4,400	1,520	2,000	1,950	3,790	3,010	1,340	1,050	890
15	1,750	8,020	3,860	4,000	2,370	2,010	2,410	3,470	2,700	1,320	1,040	902
16	8,520	8,900	3,300	3,710	3,250	1,980	3,190	3,420	2,600	1,300	1,060	920
17	8,140	7,150	3,540	3,430	4,740	2,030	3,850	3,580	2,460	1,290	1,080	908
18	14,500	7,020	4,930	3,200	5,580	2,030	4,080	3,670	2,310	1,280	1,080	902
19	10,500	6,300	6,370	3,020	5,520	2,050	3,880	3,490	2,190	1,290	1,050	908
20	11,200	5,340	5,120	2,860	4,350	2,020	3,780	3,320	2,170	1,290	1,040	896
21	8,600	4,500	4,140	2,680	6,460	2,000	4,160	3,310	d2,100	1,270	1,030	896
22	6,140	3,830	3,740	2,540	19,700	3,590	4,710	3,420	d2,200	1,240	1,040	968
23	4,860	3,420	3,340	2,530	10,400	4,240	5,130	3,540	d2,100	1,240	1,050	1,310
24	3,900	3,100	3,130	2,510	6,760	3,450	4,920	3,840	d2,100	1,230	1,060	1,310
25	3,260	2,870	2,920	2,480	5,690	3,130	4,950	4,680	d2,000	1,200	1,060	1,200
26	2,950	2,730	2,780	2,410	9,350	2,860	4,560	5,390	d1,900	1,180	1,050	1,250
27	2,680	2,660	2,750	2,190	8,100	2,690	3,920	5,780	d1,900	1,200	1,030	1,610
28	2,690	2,600	3,000	2,080	6,390	2,710	3,420	6,160	d1,800	1,320	1,020	1,450
29	2,700	2,480	3,030	1,970	5,500	3,010	3,060	5,830	1,840	1,300	998	1,350
30	3,880	2,380	2,800	1,970	-	3,310	2,780	5,130	1,780	1,240	992	1,230
31	3,620	-	2,630	1,880	-	3,190	-	4,570	-	1,180	986	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	117,046	14,500	822	3,776	5.68	6.55	232,200
November	151,680	10,300	2,380	5,056	7.60	8.48	300,900
December	97,500	6,370	2,210	3,145	4.73	5.45	193,400
Calendar year 1947	962,628	14,500	790	2,637	3.97	53.84	1,909,000
January	193,910	40,300	1,880	6,255	9.41	10.84	384,600
February	127,290	19,700	1,520	4,389	6.60	7.12	252,500
March	86,010	4,710	1,980	2,775	4.17	4.81	170,600
April	96,410	5,130	1,950	3,214	4.83	5.39	191,200
May	134,180	6,610	2,410	4,328	6.51	7.50	266,100
June	87,640	4,540	1,780	2,921	4.39	4.90	173,800
July	42,860	1,730	1,180	1,383	2.08	2.40	85,010
August	33,166	1,210	986	1,070	1.61	1.85	65,780
September	31,100	1,610	890	1,037	1.56	1.74	61,690
Water year 1947-48	1,198,792	40,300	822	3,275	4.92	67.03	2,378,000

d Doubtful gage-height record; discharge computed on basis of records for station above Three Lynx Creek.
Note.- Figures of daily discharge May 1 to June 19, June 21 to July 9 supersede those published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin.

Oak Grove Fork above power-plant intake, Oreg.

Location.- Water-stage recorder, lat. 45°04', long. 121°57', in SW¼ sec. 3, T. 6 S., R. 7 E., two-thirds of a mile upstream from Kink Creek, 1 mile upstream from intake of power development of Portland General Electric Co., and 24 miles southeast of Estaca

Drainage area.- 126 square miles.

Records available.- December 1923 to September 1948. May 1909 to December 1923 (incomplete) at site 1 mile downstream, below Kink Creek; records equivalent except for slight inflow from springs and Kink Creek.

Average discharge.- 24 years (1924-48), 459 second-feet.

Extremes.- Maximum discharge during year, 2,730 second-feet Jan. 7 (gage height, 4.95 feet), from rating curve extended above 1,200 second-feet; minimum, 311 second-feet Oct. 6, 7, Dec. 12.

1909-48: Maximum discharge, 5,000 second-feet Jan. 7, 1923 (gage height, 5.45 fe site and datum then in use), computed from flow at stations on Clackamas River; mini 236 second-feet Oct. 15, 16, 18, 1931 (gage height, 1.42 feet).

Remarks.- Records poor to Jan. 7, fair thereafter. Discharge includes flow of Spring Creek, just below gage. No diversion or regulation above station.

Cooperation.- Water-stage recorder graph and 11 discharge measurements furnished by Portland General Electric Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Jan. 7)

2.1	284	3.5	1,150
2.3	364	4.0	1,610
2.6	530	4.8	2,480
3.0	780		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sep
1	314	384	384	414	447	696	512	596	920	476	409	
2	318	379	374	596	442	670	542	584	927	464	389	
3	322	384	404	488	431	632	542	715	969	464	384	
4	314	379	374	459	436	608	530	780	899	459	384	
5	314	374	356	436	425	584	518	754	864	459	379	
6	314	399	347	898	409	572	500	794	857	464	374	
7	311	708	343	2,390	404	554	488	815	857	464	374	
8	314	754	335	1,790	414	542	482	787	850	453	374	
9	326	644	335	1,340	404	530	482	760	864	448	374	
10	339	632	322	1,130	394	512	482	734	822	442	374	
11	414	656	322	983	379	512	476	715	829	436	369	
12	335	584	314	878	379	506	464	728	787	431	369	
13	322	608	322	801	379	500	464	741	787	425	369	
14	318	584	404	748	384	500	494	722	715	420	369	
15	399	722	369	708	453	488	524	708	702	420	364	
16	554	774	356	670	442	482	566	728	708	414	360	
17	572	722	379	638	482	482	596	734	663	409	360	
18	644	728	459	614	524	482	614	728	632	404	360	
19	554	656	464	590	500	470	632	722	608	404	360	
20	614	596	374	566	482	464	656	722	614	399	356	
21	572	548	399	548	644	488	689	748	650	394	356	
22	482	500	379	536	1,180	578	728	754	596	394	360	
23	442	464	369	536	913	524	741	780	572	394	356	
24	404	436	360	530	780	512	734	815	560	389	351	
25	379	425	351	518	748	500	754	885	542	389	351	
26	364	409	343	494	955	482	708	962	536	389	351	
27	356	399	343	482	864	482	676	1,020	512	399	351	
28	360	389	356	470	787	494	650	1,130	500	409	351	
29	360	374	347	464	728	512	632	1,050	488	394	351	
30	399	374	339	459	-	524	608	976	488	389	347	
31	369	-	335	447	-	518	-	934	-	399	347	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	12,399	644	311	400	3.17	3.66	24,5
November	15,985	774	374	533	4.23	4.72	31,7
December	11,258	464	314	363	2.88	3.32	22,3
Calendar year 1947	169,675	894	296	465	3.69	50.08	336,6
January	22,621	2,390	414	730	5.79	6.68	44,8
February	16,209	1,180	379	553	4.44	4.78	32,1
March	16,400	696	464	529	4.20	4.84	32,5
April	17,484	754	464	583	4.63	5.16	34,6
May	24,621	1,130	584	794	6.30	7.27	48,8
June	21,318	969	488	711	5.64	6.29	42,2
July	13,094	476	389	422	3.35	3.86	25,9
August	11,323	409	347	365	2.90	3.34	22,4
September	10,359	389	335	345	2.74	3.06	20,5
Water year 1947-48	193,071	2,390	311	529	4.19	56.98	383,0

Peak discharge (base, 940 sec.-ft.).- Jan. 7 (9 a.m.) 2,730 sec.-ft.; Feb. 22 (5 a.m.) 1,310 se ft.; Feb. 26 (8:30 a.m.) 1,020 sec.-ft.; May 28 (8:30 a.m.) 1,170 sec.-ft.; June 2 (11 p.m.) 1,07 sec.-ft.

Johnson Creek at Sycamore, Oreg.

Location.- Water-stage recorder and concrete control with steel weir for low flows, lat. 45°28'40", long. 122°30'30", in lot 2, SW¼ sec. 13, T. 1 S., R. 2 E., a third of a mile southwest of Sycamore station. Datum of gage is 228.03 feet above mean sea level, datum of 1929.

Drainage area.- 28.2 square miles.

Records available.- June 1940 to September 1948.

Extremes.- Maximum discharge during year, 1,900 second-feet Jan. 7 (gage height, 13.06 feet, from floodmark); minimum, 1.4 second-feet Oct. 6.
1940-48: Maximum discharge, that of Jan. 7, 1948; minimum, 0.2 second-foot Aug. 14-16, 18-22, 1940, Aug. 2, 21, 22, 1941.

Remarks.- Records good. Small diversions above station for irrigation; no regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.9	1.3	1.5	22	4.0	193
1.0	2.2	1.8	36	5.0	319
1.1	4.5	2.4	66	6.0	467
1.2	8.6	3.0	103	8.5	875
1.3	13	3.5	142	10.7	1,300

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	410	22	172	16	83	40	34	14	4.0	3.1	2.9
2	2.4	228	20	470	16	79	50	30	12	4.0	3.1	2.4
3	2.7	137	38	231	14	63	80	106	11	4.0	3.4	2.4
4	2.0	113	30	251	18	54	70	91	11	4.0	3.4	2.4
5	2.7	89	25	162	17	48	76	231	10	4.0	3.1	2.4
6	1.7	109	23	749	13	46	66	278	9.0	4.5	3.1	2.4
7	2.7	139	50	1,300	12	42	60	156	8.2	5.3	3.1	1.8
8	3.4	131	92	467	34	42	52	106	7.0	4.9	2.9	2.0
9	3.8	111	89	229	59	42	62	80	6.6	4.3	2.9	2.1
10	3.6	134	79	262	72	34	86	62	6.6	4.0	3.1	2.1
11	11	117	75	206	52	30	63	50	13	4.0	3.1	2.2
12	4.5	93	64	139	44	28	54	52	9.9	4.0	2.9	2.2
13	2.7	213	115	103	40	40	48	52	9.4	4.0	2.9	2.2
14	3.4	240	136	82	53	56	55	44	8.2	3.8	2.9	2.2
15	8.6	347	97	67	200	69	54	37	7.4	3.8	3.4	2.2
16	44	206	80	57	204	78	63	32	7.0	3.8	2.9	2.2
17	61	162	134	48	189	91	83	29	6.6	3.6	5.3	2.2
18	137	128	175	42	186	92	64	24	6.6	3.6	4.3	2.2
19	340	96	145	37	123	88	56	23	5.7	3.6	4.0	2.2
20	376	83	105	32	141	82	48	23	7.4	3.6	3.6	2.0
21	184	67	84	30	450	103	46	19	9.9	3.6	3.6	2.2
22	102	56	75	27	515	545	54	17	7.8	3.6	3.6	3.6
23	87	48	62	26	227	252	49	15	7.4	3.8	3.6	4.5
24	62	42	56	24	138	178	42	13	6.6	3.6	3.6	5.7
25	48	38	48	21	166	278	58	12	5.7	3.4	3.4	5.3
26	46	34	42	18	395	148	52	11	5.3	3.1	3.4	7.0
27	39	30	45	16	201	103	50	12	5.3	4.0	3.4	10
28	48	26	77	15	131	78	47	46	4.9	4.0	3.4	6.6
29	64	23	68	15	94	62	43	29	4.5	4.0	2.9	5.3
30	144	21	60	17	-	52	38	20	4.0	3.8	2.7	4.3
31	134	-	62	15	-	44	-	15	-	3.6	2.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,973.2	376	1.7	63.7	2.26	2.60	3,910
November	3,671	410	21	122	4.33	4.84	7,280
December	2,273	175	20	73.3	2.60	3.00	4,510
Calendar year 1947	16,125.4	410	1.6	44.2	1.57	21.27	31,960
January	5,336	1,300	15	172	6.10	7.04	10,580
February	3,820	515	12	132	4.68	5.04	7,580
March	3,030	545	28	97.7	3.46	4.00	6,010
April	1,709	86	38	57.0	2.02	2.25	3,390
May	1,749	278	11	56.4	2.00	2.31	3,470
June	238.0	14	4.0	7.93	.281	.31	472
July	121.3	5.3	3.1	3.91	.139	.16	241
August	102.8	5.3	2.7	3.32	.118	.14	204
September	99.2	10	1.8	3.31	.117	.13	197
Water year 1947-48	24,122.5	1,300	1.7	65.9	2.34	31.87	47,840

Peak discharge (base, 450 sec.-ft.).- Oct. 19 (10:30 p.m.) 501 sec.-ft.; Nov. 1 (11 a.m.) 466 sec.-ft.; Jan. 2 (5:30 a.m.) 566 sec.-ft.; Jan. 7 (6 a.m.) 1,900 sec.-ft.; Feb. 21 (10 p.m.) 792 sec.-ft.; Feb. 26 (7 a.m.) 558 sec.-ft.; Mar. 22 (7:30 a.m.) 704 sec.-ft.

Salmon Creek near Battle Ground, Wash.

Location.- Staff gage, lat. 45°46'25", long. 122°26'35", in NE¼SW¼ sec. 4, T. 3 N., R. E., 100 feet upstream from county highway bridge, 150 feet downstream from Rock Cree and 4 miles east of Battle Ground.

Drainage area.- 18.3 square miles.

Records available.- October 1943 to September 1948.

Extremes.- Maximum discharge during year, 728 second-feet Jan. 7 (gage height, 2.17 fee from graph based on gage readings); minimum observed, 2.8 second-feet Sept. 14.
1943-48: Maximum discharge, 1,200 second-feet Dec. 11, 1946 (gage height, 2.80 feet, from graph based on gage readings); minimum not determined, probably occurred sometime Sept. 8-11, 1944, when water was below gage.

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

Revisions (water years).- W 1044: 1944.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.0	2.8	1.0	116
.2	4.8	1.3	230
.4	12	1.6	390
.7	48	2.0	630

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep
1	3.3	202	36	148	23	116	52	42	25	8.2	5.3	4.
2	12.5	148	45	362	23	95	59	39	25	8.2	5.3	4.
3	6.8	128	52	250	21	85	80	88	21	8.2	5.3	4.
4	4.8	100	42	308	21	75	71	95	23	7.5	4.8	4.
5	4.8	85	39	210	21	67	75	240	21	8.2	4.8	a4.
6	4.0	141	39	450	19	63	90	390	19	11	4.8	4.
7	3.7	450	105	600	17	55	90	270	14	12.5	4.5	3.
8	3.7	335	80	335	25	55	80	155	17	10	4.5	3.
9	9.0	202	95	240	39	52	75	122	15 6	8.2	4.5	3.
10	7.5	308	75	202	52	45	85	95	15.5	7.5	4.8	3.
11	12.5	240	80	178	39	42	80	80	42	7.5	4.8	3
12	7.5	202	75	162	39	42	75	67	19	7.5	4.5	3.
13	5.7	308	116	134	36	55	55	71	25	6.8	4.5	2.
14	5.7	280	162	105	33	42	63	63	17	6.2	4.8	2.
15	21	280	128	85	95	48	52	59	15.5	6.2	6.2	3.
16	45	250	95	75	119	52	71	48	14	5.3	5.3	3.
17	55	202	155	63	141	55	116	52	14	5.3	12.5	3.
18	88	148	250	55	110	63	95	45	12.5	5.3	10	3.
19	141	128	220	52	85	63	80	42	11	5.7	6.2	3.
20	186	105	155	45	75	75	63	42	14	6.2	6.2	3.
21	141	100	116	39	308	174	59	36	19	6.2	5.3	3.
22	95	71	90	39	362	480	59	33	17	5.3	5.7	3.
23	67	52	75	36	230	270	55	33	15.5	5.3	5.7	10
24	52	a50	71	36	134	178	59	28	12.5	4.8	6.2	11
25	45	48	59	33	162	148	67	25	12.5	4.5	a6.5	10
26	42	45	55	30	362	141	63	25	12.5	4.5	5.3	24
27	36	42	55	25	270	105	59	25	11	8.2	4.8	55
28	42	39	75	23	186	90	55	55	10	8.2	4.5	17
29	36	36	105	25	134	71	52	39	9.0	6.8	4.5	15.
30	52	33	95	25	-	67	45	33	8.2	5.7	4.2	9.
31	65	-	85	23	-	52	-	30	-	5.3	4.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fe
October	1,300.5	186	3.3	42.0	2.30	2.64	2,58
November	4,758	450	33	159	8.69	9.67	9,44
December	2,925	250	36	94.4	5.16	5.94	5,80
Calendar year 1947	21,172.9	540	2.9	58.0	3.17	43.03	41,99
January	4,393	600	23	142	7.76	8.93	8,71
February	3,181	362	17	110	6.01	6.46	6,31
March	3,021	480	42	97.5	5.33	6.14	5,99
April	2,080	116	45	69.3	3.79	4.23	4,13
May	2,467	390	25	79.6	4.35	5.01	4,89
June	507.2	42	8.2	16.9	.923	1.03	1,01
July	216.3	12.5	4.5	6.98	.381	.44	42
August	170.9	12.5	4.2	5.5[illegible]	.301	.35	3[illegible]
September	227.8	56	2.8	7.59	.415	.46	4[illegible]
Water year 1947-48	25,247.7	600	2.8	69.0	3.77	51.30	50,06

a No gage-height record; discharge interpolated, or computed on basis of records for stations o nearby streams.

Lewis River near Cougar, Wash.

Location.- Water-stage recorder, lat. 46°03'30", long. 122°12'50", in SE¼ sec. 29, T. 7 N., R. 5 E., 1 mile downstream from Swift Creek and 4 miles east of Cougar. Datum of gage is 576.4 feet above mean sea level (from river-profile survey).

Drainage area.- 481 square miles.

Records available.- July 1910 to March 1912 (gage heights only), June 1924 to September 1948. July 1909 to June 1910 at site 1,000 feet upstream from Swift Creek.

Average discharge.- 24 years (1924-48), 2,717 second-feet.

Extremes.- Maximum discharge during year, 15,000 second-feet Oct. 17 (gage height, 9.30 feet); minimum, 862 second-feet Oct. 1, Sept. 18-21.
1910-12, 1924-48: Maximum discharge, 54,400 second-feet Dec. 21, 1933 (gage height, 15.7 feet, datum then in use), from rating curve extended above 15,000 second-feet; minimum, 454 second-feet Oct. 21, 1931 (gage height, 0.01 foot, datum then in use).

Remarks.- Records excellent. No diversion or regulation.

Revisions (water year).- W 904: 1939.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

3.0	830	4.5	2,400	6.5	5,850
3.2	965	5.0	3,120	7.0	7,070
3.5	1,200	5.5	3,890	8.0	10,000
4.0	1,740	6.0	4,780	9.0	13,800

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	862	5,850	2,540	5,850	1,800	4,410	2,750	3,120	5,300	2,610	1,290	965
2	1,620	5,400	2,470	8,750	1,740	3,980	2,820	2,970	5,620	2,330	1,240	965
3	2,400	5,300	2,540	7,330	1,680	3,570	2,900	4,400	8,080	2,190	1,200	1,000
4	1,680	4,680	2,400	6,080	1,680	3,340	2,750	5,080	5,620	2,120	1,200	965
5	1,390	4,230	2,260	5,190	1,620	3,040	2,680	5,110	5,400	2,060	1,160	930
6	1,240	4,060	2,190	7,070	1,500	2,900	2,610	7,880	5,620	2,260	1,160	930
7	1,160	5,650	2,190	12,900	1,560	2,750	2,540	8,160	6,080	2,190	1,160	930
8	1,340	7,330	2,060	10,800	1,680	2,610	2,400	6,810	6,080	1,990	1,120	930
9	2,260	6,320	2,060	8,160	1,620	2,540	2,470	5,740	6,080	1,860	1,120	930
10	2,540	5,740	1,990	6,810	1,560	2,330	2,610	4,980	5,110	1,800	1,120	895
11	2,820	5,300	1,990	5,740	1,440	2,260	2,540	4,590	5,740	1,800	1,120	895
12	2,400	4,590	1,920	4,880	1,440	2,190	2,470	4,590	5,190	1,740	1,080	895
13	2,120	4,590	2,580	4,320	1,390	2,120	2,400	4,980	5,080	1,680	1,080	895
14	1,860	4,230	2,970	3,890	1,540	2,060	2,470	4,880	4,500	1,620	1,080	895
15	4,000	4,680	2,820	3,570	2,190	1,990	2,820	4,780	4,060	1,620	1,200	930
16	6,320	4,590	2,970	3,270	2,060	1,920	3,650	4,780	4,590	1,560	1,120	895
17	9,350	4,680	5,080	3,040	2,970	1,860	3,980	4,880	4,230	1,560	1,080	895
18	12,300	4,780	5,850	2,900	3,810	1,920	3,980	4,780	3,730	1,500	1,080	862
19	13,000	4,410	5,620	2,750	3,340	1,860	3,980	4,680	3,570	1,500	1,040	862
20	11,500	4,060	4,880	2,610	3,040	1,800	4,060	4,680	3,570	1,440	1,040	862
21	8,750	3,730	4,410	2,470	3,570	2,700	4,500	5,080	3,730	1,440	1,040	862
22	6,560	3,500	4,060	2,400	6,560	4,780	5,400	5,300	3,340	1,390	1,040	1,000
23	5,110	3,270	3,890	2,330	5,110	3,650	6,080	5,400	3,120	1,390	1,040	1,200
24	4,500	3,040	4,590	2,260	4,680	3,270	6,080	5,850	3,040	1,340	1,040	1,080
25	3,980	2,900	4,410	2,190	4,800	3,040	5,850	6,810	2,970	1,290	1,040	1,000
26	3,570	2,900	4,140	2,060	8,160	2,820	5,190	7,600	2,900	1,290	1,040	1,080
27	3,340	2,820	4,140	1,990	7,070	2,680	4,500	7,880	2,900	1,390	1,000	1,560
28	3,500	2,680	4,680	1,920	5,850	2,750	4,060	7,600	2,900	1,440	1,000	1,290
29	3,200	2,540	4,410	1,920	4,980	2,900	3,730	6,560	2,900	1,290	1,000	1,200
30	3,810	2,540	4,140	1,860	-	2,900	3,420	5,620	2,820	1,290	1,000	1,120
31	4,500	-	3,980	1,800	-	2,820	-	5,300	-	1,240	965	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	132,982	13,000	862	4,290	8.92	10.28	263,800
November	130,390	7,330	2,540	4,346	9.04	10.08	258,600
December	106,230	5,850	1,920	3,427	7.12	8.21	210,700
Calendar year 1947	1,039,842	13,000	800	2,849	5.92	80.40	2,063,000
January	139,110	12,900	1,800	4,487	9.33	10.76	275,900
February	90,440	8,160	1,390	3,119	6.48	6.99	179,400
March	85,760	4,780	1,800	2,766	5.75	6.63	170,100
April	107,690	6,080	2,400	3,590	7.46	8.33	213,600
May	170,870	8,160	2,970	5,512	11.5	13.21	338,900
June	131,870	6,080	2,820	4,396	9.14	10.20	261,600
July	52,220	2,610	1,240	1,685	3.50	4.04	103,600
August	33,895	1,290	965	1,093	2.27	2.62	67,230
September	29,718	1,560	862	991	2.06	2.30	58,940
Water year 1947-48	1,211,175	13,000	862	3,309	6.88	93.65	2,402,000

Peak discharge (base, 9,000 sec.-ft.).- Oct. 17 (9:30 p.m.) 15,000 sec.-ft.; Jan. 2 (2 to 3 a.m.) 9,710 sec.-ft.; Jan. 7 (9:30 a.m.) 14,200 sec.-ft.

Lewis River at Ariel, Wash.

Location.- Water-stage recorder, lat. 45°57'10", long. 122°33'45", in NW¼NE¼ sec. 4, T. 5 N., R. 2 E., at Ariel, half a mile downstream from Ariel Dam and power plant and 3 miles upstream from Cedar Creek. Datum of gage is 44 feet above mean sea level, unadjusted (levels by Northwestern Electric Co.).

Drainage area.- 731 square miles.

Records available.- July 1922 to September 1948. July to November 1909 at site 3 miles upstream.

Average discharge.- 25 years (1923-48), 4,446 second-feet, adjusted for storage since Mar 1931.

Extremes.- Maximum discharge during year, 30,800 second-feet Jan. 7 (gage height, 14.75 feet); minimum, 498 second-feet Sept. 4 (gage height, 0.62 foot); minimum daily, 591 second-feet Aug. 8.

1909, 1922-48: Maximum discharge, 129,000 second-feet Dec. 22, 1933 (gage height, 35.0 feet, from floodmarks), from rating curve extended above 22,000 second-feet and from spillway-gate openings; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily discharge, 1 second-foot July 6, 1931.

Remarks.- Records good. No diversions. Flow regulated by Lake Merwin Reservoir on Lewis River, lat. 45°57'30", long. 122°33'10", in SW¼ sec. 34, T. 6 N., R. 2 E., at Ariel, completed in 1931; usable storage, 246,000 acre-feet between elevations 165 feet (set by Federal Power Commission) and 235 feet (spillway crest) above mean sea level. Water is used for power.

Cooperation.- Gage-height record collected in cooperation with Pacific Power & Light Co.

Revisions (water years).- W 884: 1938. W 984: 1936-37, 1940-42.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.5	440	3.0	2,520	10.0	16,100
1.0	700	4.0	3,740	12.0	21,900
1.5	1,050	5.0	5,150	15.0	31,700
2.0	1,480	6.0	6,860		
2.5	1,970	8.0	11,100		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,950	10,500	4,010	11,500	2,710	7,400	4,280	4,630	6,750	3,470	644	1,650
2	2,700	9,750	3,490	19,400	3,090	6,320	4,830	4,360	6,740	3,450	1,420	1,430
3	3,010	9,700	3,490	14,000	3,240	5,570	4,900	7,260	7,690	3,260	1,450	1,220
4	4,070	8,380	3,430	12,500	3,230	5,120	4,460	8,860	6,920	1,780	1,710	615
5	2,380	7,350	3,500	9,810	3,270	4,880	4,520	9,960	6,590	972	1,400	59[illegible]
6	3,160	7,350	3,500	14,800	3,250	4,030	4,220	14,500	6,880	2,600	1,250	651
7	2,930	13,900	3,130	26,300	3,620	4,220	4,080	14,600	7,200	2,480	1,020	1,110
8	2,820	16,800	3,380	19,500	3,130	4,100	3,950	11,000	7,420	2,750	591	1,190
9	2,990	11,900	3,370	13,600	3,110	3,890	4,110	9,120	7,230	3,610	1,190	1,160
10	4,110	10,500	3,230	11,600	3,650	3,930	4,540	7,480	6,840	2,500	1,280	1,050
11	4,090	9,620	3,070	10,100	3,090	3,960	4,480	6,890	6,690	671	1,470	627
12	4,100	8,320	3,090	8,260	3,170	3,680	4,510	6,680	a6,690	2,270	1,760	594
13	3,870	8,710	3,170	7,100	3,060	3,610	4,030	7,260	a6,100	2,120	1,680	934
14	4,100	8,510	6,070	6,070	2,940	3,540	4,240	7,330	a5,450	2,010	616	1,000
15	4,970	10,900	5,980	5,630	2,860	3,590	4,840	6,730	a4,800	1,730	631	1,030
16	12,300	10,700	5,600	5,150	3,060	3,690	6,410	6,880	a5,270	2,070	1,680	1,120
17	15,100	9,950	9,710	4,640	3,150	3,720	6,600	6,790	a4,910	1,480	1,530	1,030
18	21,100	9,540	11,800	4,200	3,460	3,730	7,010	6,700	a4,410	655	1,510	622
19	23,900	8,110	11,400	4,280	3,940	3,760	6,120	6,400	a3,890	2,110	1,490	610
20	19,900	7,150	8,940	3,990	4,370	3,770	6,090	6,230	a4,310	2,120	1,270	1,580
21	15,000	6,180	7,700	3,980	8,840	3,600	6,890	6,450	a4,500	2,110	624	1,670
22	11,500	5,510	6,960	3,960	18,600	5,640	8,330	7,100	a3,890	2,110	874	1,720
23	9,340	5,110	6,690	3,990	11,800	7,350	9,600	6,920	3,910	1,650	1,530	2,050
24	7,120	4,390	7,850	3,720	9,060	5,960	9,730	7,540	3,420	694	1,240	1,880
25	6,000	4,590	7,260	2,580	9,790	5,500	9,850	8,650	3,410	646	1,280	766
26	5,480	4,150	6,650	3,230	19,600	4,850	8,400	9,750	3,380	2,040	1,360	1,000
27	4,970	4,150	6,510	3,090	13,700	4,540	6,860	10,000	3,250	1,500	1,050	2,850
28	5,150	4,030	7,980	3,050	10,600	4,570	6,200	10,000	2,550	1,960	644	3,850
29	4,680	4,030	7,080	3,110	8,360	4,970	5,340	8,890	2,380	1,810	639	3,030
30	6,480	4,040	6,530	3,170	-	4,970	4,770	7,350	2,990	1,980	1,790	1,770
31	7,630	-	6,300	3,080	-	4,660	-	6,870	-	1,090	1,290	-

Month	Observed				Change in contents in Lake Merwin Reservoir (acre-feet)	Adjusted for change in reservoir contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runo in inch
	Maximum	Minimum	Mean				Mean	Per square mile	
October	23,900	1,950	7,319	450,000	+4,350	454,400	7,390	10.1	11.66
November	16,800	4,030	8,127	483,600	-1,190	482,400	8,107	11.1	12.37
December	11,800	3,070	5,835	358,800	+1,590	360,400	5,861	8.02	9.24
Calendar year 1947	23,900	640	4,647	3,364,000	-1,190	3,363,000	4,646	6.36	86.26
January	26,300	3,050	8,045	494,700	-7,120	487,600	7,930	10.8	12.51
February	19,600	2,710	6,060	348,600	+7,120	355,700	6,184	8.46	9.12
March	7,400	3,540	4,617	283,900	0	283,900	4,617	6.32	7.28
April	9,850	3,950	5,806	345,500	0	345,500	5,806	7.94	8.86
May	14,600	4,360	8,032	493,800	+790	494,600	8,044	11.0	12.69
June	7,690	2,380	5,215	310,300	+3,980	314,300	5,282	7.23	8.06
July	3,470	646	1,990	122,400	-1,190	121,200	1,971	2.70	3.11
August	1,790	591	1,223	75,200	-800	74,400	1,210	1.66	1.91
September	3,850	593	1,347	80,150	-5,160	74,990	1,260	1.72	1.92
Water year 1947-48	26,300	591	5,299	3,847,000	+2,370	3,849,000	5,303	7.25	98.73

*a No gage-height record; discharge computed on basis of power output.

East Fork Lewis River near Heisson, Wash.

Location.- Water-stage recorder, lat. 45°50', long. 122°28', in N½ sec. 17, T. 4 N., R. 3 E., just downstream from Basket Creek, 1½ miles northeast of Heisson, and 20 miles upstream from mouth. Datum of gage is 366.8 feet above mean sea level (from river-profile surveys).

Drainage area.- 125 square miles.

Records available.- September 1929 to September 1948.

Average discharge.- 19 years, 712 second-feet.

Extremes.- Maximum discharge during year, 7,320 second-feet Jan. 7 (gage height, 8.65 feet); minimum, 51 second-feet Sept. 10, 13, 14 (gage height, 0.38 foot).
1929-48: Maximum discharge, 15,600 second-feet Dec. 22, 1933 (gage height, 12.3 feet), from rating curve extended above 12,000 second-feet; minimum, 29 second-feet Nov. 3, 1935 (gage height, 0.04 foot).

Remarks.- Records good. No diversion or regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 6 to Sept. 26)

0.2	45	1.0	133	2.5	550	5.0	2,100
.4	62	1.3	187	3.0	765	6.0	3,200
.6	82	1.6	254	3.5	1,010	7.0	4,590
.8	105	2.0	370	4.0	1,320	8.0	6,230

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	1,800	481	2,570	308	1,320	765	590	427	159	95	69
2	432	1,640	444	3,950	288	1,130	885	570	400	154	92	67
3	875	1,640	570	2,490	275	960	960	1,830	390	147	92	93
4	496	1,320	530	2,240	277	835	860	1,920	357	142	92	80
5	348	1,160	496	1,840	257	765	835	2,060	332	147	89	72
6	267	1,530	466	3,520	237	698	788	2,950	320	168	88	67
7	219	4,180	550	5,920	235	630	765	2,290	305	174	83	64
8	237	4,100	550	3,460	402	610	765	1,680	288	155	79	58
9	553	2,340	590	2,290	403	570	910	1,320	267	136	80	54
10	757	2,190	570	2,010	348	511	1,040	1,070	249	135	82	53
11	1,190	2,100	630	1,840	314	481	1,010	935	314	130	82	54
12	720	1,720	630	1,530	294	462	885	960	272	124	79	54
13	507	1,960	1,320	1,250	291	500	788	1,010	272	118	81	52
14	396	1,920	1,760	1,070	377	473	910	935	235	113	88	54
15	1,470	2,710	1,460	910	1,160	462	1,190	835	217	109	92	64
16	2,540	2,540	1,220	810	1,160	469	1,460	860	208	105	91	61
17	2,860	2,190	1,960	720	1,880	469	1,420	835	198	104	101	57
18	3,180	1,920	2,490	652	2,010	530	1,280	720	189	105	89	54
19	3,590	1,530	2,290	590	1,390	530	1,130	675	183	115	101	53
20	2,830	1,280	1,640	530	1,130	550	1,100	630	254	117	92	53
21	2,010	1,040	1,280	492	2,710	1,370	1,160	652	335	110	80	55
22	1,460	885	1,100	466	4,690	4,050	1,280	610	308	104	83	108
23	1,160	788	985	466	2,600	2,010	1,460	550	275	101	79	243
24	885	698	1,040	473	1,800	1,560	1,460	570	249	97	94	208
25	742	630	910	437	2,440	1,360	1,390	590	230	92	103	159
26	698	630	810	396	5,090	1,100	1,190	550	217	89	90	321
27	590	570	788	370	2,830	985	985	530	204	133	83	810
28	630	530	1,010	360	1,920	1,010	860	698	189	166	80	530
29	590	488	1,040	357	1,500	1,100	765	530	176	132	73	360
30	835	466	935	341	-	1,010	675	466	164	114	77	275
31	1,100	-	885	320	-	860	-	444	-	103	76	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	34,237	3,590	70	1,104	8.83	10.19	67,910
November	48,495	4,180	466	1,616	12.9	14.43	96,190
December	31,430	2,490	444	1,014	8.11	9.35	62,340
Calendar year 1947	269,117	6,040	62	737	5.90	80.08	533,800
January	44,670	5,920	320	1,441	11.5	13.29	88,600
February	38,616	5,090	235	1,332	10.7	11.49	76,590
March	29,370	4,050	462	947	7.58	8.74	58,250
April	30,971	1,460	675	1,032	8.26	9.21	61,430
May	30,865	2,950	444	996	7.97	9.18	61,220
June	8,024	427	164	267	2.14	2.39	15,920
July	3,898	174	89	126	1.01	1.16	7,730
August	2,686	103	73	86.6	.693	.80	5,330
September	4,302	810	52	143	1.14	1.28	8,530
Water year 1947-48	307,564	5,920	52	840	6.72	91.51	610,000

Peak discharge (base, 6,100 sec.-ft.).- Jan. 7 (4:45 a.m.) 7,320 sec.-ft.; Feb 26 (1:45 a.m.) 6,230 sec.-ft.; Mar. 22 (1:20 a.m.) 6,590 sec.-ft.

Kalama River below Italian Creek, near Kalama, Wash.

Location.- Staff gage, lat. 46°02'30", long. 122°49'00", in NE¼SW¼ sec. 33, T. 7 N., R. 1 W., 2⅔ miles northeast of Kalama, 4 miles upstream mouth, and 5 miles downstream from Italian Creek.

Drainage area.- 201 square miles.

Records available.- September 1946 to September 1948.

Extremes.- Maximum discharge observed during year, 7,160 second-feet Jan. 7 (gage height, 9.10 feet); minimum observed, 234 second-feet Sept. 14, 19-21.
1946-48: Maximum discharge observed, 14,400 second-feet Dec. 13, 1946 (gage height 13.40 feet), from rating curve extended above 6,700 second-feet; minimum observed, 214 second-feet Sept. 6, 1947.

Remarks.- Records good except those for periods of shifting control and rapidly changing stage, which are fair. Gage read twice daily. No known diversion or regulation.

Rating table, water year 1947-48, except peroids of shifting control
(gage height, in feet, and discharge, in second-feet)

1.8	223	3.5	1,070	7.0	4,330
2.0	271	4.0	1,420	8.0	5,600
2.5	481	5.0	2,240	9.0	7,010
3.0	761	6.0	3,200		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	245	3,200	942	3,000	701	1,890	1,270	1,070	1,000	481	321	271
2	701	2,600	881	5,080	672	1,650	1,340	1,000	1,000	456	302	271
3	1,490	2,420	1,070	3,750	643	1,420	1,420	1,490	1,000	456	302	302
4	821	2,240	1,000	3,420	672	1,340	1,340	2,060	881	431	302	271
5	643	1,890	942	2,510	643	1,200	1,340	2,700	881	431	302	258
6	533	1,970	881	3,970	615	1,140	1,340	4,820	881	481	302	258
7	481	4,330	1,000	6,710	587	1,140	1,340	3,860	881	507	302	258
8	560	5,080	942	4,330	1,000	1,070	1,270	2,600	881	456	302	258
9	942	3,420	942	3,200	1,070	1,000	1,420	2,060	821	431	302	245
10	1,200	3,000	942	2,900	881	942	1,570	1,730	701	431	302	245
11	1,890	2,600	942	2,510	761	881	1,570	1,570	821	408	286	245
12	1,200	2,240	881	2,240	701	821	1,420	1,570	761	384	286	245
13	1,000	2,240	1,490	1,890	672	821	1,340	1,730	761	384	286	245
14	761	2,600	2,240	1,730	761	821	1,340	1,810	672	384	321	234
15	1,570	3,420	1,890	1,490	1,490	821	1,420	1,650	615	384	340	245
16	3,000	3,420	1,730	1,420	1,570	821	2,150	1,570	587	362	321	245
17	3,860	2,700	2,600	1,270	2,150	821	2,240	1,490	587	362	384	245
18	4,330	2,700	2,900	1,200	2,420	881	2,060	1,420	560	362	321	245
19	5,340	2,330	2,900	1,140	1,890	942	1,890	1,340	560	362	302	234
20	4,090	1,970	2,240	1,070	1,730	942	1,730	1,340	643	362	286	234
21	3,200	1,730	1,970	1,000	2,700	1,810	1,810	1,420	761	362	286	234
22	2,330	1,490	1,730	1,000	5,600	4,690	1,970	1,340	701	340	286	302
23	1,890	1,340	1,650	1,000	3,970	2,700	2,420	1,270	672	340	286	384
24	1,490	1,200	1,890	942	2,800	2,240	2,240	1,270	615	340	302	384
25	1,270	1,140	1,730	942	2,800	1,890	2,060	1,420	587	321	321	321
26	1,140	1,140	1,570	881	5,600	1,570	1,810	1,420	560	321	302	587
27	1,000	1,070	1,490	821	3,970	1,420	1,570	1,340	533	384	286	881
28	1,140	1,000	1,810	821	2,700	1,420	1,420	1,490	507	384	286	761
29	1,070	942	1,730	761	2,240	1,420	1,270	1,270	507	362	271	615
30	1,270	942	1,570	761	-	1,420	1,140	1,140	481	340	271	533
31	1,890	-	1,490	701	-	1,270	-	1,070	-	321	271	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	52,347	5,340	245	1,689	8.40	9.69	103,800
November	68,364	5,080	942	2,279	11.3	12.65	135,600
December	47,985	2,900	881	1,548	7.70	8.88	95,180
Calendar year 1947	410,848	7,310	223	1,126	5.60	76.02	814,900
January	64,460	6,710	701	2,079	10.3	11.93	127,900
February	54,009	5,600	587	1,862	9.26	9.99	107,100
March	43,214	4,690	821	1,394	6.94	8.00	85,710
April	48,520	2,420	1,140	1,617	8.04	8.98	96,240
May	58,330	4,820	1,000	1,720	8.56	9.87	105,800
June	21,418	1,000	481	714	3.55	3.96	42,480
July	12,130	507	321	391	1.95	2.24	24,060
August	9,340	384	271	301	1.50	1.73	18,530
September	10,056	881	234	335	1.67	1.86	19,950
Water year 1947-48	485,173	6,710	234	1,326	6.60	89.78	962,400

Note.- Shifting-control method used Oct. 1-18, Sept. 5-30.

Cowlitz River at Packwood, Wash.

Location.- Water-stage recorder, lat. 46°36'40", long. 121°40'45", in SE¼ sec. 16, T. 13 N., R. 9 E., half a mile upstream from Skate Creek and half a mile northwest of Packwood.

Drainage area.- 287 square miles.

Records available.- September 1929 to September 1948. July 1911 to December 1919 at site 1 mile upstream, published as Cowlitz River at Lewis.

Average discharge.- 27 years, 1,555 second-feet.

Extremes.- Maximum discharge during year, 18,800 second-feet Oct. 19 (gage height, 11.19 feet), from rating curve extended above 13,200 second-feet; minimum, 405 second-feet Sept. 19 (gage height, 3.04 feet).
1911-19, 1929-48: Maximum discharge, 36,600 second-feet Dec. 21, 1933 (gage height, 13.0 feet), from rating curve extended above 12,600 second-feet; minimum, 160 second-feet Nov. 21, 1929 (gage height, 2.10 feet).

Remarks.- Records good except those for period of shifting-control, which are fair. No diversion or regulation.

Revisions (water years).- W 884: 1938.

Rating tables, water year 1947-48, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 26						May 27 to Sept. 30					
3.5	466	5.5	1,810	7.5	5,410	3.0	385	5.0	2,220	7.0	6,090
4.0	660	6.0	2,470	8.0	6,680	3.5	670	5.5	2,980	7.5	7,360
4.5	910	6.5	3,290	8.5	8,390	4.0	1,070	6.0	3,870	8.5	10,100
5.0	1,280	7.0	4,270	9.5	11,300	4.5	1,580	6.5	4,910		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	580	2,400	2,060	1,750	825	1,370	970	1,080	4,910	3,320	1,330	657
2	4,200	2,120	1,930	2,260	825	1,280	970	1,000	5,730	2,740	1,280	650
3	4,700	1,930	1,930	2,000	800	1,150	970	1,280	6,340	2,580	1,190	719
4	2,120	1,750	1,750	1,750	800	1,080	910	1,470	5,140	2,440	1,100	612
5	1,420	1,640	1,640	1,520	800	1,040	910	1,750	5,370	2,020	980	551
6	1,110	1,640	1,520	1,690	775	1,000	880	3,760	6,590	2,360	1,010	534
7	970	4,180	1,470	2,330	775	970	850	3,660	7,360	2,290	920	540
8	940	5,830	1,420	2,120	800	940	825	2,700	7,360	1,950	938	557
9	1,150	3,290	1,370	1,750	775	940	825	2,260	7,360	1,820	929	581
10	1,150	2,780	1,280	1,580	775	910	825	2,000	7,100	1,950	904	587
11	1,110	2,540	1,280	1,370	750	880	825	1,870	7,890	1,950	879	605
12	1,000	2,260	1,240	1,240	750	880	825	1,930	5,730	1,760	863	593
13	940	2,120	1,580	1,150	728	850	800	2,120	5,260	1,760	839	593
14	910	2,000	1,690	1,110	750	850	825	2,000	4,690	1,820	808	587
15	2,280	1,930	1,640	1,040	800	825	940	1,870	4,260	1,820	895	575
16	3,380	1,870	1,690	1,000	800	825	1,580	2,000	4,910	1,820	778	506
17	4,080	2,190	2,330	970	910	800	1,690	2,260	4,360	1,880	733	452
18	6,810	2,330	2,400	970	1,110	825	1,580	2,330	3,960	2,020	755	435
19	10,700	2,190	2,260	940	1,080	825	1,580	2,260	3,960	1,760	712	430
20	5,650	1,930	2,000	910	1,040	800	1,690	2,780	4,360	1,700	670	435
21	3,470	1,750	1,810	910	1,110	910	2,000	3,660	4,690	1,580	664	430
22	2,470	1,640	1,690	910	1,810	1,280	2,060	4,060	3,680	1,640	691	540
23	2,060	1,520	1,640	940	1,640	1,110	2,000	3,660	3,410	1,580	705	501
24	1,810	1,420	2,000	970	1,470	1,040	1,870	4,600	3,500	1,380	705	457
25	1,640	1,640	1,930	940	1,370	970	1,750	6,410	3,410	1,280	733	430
26	1,690	2,860	1,810	910	2,540	910	1,580	7,230	3,500	1,260	691	468
27	1,520	2,700	1,930	880	2,260	910	1,370	9,850	3,590	1,520	712	726
28	1,520	2,330	2,000	880	1,810	940	1,280	7,620	4,060	1,340	972	895
29	1,420	2,060	1,810	880	1,520	1,040	1,190	5,370	4,580	1,240	839	815
30	1,420	2,000	1,640	850	-	1,040	1,110	4,260	4,160	1,260	748	684
31	1,750	-	1,520	850	-	1,000	-	4,360	-	1,310	698	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	75,970	10,700	580	2,451	8.54	9.84	150,700
November	68,840	5,830	1,420	2,295	8.00	8.92	136,500
December	54,260	2,400	1,240	1,750	6.10	7.03	107,600
Calendar year 1947	649,715	10,700	466	1,780	6.20	84.20	1,289,000
January	39,370	2,330	850	1,270	4.43	5.10	78,090
February	32,198	2,540	728	1,110	3.87	4.17	63,860
March	30,190	1,370	800	974	3.39	3.91	59,880
April	37,480	2,060	800	1,249	4.35	4.86	74,340
May	103,460	9,850	1,000	3,337	11.6	13.41	205,200
June	151,220	7,890	3,410	5,041	17.6	19.60	299,900
July	57,150	3,320	1,240	1,844	6.43	7.41	113,400
August	26,671	1,330	664	860	3.00	3.46	52,900
September	17,145	895	430	572	1.99	2.22	34,010
Water year 1947-48	693,954	10,700	430	1,896	6.61	89.93	1,376,000

Peak discharge (base, 7,800 sec.-ft.).- Oct. 19 (4:30 a.m.) 18,800 sec.-ft.; Nov. 7 (9:30 p.m.) 8,690 sec.-ft.; May 27 (3:30 a.m.) 12,000 sec.-ft.
Note.- Shifting-control method used Oct. 2 to Jan. 10.

Cowlitz River near Kosmos, Wash.

Location.- Staff gage, lat. 46°28'00", long. 122°07'20", in SE¼ sec. 1, T. 11 N., R. 5 E half a mile downstream from Tumwater Creek, 1½ miles downstream from Cispus River, an 4 miles southeast of Kosmos.

Drainage area.- 1,040 square miles.

Records available.- November 1947 to September 1948.

Extremes.- Maximum discharge during period not determined, probably occurred May 28 duri period of doubtful gage-height record; minimum observed, 1,110 second-feet Sept. 26 (gage height, 3.14 feet, obtained by relation curve from temporary staff gage half a mile upstream).

Remarks.- Records fair. Gage read once daily except May 4, 6-8, 11, 27, 28, June 11-14, Sept. 1, 29, 30 when it was read twice daily. No diversion or regulation.

Rating table, Nov. 1, 1947, to Sept. 30, 1948 (gage height, in feet, and discharge, in second-feet)

3.2	1,130	4.5	1,950	6.5	4,220	10.0	11,200
3.5	1,260	5.0	2,380	7.0	5,000	11.0	14,200
3.8	1,430	5.5	2,890	8.0	6,750	12.0	17,400
4.1	1,640	6.0	3,500	9.0	8,800	13.0	21,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1		5,400	5,720	5,520	2,480	5,600	3,130	3,840	12,500	7,650	3,020	1,71
2		7,200	5,690	8,000	2,460	4,730	3,070	3,790	13,000	6,490	3,010	1,66
3		7,000	5,570	8,000	2,420	3,780	3,010	3,700	14,500	6,130	2,910	1,73
4		6,600	5,000	7,000	2,390	4,180	2,960	6,070	14,000	5,700	2,790	1,65
5		6,200	4,650	6,400	2,360	3,880	2,870	6,040	13,500	5,300	2,620	1,54
6		5,800	4,370	7,000	2,130	4,010	2,790	10,900	14,000	5,260	2,620	1,41
7		6,500	4,190	10,600	2,000	3,680	2,650	14,100	15,500	5,550	2,520	1,35
8		15,000	3,890	8,650	1,980	3,450	2,560	11,100	17,000	5,190	2,490	1,41
9		13,000	3,700	8,430	2,190	3,280	2,470	8,950	17,000	4,760	2,460	1,43
10		11,000	3,580	8,090	1,980	3,050	2,410	8,020	16,400	3,680	2,410	1,47
11		10,000	3,100	7,670	1,860	2,890	2,340	7,090	16,200	3,850	2,370	1,47
12		9,000	2,870	6,660	1,770	2,790	2,410	6,880	14,900	3,420	2,400	1,39
13		8,500	4,000	5,600	1,690	2,740	2,340	7,810	12,600	4,400	2,250	1,33
14		8,000	5,600	5,060	1,900	2,640	2,410	7,490	11,500	4,380	2,220	1,36
15		8,000	6,000	4,740	2,250	2,560	2,510	7,130	10,600	4,400	2,280	1,39
16		8,000	5,700	4,420	2,000	2,510	3,500	6,420	11,000	4,300	2,240	1,43
17		7,600	6,560	4,080	2,590	2,360	5,000	7,940	11,100	3,650	2,130	1,28
18		9,000	6,710	3,860	3,860	2,430	5,500	7,940	9,820	4,400	2,090	1,31
19		8,000	6,640	3,680	3,780	2,400	5,500	6,070	9,430	4,140	2,050	1,41
20		7,500	6,560	3,450	3,420	2,390	5,500	7,270	9,200	3,940	1,950	1,40
21		6,500	5,890	3,190	3,680	2,340	6,500	8,380	10,800	3,820	1,880	1,38
22		5,650	5,520	2,920	6,620	4,070	7,000	11,800	9,430	3,650	1,870	1,37
23		5,130	4,380	3,200	7,490	3,650	7,400	11,600	8,620	3,570	1,850	1,37
24		4,730	3,940	3,290	6,430	3,460	7,200	12,500	8,340	3,400	1,870	1,18
25		4,460	4,730	3,190	5,740	3,190	7,230	15,000	8,000	3,160	1,960	1,14
26		6,130	5,450	3,000	11,500	2,930	6,270	18,000	7,940	3,060	1,870	1,11
27		7,210	5,550	2,890	11,700	2,980	5,670	20,000	8,040	3,240	1,900	1,77
28		6,520	6,710	2,790	7,960	3,050	5,100	21,000	8,260	4,460	1,920	1,97
29		5,910	6,020	2,750	7,670	3,120	4,730	17,000	8,580	3,020	2,060	2,22
30		5,770	5,400	2,710	-	3,400	4,190	14,000	9,200	3,020	1,890	1,87
31		-	5,050	2,480	-	3,250	-	12,000	-	3,010	1,800	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-fee
October	-	-	-	-	-	-	-
November	225,310	15,000	4,460	7,510	7.22	8.06	446,90
December	158,740	6,710	2,870	5,121	4.92	5.68	314,90
Calendar year	-	-	-	-	-	-	-
January	159,320	10,600	2,480	5,139	4.94	5.70	316,00
February	116,200	11,700	1,690	4,007	3.85	4.16	230,50
March	100,790	5,600	2,340	3,251	3.13	3.60	199,90
April	126,220	7,400	2,340	4,207	4.05	4.51	250,40
May	309,830	21,000	3,700	9,995	9.61	11.08	614,50
June	350,960	17,000	7,940	11,700	11.2	12.55	696,10
July	134,000	7,650	3,010	4,323	4.16	4.79	265,80
August	69,700	3,020	1,800	2,248	2.16	2.49	138,20
September	44,420	2,220	1,110	1,481	1.42	1.59	88,11
The period	-	-	-	-	-	-	3,561,00

Note.- No gage-height record Nov. 1-21, Dec. 13-16, May 30 to June 9; doubtful gage-height recor Jan. 2-6, Apr. 16-24; discharge computed on basis of records for nearby stations.

Cowlitz River at Mossyrock, Wash.

Location.- Water-stage recorder, lat. 46°33'00", long. 122°29'30", in SE¼ sec. 1, T. 12 N., R. 2 E., 200 feet upstream from Harmony Bridge and 1 mile north of Mossyrock.

Drainage area.- 1,170 square miles.

Records available.- January 1912 to September 1917 (incomplete), March 1926 to September 1935, August 1946 to September 1948.

Average discharge.- 16 years, 5,210 second-feet.

Extremes.- Maximum discharge during year, 24,200 second-feet Oct. 19 (gage height, 16.00 feet); minimum, 1,310 second-feet Sept. 19-22.
1912-17, 1926-35, 1946-48: Maximum discharge observed, 81,000 second-feet Dec. 22, 1933 (gage height, 36.55 feet); minimum, 630 second-feet Nov. 21-24, Dec. 3, 5-8, 1929

Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversion or regulation.

Revisions (water years).- W 769: 1933.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a1,400	7,370	6,170	5,870	3,070	8,280	4,150	4,710	12,900	7,520	2,950	1,790
2	a2,000	8,120	6,170	8,760	3,010	7,370	4,020	4,430	13,600	6,470	2,890	1,740
3	7,300	7,820	6,020	8,920	a3,000	6,470	4,020	4,710	15,600	5,870	a2,860	1,740
4	5,510	7,220	5,420	7,970	a2,900	5,870	3,890	6,920	15,000	5,570	2,830	1,790
5	3,760	6,620	4,990	7,070	a2,800	5,420	3,760	7,370	13,800	5,130	2,710	1,640
6	3,010	6,320	4,570	7,820	a2,800	4,990	3,630	11,200	14,500	4,990	2,600	1,590
7	2,540	7,370	4,290	12,900	a2,800	4,710	3,500	15,400	16,500	5,130	2,540	1,540
8	2,320	17,200	4,150	15,000	a2,800	4,430	3,370	13,100	17,400	4,850	2,430	1,490
9	2,430	16,000	a4,100	12,200	a3,000	4,290	3,250	11,000	17,200	4,430	2,380	1,490
10	3,010	12,700	a4,000	10,500	a2,900	4,020	3,130	9,560	16,800	4,150	2,380	1,540
11	3,070	11,600	a4,000	9,400	a2,800	3,760	3,130	8,600	16,100	4,290	2,320	1,540
12	2,830	10,000	a4,000	8,120	a2,700	3,630	3,130	8,120	15,600	4,290	2,320	1,540
13	2,600	9,560	a5,000	7,220	a2,700	3,500	3,070	8,920	13,100	3,890	2,260	1,540
14	2,480	8,920	a6,000	6,470	a2,700	3,370	3,070	8,920	11,900	3,890	2,260	1,490
15	2,540	8,920	a7,000	6,020	a2,800	3,130	3,070	8,440	10,500	3,890	2,320	1,490
16	7,150	8,760	a6,000	5,570	a3,000	3,070	4,710	8,280	10,500	3,890	2,380	1,490
17	8,600	8,600	6,770	5,130	3,130	2,950	6,470	8,920	11,600	3,890	2,210	1,440
18	13,800	10,000	7,970	4,850	4,290	2,890	6,770	9,240	9,880	3,890	2,100	1,360
19	18,900	9,560	8,280	4,570	4,850	2,890	6,620	8,920	9,240	3,890	2,040	1,360
20	22,200	8,600	7,520	4,290	4,430	2,890	6,770	8,760	9,240	3,760	1,990	1,310
21	16,800	7,520	6,770	4,020	4,850	2,950	7,670	10,700	10,500	3,630	1,940	1,310
22	12,400	6,620	6,170	3,890	8,120	4,570	8,760	12,200	9,880	3,630	1,940	1,360
23	9,720	6,020	5,570	3,890	9,720	4,990	8,920	12,100	8,600	3,370	1,940	1,540
24	7,970	5,420	5,870	3,890	8,440	4,430	8,600	12,200	8,280	3,250	1,940	1,490
25	6,770	4,990	6,320	3,760	7,970	4,430	8,280	14,900	7,970	3,130	1,990	1,400
26	6,170	5,870	6,020	3,630	12,700	4,150	7,670	18,300	7,820	3,010	1,990	1,440
27	5,720	7,820	6,020	3,370	14,200	4,020	6,770	21,200	7,670	3,130	1,890	1,690
28	5,270	7,220	6,770	3,370	11,600	3,890	6,170	22,000	7,820	3,500	1,940	2,040
29	5,130	6,470	6,620	3,250	9,560	3,890	5,570	19,100	8,120	3,130	2,040	2,210
30	4,850	6,020	6,020	3,250	-	4,020	5,130	14,500	8,600	2,950	1,940	2,040
31	5,130	-	5,570	3,130	-	4,150	-	12,600	-	2,950	1,840	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	203,380	22,200	1,400	6,561	5.61	6.46	403,400
November	255,230	17,200	4,990	8,508	7.27	8.11	506,200
December	180,140	8,280	4,000	5,811	4.97	5.73	357,300
Calendar year 1947	1,922,650	22,200	1,150	5,268	4.50	61.12	3,813,000
January	198,100	15,000	3,130	6,390	5.46	6.30	392,900
February	149,640	14,200	2,700	5,160	4.41	4.76	296,800
March	133,420	8,280	2,890	4,304	3.68	4.24	264,600
April	157,070	8,920	3,070	5,236	4.48	4.99	311,500
May	345,320	22,000	4,430	11,140	9.52	10.98	684,900
June	356,420	17,400	7,670	11,880	10.2	11.33	706,900
July	129,360	7,520	2,950	4,173	3.57	4.11	256,600
August	70,160	2,950	1,840	2,263	1.93	2.23	139,200
September	47,630	2,210	1,310	1,588	1.36	1.51	94,470
Water year 1947-48	2,225,870	22,200	1,310	6,082	5.20	70.75	4,415,000

Peak discharge (base, 15,000 sec.-ft.).- Oct. 19 (11:30 p.m.) 24,200 sec.-ft.; Nov. 8 (4 p.m.) 19,500 sec.-ft.; Jan. 8 (1 a.m.) 16,000 sec.-ft.; May 7 (10:30 a.m.) 15,800 sec.-ft.; May 27 (11 p.m.) 22,800 sec.-ft.; June 8 (2 p.m.) 17,800 sec.-ft.

a No gage-height record; discharge computed on basis of records for station near Mayfield, or interpolated.

Cowlitz River near Mayfield, Wash.

Location.- Water-stage recorder, lat. 46°30'40", long. 122°36'50", in NE¼ sec. 24, T. 1° N., R. 1 E., 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, 2½ miles west of Mayfield. Datum of gage is 226.6 feet above mean sea level, datum c 1929.

Drainage area.- 1,400 square miles.

Records available.- April 1934 to September 1948. August 1910 to November 1911 at site 2½ miles upstream, published as Cowlitz River at Mayfield.

Average discharge.- 14 years, 5,542 second-feet.

Extremes.- Maximum discharge during year, 27,100 second-feet Oct. 20 (gage height, 17.70 feet); minimum, 1,360 second-feet Sept. 20, 21 (gage height, 8.01 feet).
1910-11, 1934-48: Maximum discharge, 58,000 second-feet Dec. 13, 1946 (gage height 24.75 feet); minimum, 766 second-feet Nov. 30, Dec. 1, 1936 (gage height, 7.18 feet). Flood of December 1933 is known to have exceeded that of Dec. 13, 1946.

Remarks.- Records excellent except those for period of no gage-height record, which are good. No diversion or regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

8.0	1,350	10.0	4,370	15.0	17,500
8.2	1,580	11.0	6,420	16.0	21,000
8.5	1,950	12.0	8,800	17.2	25,200
9.0	2,660	13.0	11,500		
9.5	3,470	14.0	14,500		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	1,570	9,450	7,120	8,980	3,660	10,100	5,250	5,580	13,800	7,860	3,100	2,04
2	2,340	10,100	7,100	14,100	3,490	8,800	5,270	5,230	14,400	6,800	3,080	1,96
3	9,620	9,450	7,280	13,000	3,350	7,620	5,290	5,830	16,100	6,160	2,990	2,02
4	7,080	8,580	6,780	11,800	3,280	6,850	4,950	8,380	15,800	5,940	2,910	2,05
5	4,730	7,760	6,220	10,200	3,180	6,290	4,790	9,270	14,400	5,480	2,780	1,90
6	3,750	7,810	5,830	11,700	3,020	5,900	4,620	14,800	15,000	5,310	2,690	1,78
7	3,080	11,800	5,640	17,500	2,940	5,540	4,500	18,100	16,600	5,580	2,630	1,72
8	2,780	21,600	5,370	18,800	3,130	5,370	4,200	15,100	17,500	5,270	2,480	1,69
9	2,870	19,600	5,210	15,000	3,470	5,090	4,220	12,500	17,400	4,790	2,450	1,70
10	3,440	15,600	4,930	13,000	3,230	4,750	4,280	10,700	16,900	4,580	2,420	1,77
11	3,560	13,800	4,910	11,600	3,000	4,390	4,410	9,500	16,600	4,730	2,390	1,69
12	3,320	11,900	4,770	10,000	2,860	4,310	4,280	9,140	16,400	4,460	2,350	1,69
13	3,070	11,500	5,350	8,700	2,810	4,220	4,070	9,880	13,900	4,290	2,330	1,68
14	2,890	10,900	7,470	7,860	2,840	4,040	3,960	9,960	12,600	4,180	2,360	1,84
15	3,200	12,000	7,690	7,170	3,770	3,910	4,260	9,270	11,100	4,180	2,440	1,69
16	8,700	11,900	7,500	6,570	3,950	3,780	6,490	9,090	11,000	4,130	2,600	1,68
17	10,800	11,400	9,630	6,130	5,370	3,640	8,350	9,660	12,200	4,090	2,400	1,58
18	16,100	12,900	11,700	5,790	6,980	3,660	8,380	9,980	10,500	4,240	2,280	1,47
19	21,200	12,000	12,100	5,500	6,820	3,640	8,050	9,830	9,740	4,110	2,230	1,42
20	25,100	10,700	10,400	5,190	6,000	3,540	8,050	9,530	9,850	3,910	2,180	1,38
21	19,400	9,290	9,090	4,930	6,910	4,360	8,960	11,300	11,200	a3,850	2,090	1,38
22	14,000	8,180	8,320	4,730	14,400	8,680	10,000	13,200	10,700	a3,800	2,070	1,53
23	10,900	7,330	7,620	4,730	13,700	7,120	10,800	13,300	9,450	a3,650	2,070	1,87
24	8,650	6,690	8,420	4,790	11,000	6,110	10,800	13,500	8,900	a3,500	2,160	1,76
25	7,470	6,180	8,550	4,710	10,700	5,830	10,400	16,200	8,520	a3,350	2,320	1,64
26	6,780	6,800	8,030	4,620	18,400	5,270	9,270	19,100	8,250	a3,200	2,260	1,79
27	6,220	8,720	7,910	4,200	18,200	4,970	8,080	21,500	8,080	a3,500	2,220	3,30
28	6,020	8,180	9,270	4,070	14,600	4,970	7,260	22,600	8,120	a4,000	2,260	3,25
29	5,710	7,430	9,110	4,020	11,900	5,330	6,620	20,100	8,420	a3,500	2,400	3,20
30	5,770	6,940	8,180	3,950	-	5,800	6,000	15,700	8,800	3,130	2,300	2,83
31	6,570	-	7,590	3,780	-	5,460	-	13,600	-	3,100	2,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	236,890	25,100	1,570	7,642	5.46	6.29	469,90
November	316,490	21,600	6,180	10,550	7.54	8.41	627,77
December	235,090	12,100	4,770	7,584	5.42	6.24	466,50
Calendar year 1947	2,287,510	25,500	1,270	6,267	4.48	60.77	4,537,00
January	257,120	18,800	3,780	8,294	5.92	6.83	510,00
February	196,960	18,400	2,810	6,792	4.85	5.23	390,70
March	169,140	10,100	3,540	5,456	3.90	4.49	335,50
April	195,840	10,800	3,960	6,528	4.66	5.20	388,40
May	381,230	22,600	5,230	12,300	8.79	10.13	756,20
June	372,230	17,500	8,080	12,410	8.86	9.89	738,30
July	138,670	7,860	3,100	4,473	3.20	3.68	275,00
August	75,420	3,100	2,070	2,433	1.74	2.00	149,60
September	56,920	3,300	1,380	1,897	1.36	1.51	112,90
Water year 1947-48	2,832,000	25,100	1,380	7,191	5.14	69.90	5,220,00

Peak discharge (base, 16,000 sec.-ft.).- Oct. 18 (1:30 p.m.) 17,000 sec.-ft.; Oct. 20 (2 a.m.) 27,100 sec.-ft.; Nov. 8 (3 p.m.) 23,700 sec.-ft.; Jan. 8 (2 a.m.) 20,100 sec.-ft.; Feb. 26 (9 p.m.) 20,200 sec.-ft.; May 7 (8 a.m.) 18,600 sec.-ft.; May 28 (4 a.m.) 23,000 sec.-ft.
a No gage-height record; discharge computed on basis of records for station at Mossyrock.

Cowlitz River at Castle Rock, Wash.

Location.- Water-stage recorder, lat. 46°16'30", long. 122°55'00", in SE¼ sec. 10, T. 9 N., R. 2 W., at highway bridge in Castle Rock, 2½ miles downstream from Toutle River and 14 miles upstream from mouth. Datum of gage is 19.73 feet above mean sea level, datum of 1929.

Drainage area.- 2,240 square miles.

Records available.- December 1926 to September 1948.

Average discharge.- 21 years (1927-48), 8,494 second-feet.

Extremes.- Maximum discharge during year, 38,500 second-feet Oct. 20 (gage height, 17.18 feet); minimum, 1,710 second-feet Sept. 21 (gage height, 7.62 feet).
1926-48: Maximum discharge observed, 139,000 second-feet Dec. 23, 1933 (gage height, 31.6 feet, present datum), from rating curve extended above 80,000 second-feet; minimum discharge, 998 second-feet Nov. 7, 8, 1935.

Remarks.- Records excellent. No diversion or regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

7.6	1,660	10.0	8,000	14.0	22,600
8.0	2,600	10.5	9,480	15.0	27,200
8.5	3,870	11.0	11,000	16.0	32,200
9.0	5,200	12.0	14,400	17.0	37,500
9.5	6,580	13.0	18,300		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,070	16,800	9,870	15,900	5,340	16,000	7,880	8,030	16,900	9,600	3,710	2,800
2	2,310	17,600	9,810	28,400	5,150	13,900	8,000	7,450	17,600	8,320	3,710	2,680
3	9,540	16,200	10,500	26,000	4,900	12,000	8,850	8,970	19,300	7,360	3,670	2,700
4	9,870	14,400	10,000	24,000	4,820	10,600	8,290	12,600	19,900	7,030	3,510	2,820
5	6,390	12,800	8,970	19,700	4,740	9,540	8,000	15,400	17,700	6,720	3,400	2,600
6	5,120	12,800	8,290	21,100	4,500	8,850	7,620	26,000	17,900	6,270	3,300	2,430
7	4,360	19,800	8,000	32,600	4,340	8,320	7,480	28,800	19,800	6,550	3,220	2,310
8	3,950	34,900	8,000	34,300	5,230	8,030	6,940	24,000	21,400	6,330	3,080	2,240
9	4,160	33,400	7,590	26,600	7,420	7,650	7,110	19,100	21,600	5,500	3,000	2,190
10	4,740	26,300	7,220	23,300	6,890	7,050	7,360	16,100	20,900	5,440	2,980	2,190
11	5,360	23,000	7,200	23,000	5,690	6,610	7,220	13,900	20,200	5,440	2,920	2,120
12	5,040	19,700	7,080	18,700	5,150	6,270	7,000	13,100	20,900	5,390	2,900	2,100
13	4,550	19,300	8,140	15,400	4,880	6,080	6,580	14,000	17,900	5,010	2,880	2,050
14	4,310	18,800	13,400	13,400	4,930	5,850	6,270	14,500	15,800	4,960	3,000	2,050
15	4,770	20,700	12,800	11,800	7,910	5,600	6,440	13,400	13,900	4,880	3,100	2,120
16	11,100	22,100	12,100	10,700	8,490	5,470	9,420	12,700	12,900	4,800	3,350	2,120
17	16,200	19,600	15,000	9,780	13,200	5,280	12,600	13,100	14,300	4,740	3,380	2,050
18	23,500	21,000	19,900	9,060	14,100	5,310	13,500	13,500	12,900	4,770	3,250	1,890
19	31,300	19,700	22,200	8,460	13,100	5,500	12,300	13,000	11,600	4,980	3,080	1,800
20	37,000	17,700	18,100	7,940	11,000	5,500	11,800	12,900	11,700	4,740	2,980	1,730
21	29,800	15,000	15,100	7,420	13,000	7,820	12,300	13,900	13,400	4,550	2,880	1,710
22	21,200	12,900	13,500	7,110	27,300	26,100	14,000	16,100	13,800	4,420	2,880	1,870
23	16,600	11,400	12,000	6,970	26,500	16,900	15,600	16,900	12,000	4,260	2,820	2,680
24	13,300	10,200	13,300	7,030	19,900	12,500	15,500	16,500	11,000	4,230	2,850	2,650
25	11,000	9,270	13,300	6,860	18,300	11,600	15,000	19,100	10,500	3,950	3,180	2,290
26	9,660	9,180	12,300	6,500	34,000	9,810	13,600	23,100	10,000	3,770	3,120	2,290
27	8,730	11,300	11,700	6,130	32,800	8,640	12,000	26,000	9,750	3,950	3,050	4,580
28	8,520	11,100	14,500	5,880	25,000	8,170	10,600	29,300	9,720	4,690	3,080	4,740
29	8,120	10,200	15,000	5,740	19,500	8,200	9,750	27,000	9,900	4,360	3,120	4,930
30	8,200	9,450	13,000	5,710	-	8,440	8,760	21,400	10,200	3,920	3,100	4,310
31	10,600	-	11,900	5,470	-	8,170	-	17,400	-	3,790	3,000	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	341,370	37,000	2,070	11,010	4.92	5.67	677,100
November	516,600	34,900	9,180	17,220	7.69	8.58	1,025,000
December	369,770	22,200	7,080	11,930	5.33	6.14	733,400
Calendar year 1947	3,370,330	43,600	1,660	9,234	4.12	55.97	6,685,000
January	450,960	34,300	5,470	14,550	6.50	7.49	894,500
February	358,080	34,000	4,340	12,350	5.51	5.95	710,200
March	285,760	26,100	5,280	9,218	4.12	4.74	566,800
April	297,770	15,600	6,270	9,926	4.43	4.94	590,600
May	527,250	29,300	7,450	17,010	7.59	8.75	1,046,000
June	455,370	21,600	9,720	15,180	6.78	7.56	903,200
July	164,720	9,600	3,770	5,314	2.37	2.73	326,700
August	97,500	3,710	2,820	3,145	1.40	1.62	193,400
September	77,040	4,930	1,710	2,568	1.15	1.28	152,800
Water year 1947-48	3,942,190	37,000	1,710	10,770	4.81	65.45	7,820,000

Peak discharge (base, 31,500 sec.-ft.).- Oct. 20 (8 s.m.) 38,500 sec.-ft.; Nov. 8 (10 p.m.) 38,400 sec.-ft.; Jan. 7 (8 p.m.) 37,900 sec.-ft.; Feb. 26 (7:15 p.m.) 37,000 sec.-ft.

Hall Creek near Packwood, Wash.

Location.- Water-stage recorder, lat. 46°34'50", long. 121°41'10", in NW¼ sec. 33, T. 13 N., R. 9 E., 800 feet upstream from Washington State Highway 5 and 2 miles southeast of Packwood.
Drainage area.- 10.9 square miles.
Records available.- October 1946 to November 1948 (discontinued).
Extremes.- 1947-48: Maximum discharge during water year, 296 second-feet Oct. 19 (gage height, 4.39 feet); minimum, 5.4 second-feet Sept. 21, 22 (gage height, 1.67 feet).
1948: Maximum discharge during period October to November, 142 second-feet Nov. 25 (gage height, 3.35 feet); minimum, 8.0 second-feet Oct. 2, 3 (gage height, 1.72 feet).
1946-48: Maximum discharge, 604 second-feet Dec. 13, 1946 (gage height, 6.63 feet) minimum, 3.7 second-feet probably Oct. 17, 18, 1946 (gage height, 1.59 feet, from recorded range in stage).
Remarks.- Records fair. No diversion. Some regulation for power at Packwood Lumber Co. dam, 1 mile upstream.

Discharge, in second-feet, 1947-48

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.4	37	46	47	38	112	35	39	71	35	16	8.6
2	9.7	42	45	68	37	100	35	37	65	35	16	8.0
3	19	43	46	70	35	86	35	45	65	33	16	8.0
4	18	40	43	69	35	76	35	54	60	32	15	8.0
5	15.5	38	41	63	33	70	34	70	55	31	15	7.5
6	13.5	39	39	80	32	64	32	108	54	33	15	7.2
7	12.5	53	39	174	31	59	32	120	55	32	15	7.2
8	11.5	102	37	192	32	57	30	106	57	32	14	7.2
9	11.5	100	36	162	33	53	30	89	57	30	13.5	7.2
10	12	91	35	143	32	47	30	73	54	28	13	6.1
11	12	81	35	131	31	46	29	60	79	27	13.5	6.1
12	11.5	71	33	113	30	44	28	57	69	26	13.5	6.1
13	11.5	79	35	99	30	42	27	60	80	24	13	6.1
14	11	73	41	86	30	39	27	55	65	23	13	6.1
15	12.5	88	41	78	35	38	27	50	57	22	14	6.1
16	21	88	41	71	39	36	32	48	90	22	14	6.1
17	37	93	49	65	50	34	36	49	92	21	13	6.1
18	59	102	57	61	67	35	39	51	81	21	12.5	6.1
19	152	98	66	57	68	33	42	50	72	21	12.5	5.8
20	119	86	63	53	67	31	43	50	70	21	12	5.8
21	92	76	59	51	86	34	48	55	66	20	11.5	5.4
22	70	67	55	48	186	44	56	61	62	19.5	11.5	5.8
23	59	60	51	47	174	41	60	60	55	19	11	6.1
24	47	55	54	46	142	40	65	60	52	19	9.7	6.1
25	41	50	51	45	131	39	67	69	47	18.5	9.7	5.8
26	37	49	49	44	211	38	62	79	45	18	9.2	6.4
27	35	49	48	43	198	37	56	98	42	18	8.6	13
28	34	49	50	41	162	36	50	113	39	19.5	8.6	12.5
29	32	46	48	40	132	35	46	110	37	18	8.6	11.5
30	33	46	45	39	-	35	42	91	37	17	8.6	10
31	33	-	42	39	-	35	-	79	-	16.5	8.6	-

1948

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	9.2	11	9	23	14	17	13.5	35	25	11.5	136
2	8.0	11	10	20	14	18	12.5	35	26	11	119
3	8.0	15	11	19.5	13.5	19	12	39	27	10	91
4	13	15.5	12	18.5	13	20	12	49	28	9.2	98
5	18	16.5	13	16.5	13	21	11.5	49	29	8.6	86
6	19.5	16.5	14	16.5	20	22	11.5	54	30	8.6	74
7	25	16	15	15.5	32	23	10	67	31	10	-
8	26	15	16	14	32	24	11	124			

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October 1947	1,089.1	152	6.4	35.1	3.22	3.72	2,160
November	1,991	102	37	66.4	6.09	6.79	3,950
December	1,420	66	33	45.8	4.20	4.84	2,820
Calendar year 1947	13,531.1	276	6.1	37.1	3.40	46.15	26,840
January 1948	2,365	192	39	76.3	7.00	8.07	4,690
February	2,207	211	30	76.1	6.98	7.53	4,380
March	1,516	112	31	48.9	4.49	5.17	3,010
April	1,210	67	27	40.3	3.70	4.13	2,400
May	2,146	120	37	69.2	6.35	7.32	4,260
June	1,830	92	37	61.0	5.60	6.24	3,630
July	752	35	16.5	24.3	2.23	2.57	1,490
August	385.1	16	8.6	12.4	1.14	1.31	764
September	218	13	5.4	7.27	.667	.74	433
Water year 1947-48	17,192.2	211	5.4	46.8	4.29	58.43	33,990
October 1948	433.1	26	8.0	14.0	1.28	1.48	859
November	1,324.0	136	11	44.1	4.05	4.52	2,630

Johnson Creek near Packwood, Wash.

Location.- Water-stage recorder, lat. 46°34'30", long. 121°42'00", in NE¼ sec. 32, T. 13 N., R. 9 E., 400 feet upstream from mouth and 3 miles southwest of Packwood.
Drainage area.- 49.6 square miles.
Records available.- August 1907 to September 1914, October 1918 to September 1924. October 1946 to November 1948 (discontinued).
Extremes.- 1947-48: Maximum discharge during water year, 1,270 second-feet May 27 (gage height, 5.98 feet); minimum, 44 second-feet Oct. 1, 2 (gage height, 3.34 feet).
1948: Maximum discharge during period October to November, 644 second-feet Nov. 24 (gage height, 4.97 feet); minimum, 67 second-feet Oct. 3 (gage height, 3.45 feet).
1907-14, 1918-24, 1946-48: Maximum discharge, 2,990 second-feet Dec. 11, 1946; maximum gage height, 8.22 feet Dec. 11, 1946 (result of drift caught on control for 7½ hours); minimum discharge, 15 second-feet Oct. 17-19, 1946.
Remarks.- Records good. No diversion or regulation.

Discharge, in second-feet, 1947-48.

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	221	275	178	97	f247	107	125	684	304	109	64
2	95	214	258	224	93	f187	105	120	738	262	105	64
3	122	217	243	207	89	166	105	160	810	247	103	66
4	86	200	224	190	89	150	101	187	744	235	101	64
5	74	181	207	172	86	142	97	228	768	217	93	63
6	68	184	190	232	82	132	93	480	810	221	99	63
7	66	520	175	548	82	127	91	490	810	214	89	61
8	64	840	160	455	82	122	89	390	840	197	88	60
9	68	616	152	336	81	116	89	287	870	184	86	60
10	73	510	147	287	77	109	89	254	810	184	82	59
11	71	450	142	247	76	105	88	239	870	181	81	58
12	70	375	137	214	76	105	86	239	810	169	79	58
13	67	345	152	190	74	105	86	258	762	166	77	57
14	67	300	152	169	74	103	86	243	672	166	79	57
15	93	283	150	155	84	99	101	232	572	163	91	58
16	152	262	150	147	81	97	157	247	756	160	81	57
17	284	313	200	142	105	95	178	279	672	155	76	57
18	500	355	228	137	142	95	178	279	540	152	73	56
19	780	322	232	132	134	91	184	262	495	150	73	54
20	762	283	214	127	122	89	214	313	515	147	71	54
21	572	247	197	122	129	95	270	415	556	144	70	54
22	440	221	172	120	318	118	296	485	475	142	70	61
23	360	204	163	122	270	107	279	490	435	137	70	60
24	296	187	172	122	214	105	258	583	415	129	73	58
25	254	197	169	118	200	101	239	768	390	127	77	57
26	235	341	169	113	550	97	214	900	375	125	74	64
27	207	355	181	109	495	97	190	1,080	365	129	71	82
28	190	322	193	107	355	103	166	1,000	390	125	70	84
29	175	296	181	105	283	116	147	780	390	118	68	79
30	172	279	166	103	-	113	137	702	365	113	67	74
31	175	-	157	99	-	111	-	660	-	111	67	-

f Computed on basis of partly estimated gage-height record.

1948

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	71	79	9	175	86	17	97	137	25	88	430
2	70	81	10	144	86	18	93	125	26	86	313
3	70	109	11	139	86	19	89	127	27	82	228
4	152	101	12	125	84	20	86	134	28	79	221
5	152	101	13	116	86	21	84	127	29	77	190
6	163	97	14	109	129	22	81	142	30	79	f181
7	270	93	15	107	150	23	79	246	31	81	-
8	224	88	16	103	144	24	99	572			

f Computed on basis of partly estimated gage-height record.

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Per scuare mile	Runoff	
						Inches	Acre-feet
October 1947	6,682	780	44	216	4.35	5.01	13,250
November	9,640	840	181	321	6.47	7.23	19,120
December	5,708	275	137	184	3.71	4.28	11,320
Calendar year 1947	74,991	840	41	205	4.13	56.23	148,700
January 1948	5,729	548	99	185	3.73	4.30	11,360
February	4,640	550	74	160	3.23	3.48	9,200
March	3,645	247	89	118	2.38	2.73	7,230
April	4,520	296	86	151	3.04	3.39	8,970
May	13,175	1,080	120	425	8.57	9.88	26,130
June	18,694	870	365	623	12.6	14.02	37,080
July	5,274	304	111	170	3.43	3.95	10,460
August	2,513	109	67	81.1	1.64	1.88	4,980
September	1,863	84	54	62.1	1.25	1.40	3,700
Water year 1947-48	82,083	1,080	44	224	4.52	61.55	162,800
October 1948	3,470	270	70	112	2.26	2.60	6,880
November	4,773	572	79	159	3.21	3.58	9,470

Cispus River near Randle, Wash.

Location.- Water-stage recorder, lat. 46°26'50", long. 121°51'35", in NW¼ sec. 18, T. 11 N., R. 8 E. (unsurveyed), 500 feet upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle. Datum of gage is 1,221.4 feet above mean sea level (from river-profile survey).

Drainage area.- 323 square miles.

Records available.- October 1910 to February 1912, September 1929 to September 1948.

Average discharge.- 20 years (1910-11, 1929-48), 1,257 second-feet.

Extremes.- Maximum discharge during year, 6,650 second-feet May 27 (gage height, 7.91 feet); minimum, 390 second-feet Oct. 1.

1910-12, 1929-48: Maximum discharge, 20,000 second-feet Dec. 22, 1933 (gage height, 12.7 feet), from rating curve extended above 8,000 second-feet; minimum, 183 second-feet Dec. 30, 1936; minimum gage height, 2.55 feet Oct. 25, 1942.

Remarks.- Records good. No diversion or regulation.

Revisions (water years).- W 794: 1934.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	394	2,120	1,550	1,790	690	1,730	992	1,250	3,830	1,860	768	50[illegible]
2	449	1,980	1,510	2,460	664	1,540	983	1,190	4,160	1,610	746	504
3	690	1,920	1,490	2,180	644	1,380	992	1,670	4,720	1,510	725	52[illegible]
4	578	1,730	1,380	1,920	644	1,260	947	2,120	4,340	1,470	725	50[illegible]
5	518	1,550	1,300	1,730	619	1,170	929	2,250	4,250	1,360	697	494
6	471	1,500	1,220	2,180	596	1,120	912	3,460	4,520	1,420	690	494
7	458	2,050	1,170	3,800	601	1,070	896	3,720	5,000	1,390	670	49[illegible]
8	471	3,380	1,110	3,550	619	1,020	872	3,060	5,000	1,290	670	494
9	601	2,900	1,080	2,680	613	983	864	2,600	4,810	1,200	658	49[illegible]
10	718	2,600	1,000	2,250	596	938	856	2,250	4,720	1,170	658	494
11	718	2,530	1,000	1,920	566	904	848	2,050	4,720	1,180	658	494
12	644	2,250	974	1,610	566	880	832	2,120	4,160	1,110	651	485
13	596	2,120	1,130	1,400	566	872	816	2,460	3,720	1,090	644	485
14	561	1,980	1,230	1,280	566	840	824	2,320	3,380	1,060	625	494
15	956	1,880	1,130	1,170	638	816	983	2,180	2,980	1,040	690	49[illegible]
16	2,120	1,790	1,170	1,080	613	800	1,550	2,320	3,460	1,010	651	475
17	3,060	1,880	1,920	1,020	768	784	1,730	2,600	3,380	992	619	471
18	4,160	2,050	2,050	956	1,150	784	1,730	2,530	2,900	1,000	619	464
19	5,400	1,920	1,980	912	1,050	768	1,790	2,460	2,820	983	607	462
20	5,200	1,730	1,790	872	956	760	1,980	2,600	2,820	947	584	45[illegible]
21	3,800	1,610	1,610	840	1,010	824	2,320	3,220	3,060	938	572	462
22	2,820	1,470	1,510	832	1,730	1,200	2,600	3,640	2,750	912	566	49[illegible]
23	2,250	1,360	1,430	840	1,610	1,020	2,600	3,640	2,530	896	584	513
24	1,860	1,260	1,540	856	1,410	983	2,320	4,160	2,390	864	578	49[illegible]
25	1,550	1,240	1,510	832	1,430	938	2,250	5,200	2,320	832	584	48[illegible]
26	1,430	1,610	1,480	776	2,750	904	1,920	5,800	2,250	824	561	513
27	1,300	1,790	1,510	753	2,680	912	1,730	6,650	2,180	864	545	601
28	1,310	1,670	1,730	746	2,250	929	1,550	6,220	2,180	848	534	584
29	1,170	1,550	1,670	746	1,920	1,040	1,450	5,000	2,120	792	534	572
30	1,230	1,510	1,530	732	-	1,030	1,330	3,980	2,120	784	534	534
31	1,480	-	1,450	690	-	1,010	-	3,720	-	768	524	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	48,963	5,400	394	1,579	4.89	5.64	97,120
November	56,890	3,380	1,240	1,896	5.87	6.55	112,800
December	44,154	2,050	974	1,424	4.41	5.08	87,580
Calendar year 1947	485,196	5,400	383	1,329	4.11	55.86	962,400
January	45,403	3,800	690	1,465	4.54	5.23	90,060
February	30,515	2,750	566	1,052	3.26	3.51	60,530
March	31,209	1,730	760	1,007	3.12	3.59	61,900
April	42,396	2,600	816	1,413	4.37	4.88	84,090
May	98,440	6,650	1,190	3,175	9.83	11.33	195,300
June	103,650	5,000	2,120	3,455	10.7	11.93	205,600
July	34,014	1,860	768	1,097	3.40	3.92	67,470
August	19,471	768	524	628	1.94	2.24	38,620
September	15,060	601	458	502	1.55	1.73	29,870
Water year 1947-48	570,165	6,650	394	1,558	4.82	65.63	1,131,000

Peak discharge (base, 3,400 sec.-ft.).- Oct. 19 (11:30 a.m.) 5,800 sec.-ft.; Jan. 7 (3 p.m.) 4,340 sec.-ft.; May 27 (8 to 11 p.m.) 6,650 sec.-ft.

Tilton River near Cinebar, Wash.

Location.- Water-stage recorder, lat. 46°34'35", long. 122°31'15", in SW¼ sec. 26, T. 13 N., R. 2 E., 1,000 feet downstream from Cinnabar Creek, 2 miles southeast of Cinebar, and 2½ miles upstream from mouth. Datum of gage is 397.6 feet above mean sea level (from river-profile survey).

Drainage area.- 158 square miles.

Records available.- February 1941 to September 1948.

Extremes.- Maximum discharge during year, 6,800 second-feet Nov. 7 (gage height, 10.56 feet), from rating curve extended above 4,000 second-feet; minimum, 127 second-feet Oct 1 (gage height, 3.97 feet).

1941-48: Maximum discharge, 14,500 second-feet sometime during period of no gage-height record in December 1946 (gage height, 14.36 feet, from high-water mark in well), from rating curve extended above 4,000 second-feet; minimum, 66 second-feet Sept. 11, 12, 1944.

Remarks.- Records good. No diversion or regulation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 26						Feb. 27 to Sept. 30					
3.9	114	5.0	422	8.0	2,840	4.1	124	5.0	343	7.0	1,72
4.1	152	5.5	660	9.0	4,190	4.3	158	5.5	565	8.0	2,84
4.3	198	6.0	970	10.1	5,930	4.5	200	6.0	870	9.0	4,19
4.5	252	6.5	1,340			4.7	250	6.5	1,240		
4.7	314	7.0	1,770								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	128	2,220	810	2,550	512	1,570	1,080	844	692	284	158	198
2	1,100	1,910	750	4,040	485	1,330	1,120	760	674	272	154	187
3	2,220	1,720	938	2,900	472	1,120	1,080	1,240	668	258	153	217
4	1,340	1,500	872	2,540	459	1,010	975	1,720	592	256	154	198
5	872	1,340	810	2,010	430	905	898	2,080	549	250	154	185
6	644	1,540	750	2,830	411	831	857	4,060	529	264	170	176
7	521	4,020	750	4,040	399	792	798	2,960	529	272	158	166
8	472	4,980	720	3,090	459	779	740	2,080	503	261	149	160
9	521	2,960	750	2,320	512	728	779	1,620	461	242	145	156
10	521	2,490	702	2,060	451	682	877	1,380	417	227	144	151
11	516	2,160	750	1,860	418	626	1,010	1,200	733	224	142	145
12	463	1,770	750	1,540	399	598	940	1,160	604	214	140	142
13	430	1,860	1,150	1,340	392	609	857	1,280	620	205	140	138
14	399	1,820	1,680	1,220	418	570	831	1,240	503	198	144	137
15	799	2,780	2,060	1,110	818	544	1,010	1,120	447	191	176	153
16	1,860	2,660	1,960	1,000	842	523	1,920	1,120	461	185	178	166
17	2,320	2,600	2,900	938	1,680	503	1,870	1,160	430	180	172	145
18	2,720	2,540	2,960	905	2,220	539	1,720	1,080	388	180	170	142
19	3,800	2,110	2,660	872	1,640	549	1,570	975	362	189	158	138
20	2,900	1,770	2,010	810	1,300	529	1,420	940	483	187	158	137
21	2,160	1,500	1,680	780	2,080	972	1,520	1,010	686	180	149	137
22	1,640	1,300	1,540	750	5,930	2,920	1,570	1,010	668	172	147	198
23	1,420	1,110	1,460	750	3,620	1,670	2,140	919	576	168	144	303
24	1,180	1,000	1,910	780	2,380	1,280	2,300	940	503	164	188	258
25	1,000	938	1,680	750	2,790	1,160	2,200	1,080	456	160	258	227
26	970	938	1,420	684	5,590	1,010	1,720	1,080	417	156	229	316
27	840	840	1,380	644	3,620	975	1,380	1,040	380	223	237	1,200
28	938	780	1,860	600	2,480	1,040	1,160	1,200	347	245	278	884
29	872	720	1,680	590	1,870	1,200	1,040	1,010	323	202	250	786
30	1,130	720	1,420	569	-	1,160	912	792	303	178	232	544
31	1,590	-	1,380	530	-	1,120	-	722	-	166	219	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	38,286	3,800	128	1,235	7.82	9.01	75,940
November	56,596	4,980	720	1,887	11.9	13.32	112,300
December	44,142	2,960	702	1,424	9.01	10.39	87,550
Calendar year 1947	332,331	6,270	92	910	5.76	78.21	659,200
January	47,402	4,040	530	1,529	9.68	11.16	94,020
February	45,077	5,930	392	1,554	9.84	10.61	89,410
March	29,824	2,920	503	962	6.09	7.02	59,160
April	38,294	2,300	740	1,276	8.08	9.01	75,960
May	40,822	4,060	722	1,317	8.34	9.61	80,970
June	15,304	733	303	510	3.23	3.60	30,360
July	6,553	284	156	211	1.34	1.54	13,000
August	5,448	278	140	176	1.11	1.28	10,810
September	8,090	1,200	137	270	1.71	1.90	16,050
Water year 1947-48	375,838	5,930	128	1,027	6.50	88.45	745,500

Peak discharge (base, 7,000 sec.-ft.).- No peak above base.

Toutle River near Silver Lake, Wash.

Location.- Water-stage recorder, lat. 46°20'10", long. 122°43'30", in SE¼ sec. 19, T
N., R. 1 E., at highway bridge half a mile downstream from confluence of North ar
South Forks and 5 miles northeast of Silver Lake. Datum of gage is 407.3 feet ab
mean sea level (from river-profile survey).
Drainage area.- 474 square miles.
Records available.- October 1919 to December 1923, September 1929 to September 1948.
September 1909 to August 1912 at site 2 miles downstream, published as Toutle Riv
near Castle Rock.
Average discharge.- 24 years (1909-11, 1919-21, 1922-23, 192?-48). 1,954 second-feet
Extremes.- Maximum discharge during year, 14,100 second-feet Nov. 8 (gage height, 9.
feet), from rating curve extended above 9,500 second-feet; minimum, 381 second-fe
Oct. 1 (gage height, 1.88 feet).
1909-12, 1919-23, 1929-48: Maximum discharge observed, 35,600 second-feet Mar
1910; maximum gage height recorded, 22.7 feet Dec. 23, 1933; minimum discharge, 2
second-feet Nov. 21, 1929.
Remarks.- Records fair except those for periods of no gage-height record, and those
15,000 second-feet, which are poor. No diversion or regulation.
Revisions (water years).- W 292: 1909 (calendar year). W 754: 1930-32.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.8	345	3.5	2,000	6.0	7,060
2.0	440	4.0	2,750	7.0	9,100
2.3	630	4.5	3,650	9.0	12,500
2.6	900	5.0	4,700		
3.0	1,370	5.5	5,850		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	S
1	386	4,500	2,150	5,230	1,250	3,700	2,130	2,000	2,800	1,430	702	
2	638	3,690	2,040	8,760	1,200	3,200	2,280	1,880	2,820	1,330	662	
3	1,490	3,570	2,320	6,070	1,190	2,750	2,380	2,810	2,950	1,240	646	
4	944	3,200	2,110	5,740	1,180	2,400	2,200	3,140	2,720	1,190	638	
5	782	3,000	1,970	4,370	1,130	2,050	2,140	4,600	2,570	1,130	616	
6	646	3,500	1,840	6,270	1,060	1,850	2,100	8,820	2,690	1,150	646	
7	580	9,660	1,860	12,100	1,060	1,700	2,010	6,610	2,890	1,170	616	
8	670	12,500	1,820	8,750	1,300	1,700	1,950	4,700	2,940	1,050	580	
9	1,020	8,120	1,780	5,430	1,450	1,610	2,030	3,870	2,870	988	566	
10	1,260	6,360	1,710	4,740	1,350	1,540	2,180	3,250	2,620	966	559	
11	1,600	5,780	1,750	4,390	1,270	1,460	2,170	2,890	3,020	933	553	
12	1,270	4,630	1,750	3,610	1,210	1,440	2,040	2,940	2,720	900	553	
13	1,050	5,090	2,740	2,940	1,150	1,500	1,950	3,220	2,750	860	573	
14	911	4,720	3,350	2,640	1,310	1,430	1,920	3,110	2,370	820	686	
15	2,360	5,550	3,050	2,400	2,310	1,370	2,130	2,840	2,080	810	773	
16	3,730	5,450	2,980	2,240	2,290	1,330	3,140	2,770	1,990	800	737	
17	4,810	4,920	4,440	2,080	2,940	1,270	3,440	2,750	1,910	791	820	
18	5,380	5,080	5,390	1,900	3,570	1,350	3,460	2,700	1,770	791	782	
19	8,750	4,410	4,680	1,750	2,700	1,400	3,110	2,590	1,700	840	719	
20	7,020	3,910	3,770	1,600	2,400	1,350	2,920	2,650	1,900	810	670	
21	4,660	3,350	3,250	1,550	4,280	3,100	3,060	2,780	2,460	773	638	
22	3,500	2,900	2,870	1,500	8,270	7,500	3,480	2,840	2,370	728	702	
23	3,020	2,640	2,780	1,550	4,990	4,220	3,890	2,750	2,110	710	638	
24	2,490	2,380	2,900	1,550	3,750	3,330	3,520	2,850	1,960	678	702	
25	2,170	2,220	2,640	1,480	7,250	3,070	3,400	3,310	1,840	638	791	
26	1,990	2,240	2,480	1,410	11,500	2,700	3,060	3,770	1,740	630	702	
27	1,800	2,220	2,810	1,370	8,900	2,460	2,750	3,910	1,650	900	662	1
28	2,000	2,110	3,440	1,340	5,800	2,360	2,560	4,540	1,620	1,170	694	1
29	1,790	1,970	3,140	1,310	4,300	2,370	2,320	3,850	1,600	911	646	1
30	2,000	1,950	2,820	1,300	-	2,300	2,140	3,160	1,570	800	638	1
31	2,500	-	2,810	1,280	-	2,210	-	2,870	-	737	623	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-
October	73,217	8,750	386	2,362	4.98	5.74	145
November	151,620	12,500	1,950	4,387	9.26	10.33	261
December	85,440	5,390	1,710	2,756	5.81	6.70	169
Calendar year 1947	726,540	12,500	310	1,991	4.20	57.00	1,441
January	108,650	12,100	1,280	3,505	7.39	8.52	215
February	92,360	11,500	1,060	3,185	6.72	7.25	183
March	72,020	7,500	1,270	2,323	4.90	5.65	142
April	77,860	3,890	1,920	2,595	5.47	6.11	154
May	106,770	8,820	1,880	3,444	7.27	8.38	211
June	69,000	3,020	1,570	2,300	4.85	5.41	136
July	28,674	1,430	630	925	1.95	2.25	56
August	20,533	820	553	662	1.40	1.61	40
September	19,941	1,660	446	665	1.40	1.56	39
Water year 1947-48	886,085	12,500	386	2,421	5.11	69.51	1,758

Peak discharge (base, 9,000 sec.-ft.).- Oct. 19 (6 a.m.) 10,300 sec.-ft.; Nov. 8 (3:30 a.m.) 14,100 sec.-ft.; Jan. 2 (2 a.m.) 9,820 sec.-ft.; Jan. 7 (8:30 a.m.) 13,900 sec.-ft.; Feb. 22 (3 9,460 sec.-ft.; Feb. 26 (time unknown) 12,200 sec.-ft.; Mar. 21 (time unknown) 12,200 sec.-ft.; 6 (10:30 a.m) 9,640 sec.-ft.
Note.- No gage-height record Jan. 18 to Feb. 10, Feb. 26 to Mar. 22; discharge computed on basis of re corded range in stage and records for South Fork Toutle River at Toutle.

Green River near Toutle, Wash.

Location.- Water-stage recorder, lat. 46°22'30", long. 122°33'50", in SW¼ sec. 4, T. 10 N., R. 2 E., 1 mile upstream from mouth and 7 miles northeast of Toutle.

Drainage area.- 131 square miles.

Records available.- October 1946 to September 1948.

Extremes.- Maximum discharge during year, 3,870 second-feet Jan. 7 (gage height, 8.36 feet) from rating curve extended above 2,600 second-feet by logarithmic plotting; minimum, 64 second-feet Oct. 1 and probably Oct. 2 (gage height, 2.75 feet, from recorded range in stage).

1946-48: Maximum discharge, 12,000 second-feet Dec. 11, 1946 (gage height, 13.23 feet), from rating curve extended above 2,600 second-feet by logarithmic plotting; minimum, 52 second-feet probably Sept. 4, 1947 (gage height, 2.63 feet, from recorded range in stage).

Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversion or regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.6	49	3.6	230	5.5	1,220
2.8	69	4.0	372	6.0	1,570
3.0	97	4.5	615	7.0	2,380
3.3	154	5.0	900	8.0	3,400

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	1,500	577	1,100	268	930	481	456	780	394	141	109
2	250	1,000	551	2,030	252	810	530	424	840	336	133	107
3	500	1,000	703	1,640	236	659	566	610	930	302	127	116
4	300	870	599	1,570	233	572	530	753	780	288	125	109
5	240	750	530	1,220	222	510	505	1,180	753	271	122	99
6	200	850	476	1,740	208	481	476	2,070	840	281	133	94
7	180	2,500	471	3,410	208	452	447	1,790	960	271	120	91
8	250	3,200	452	2,350	268	438	415	1,400	990	246	111	90
9	450	2,000	438	1,640	317	420	424	1,120	960	227	106	85
10	500	1,550	406	1,430	281	372	443	930	840	224	104	82
11	850	1,350	438	1,290	242	352	433	810	1,030	224	100	81
12	600	1,200	433	1,020	227	332	411	780	870	208	97	79
13	460	1,300	625	840	222	328	381	840	870	197	107	78
14	375	1,200	1,020	725	291	310	376	810	703	190	131	79
15	950	1,700	930	637	686	288	415	753	577	190	159	82
16	1,600	1,600	840	566	622	278	725	714	577	184	135	79
17	1,900	1,500	1,310	520	840	268	810	720	556	182	168	77
18	2,100	1,500	1,500	476	990	275	810	708	481	184	144	76
19	2,750	1,300	1,460	438	780	278	753	664	456	194	144	74
20	2,000	1,100	1,150	411	654	278	714	670	530	182	125	73
21	1,500	950	960	385	905	708	753	753	780	166	127	72
22	1,000	830	840	376	2,150	1,670	840	810	708	156	135	114
23	800	760	708	385	1,640	960	900	780	604	152	118	152
24	600	700	753	394	1,260	753	840	840	551	144	154	107
25	500	640	692	372	1,620	692	840	1,050	515	133	163	94
26	430	600	648	336	3,400	599	753	1,220	490	127	139	200
27	400	560	659	325	2,250	536	681	1,260	466	216	137	438
28	425	530	930	310	1,570	510	626	1,360	466	275	139	385
29	400	510	930	306	1,150	515	561	1,080	476	205	122	344
30	500	490	810	299	-	525	500	840	456	175	125	268
31	700	-	725	275	-	500	-	753	-	156	118	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	23,775	2,750	65	767	5.85	6.75	47,160
November	35,540	3,200	490	1,185	9.05	10.09	70,490
December	23,564	1,500	406	760	5.80	6.69	46,740
Calendar year 1947	179,697	3,200	52	492	3.76	51.02	356,400
January	28,816	3,410	275	930	7.10	8.18	57,160
February	23,992	3,400	208	827	6.31	6.81	47,590
March	16,599	1,670	268	535	4.08	4.71	32,920
April	17,939	900	376	598	4.56	5.09	35,580
May	28,948	2,070	424	934	7.13	8.22	57,420
June	20,835	1,030	456	694	5.30	5.91	41,330
July	6,680	394	127	215	1.64	1.90	13,250
August	4,009	168	97	129	.985	1.14	7,950
September	3,934	438	72	131	1.00	1.12	7,800
Water year 1947-48	234,631	3,410	65	641	4.89	66.61	465,400

Peak discharge (base, 2,500 sec.-ft.).- Jan. 7 (9:30 a.m.) 3,870 sec.-ft.; Feb. 26 (8 a.m.) 3,750 sec.-ft.; Mar. 22 (1 a.m.) 2,760 sec.-ft.

Note.- No gage-height record Oct. 2 to Nov. 29; discharge computed on basis of recorded range in stage and records for South Fork Toutle River at Toutle.

South Fork Toutle River at Toutle, Wash.

Location.- Water-stage recorder, lat. 46°19'20", long. 122°41'45", in SW¼NW¼ sec. 28, T. 10 N., R. 1 E., half a mile southwest of Toutle, 1½ miles upstream from mouth, and 3 miles downstream from Johnson Creek. Datum of gage is at mean sea level (from river-profile survey).

Drainage area.- 118 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge during year, 4,720 second-feet Jan. 7, Mar. 22; maximum elevation, 456.78 feet Mar. 22; minimum discharge, 97 second-feet Oct. 1, Sept. 21. 1939-48: Maximum discharge, 8,710 second-feet Dec. 11, 1946 (elevation, 458.54 feet); minimum, 63 second-feet Sept. 4, 1947.

Remarks.- Records good. No diversion or regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	99	1,790	485	2,020	328	962	548	491	773	281	154	133
2	316	1,350	433	3,020	300	822	601	450	765	266	146	130
3	569	1,320	503	2,040	288	702	622	1,030	773	256	144	164
4	353	1,090	433	1,980	284	615	560	1,160	672	248	146	144
5	292	989	395	1,470	273	560	541	1,730	615	245	142	130
6	245	1,120	372	2,240	256	528	515	3,320	636	259	149	124
7	212	3,200	391	4,040	252	497	497	2,300	672	266	140	120
8	289	3,720	372	2,650	354	491	467	1,610	650	238	130	116
9	529	2,300	372	1,790	411	461	534	1,230	601	222	130	112
10	628	1,920	349	1,610	353	422	629	989	534	219	130	108
11	1,010	1,730	353	1,440	307	395	629	839	688	212	126	106
12	658	1,370	358	1,180	281	381	574	899	534	203	124	106
13	509	1,550	740	980	270	386	522	1,090	615	192	130	103
14	422	1,420	1,030	848	318	358	534	1,050	485	186	167	108
15	1,150	1,850	908	757	805	340	629	926	428	180	200	124
16	1,850	1,790	848	680	782	336	1,160	882	411	174	189	118
17	2,260	1,610	1,550	629	1,190	319	1,190	864	376	169	222	108
18	2,440	1,670	1,850	567	1,550	340	1,170	830	349	167	197	103
19	3,240	1,380	1,610	528	1,110	345	1,020	797	332	186	167	101
20	2,510	1,180	1,200	491	873	340	926	822	432	186	154	99
21	1,920	962	998	473	1,330	1,220	980	890	672	172	151	99
22	1,280	873	839	455	3,090	2,860	1,240	864	584	159	164	166
23	1,050	665	781	461	2,110	1,400	1,460	805	503	156	144	232
24	765	574	971	467	1,460	1,010	1,240	864	450	146	172	189
25	615	522	839	444	1,770	873	1,130	1,020	411	144	189	154
26	548	522	733	416	3,320	725	944	1,060	381	140	161	281
27	461	479	828	391	2,240	658	789	1,030	353	224	156	479
28	560	444	1,120	376	1,550	643	702	1,380	332	273	156	444
29	467	411	971	367	1,170	650	615	1,110	315	206	149	381
30	567	411	805	358	-	622	541	873	296	177	151	307
31	838	-	773	336	-	580	-	797	-	161	144	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	28,652	3,240	99	924	7.83	9.03	56,830
November	40,212	3,720	411	1,340	11.4	12.67	79,760
December	24,210	1,850	349	781	6.62	7.63	48,020
Calendar year 1947	207,169	3,720	64	568	4.81	65.29	410,900
January	35,504	4,040	336	1,145	9.70	11.19	70,420
February	28,625	3,320	252	987	8.36	9.02	56,780
March	20,841	2,860	319	672	5.69	6.57	41,340
April	23,509	1,460	467	784	6.64	7.41	46,630
May	34,002	3,320	450	1,097	9.30	10.72	67,440
June	15,618	773	296	521	4.42	4.92	30,980
July	6,313	281	140	204	1.73	1.99	12,520
August	4,824	222	124	156	1.32	1.52	9,570
September	5,089	479	99	170	1.44	1.60	10,090
Water year 1947-48	267,399	4,040	99	731	6.19	84.27	530,400

Peak discharge (base, 4,200 sec.-ft.).- Nov. 8 (3 a.m.) 4,210 sec.-ft.; Jan. 7 (7 a.m.) 4,720 sec.-ft.; Mar. 22 (1 a.m.) 4,720 sec.-ft.

Elokomin River near Cathlamet, Wash.

Location.- Water-stage recorder, lat. 46°13'10", long. 123°20'30", in SE¼ sec. 31, T. 9 N. R. 5 W., 2 miles northeast of Cathlamet and 4 miles upstream from mouth. Datum of gage is 29.60 feet above mean sea level, datum of 1929.

Drainage area.- 66 square miles.

Records available.- October 1940 to September 1948.

Extremes.- Maximum discharge during year, 4,480 second-feet Jan. 1 (gage height, 9.34 feet from rating curve extended above 1,600 second-feet by slope-area method; minimum, 25 second-feet Sept. 13, 14 (gage height, 2.24 feet).

1940-48: Maximum discharge, 6,210 second-feet Jan. 25, 1947 (gage height, 10.76 feet), from rating curve extended above 1,600 second-feet by slope-area method; minimum 24 second-feet Aug. 21, 22, Sept. 2, 3, 1945.

Maximum stage known, 17.2 feet in December 1933, from information by local residents

Remarks.- Records excellent except those for periods of shifting control, which are good. Small diversions for irrigation. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	965	264	2,060	178	665	302	277	167	69	41	36
2	832	780	246	2,580	171	566	319	261	156	68	42	36
3	1,210	732	308	1,750	169	492	313	506	152	68	42	50
4	504	665	272	1,440	178	424	308	566	148	66	43	46
5	316	625	251	1,080	163	392	325	844	142	69	41	39
6	241	770	241	1,170	152	354	360	1,390	134	77	49	37
7	200	1,580	285	1,340	154	333	364	938	130	75	42	33
8	182	1,640	269	1,170	274	342	345	710	124	75	39	31
9	194	1,050	285	938	360	302	373	566	120	68	38	29
10	194	910	283	1,270	294	277	405	475	120	60	37	28
11	210	710	316	1,340	251	266	392	408	122	58	36	27
12	180	605	311	1,020	226	254	396	424	116	58	36	27
13	169	645	564	805	214	241	357	441	113	57	39	26
14	156	688	688	665	318	229	345	398	109	56	38	28
15	479	1,430	688	566	665	224	330	370	105	53	41	99
16	780	1,110	710	475	780	222	328	382	102	51	51	75
17	1,310	1,020	992	424	1,200	210	364	367	98	50	56	54
18	1,320	882	1,170	379	1,140	254	325	328	98	50	47	47
19	1,710	710	1,110	342	755	277	299	308	96	54	38	43
20	1,550	605	830	313	672	283	280	310	115	56	37	42
21	830	510	665	291	1,560	1,700	266	274	115	53	39	44
22	625	458	566	274	2,980	2,300	319	256	100	50	42	118
23	688	395	605	264	1,760	1,140	458	241	94	50	37	185
24	528	360	805	248	1,110	805	561	226	89	47	43	148
25	441	339	645	234	1,170	625	645	214	86	46	53	107
26	395	310	547	219	1,870	510	528	202	84	46	46	115
27	360	283	492	207	1,320	441	424	200	82	60	51	207
28	392	264	547	198	938	398	398	241	77	53	58	169
29	339	248	492	198	732	367	339	202	74	47	46	138
30	441	254	441	191	-	345	305	182	70	43	43	118
31	659	-	513	182	-	319	-	174	-	42	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	17,478	1,710	43	564	8.55	9.85	34,670
November	21,543	1,640	248	718	10.9	12.14	42,730
December	16,401	1,170	241	529	8.02	9.24	32,530
Calendar year 1947	130,710	4,500	33	358	5.42	73.64	259,300
January	23,633	2,580	182	762	11.5	13.32	46,880
February	21,754	2,980	152	750	11.4	12.26	43,150
March	15,557	2,300	210	502	7.61	8.77	30,860
April	11,063	645	266	369	5.59	6.23	21,940
May	12,681	1,390	174	409	6.20	7.15	25,150
June	3,334	163	70	111	1.68	1.88	6,610
July	1,775	77	42	57.3	.868	1.00	3,520
August	1,332	58	36	43.0	.652	.75	2,640
September	2,182	207	26	72.7	1.10	1.23	4,330
Water year 1947-48	148,733	2,980	26	406	6.15	83.82	295,000

Peak discharge (base, 4,000 sec.-ft).- No peak above base.
Note.- Shifting-control method used Oct. 1 to Nov. 23, May 31 to Sept. 26.

Youngs River near Astoria, Oreg.

Location.- Water-stage recorder, lat. 46°04', long. 123°47', in NW¼ sec. 27, T. 7 N., R. 9 W., 50 feet upstream from crest of Youngs River Falls, 2½ miles southwest of Olney, and 9 miles southeast of Astoria. Datum of gage is 62.64 feet above mean sea level, datum of 1929.

Drainage area.- 32 square miles.

Records available.- January 1934 to September 1948. March 1916 to September 1917 (gage heights only) at site 3 miles upstream. August 1927 to December 1933 at site 1 mile upstream.

Average discharge.- 14 years (1934-48), 163 second-feet.

Extremes.- Maximum discharge during year, 2,640 second-feet Mar. 21 (gage height, 10.33 feet); minimum, 6.6 second-feet Sept. 14 (gage height, 0.78 foot).
1927-48: Maximum discharge, 6,300 second-feet Nov. 24, 1927 (gage height, 6.52 feet, site and datum then in use), from rating curve extended above 2,000 second-feet; minimum, 3.7 second-feet Sept. 22, 23, 1938.

Remarks.- Records excellent except those below 10 second-feet and those for periods of no gage-height record, which are fair. No diversion or regulation above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.8	6.8	1.6	22	3.0	103	5.0	450
.9	8.0	1.9	31	3.5	157	6.0	720
1.1	11	2.2	43	4.0	232	7.0	1,050
1.3	15	2.6	69	4.5	330	8.0	1,450

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.9	562	95	1,160	59	258	a120	142	51	15	9.4	10
2	133	432	91	1,020	55	232	a115	128	48	15	9.4	10
3	184	400	166	678	61	193	a115	287	45	15	9.6	20
4	85	425	134	786	81	169	a120	265	44	15	9.6	21
5	55	420	117	548	69	153	a150	470	42	15	9.1	14
6	40	644	107	720	61	156	a200	582	38	15	10	12
7	32	1,400	140	837	57	140	h301	412	34	15	9.3	9.8
8	61	910	140	624	a110	151	a230	307	33	15	8.6	9.1
9	124	582	164	472	a270	135	a250	232	31	14	8.6	8.0
10	124	612	170	675	a370	122	a280	188	30	13	8.4	7.5
11	150	515	212	606	a270	115	309	160	29	12	8.4	7.2
12	103	392	181	468	a210	105	281	173	29	12	8.3	7.0
13	83	350	345	348	a170	101	250	236	28	11	9.0	6.8
14	68	352	395	267	a230	103	230	271	28	11	9.7	7.2
15	376	627	330	215	a370	99	209	217	27	11	11	50
16	465	465	330	178	a560	95	181	190	25	10	12	30
17	674	398	470	152	a620	92	174	165	25	10	13	17
18	585	392	651	135	a700	147	153	142	24	11	16	14
19	1,070	305	548	122	330	157	137	128	23	12	13	11
20	660	250	375	111	303	192	123	132	36	13	11	11
21	420	202	345	101	916	1,240	143	113	48	12	10	13
22	285	170	287	94	1,200	1,030	455	101	33	11	10	118
23	285	145	486	90	678	530	528	93	27	11	10	147
24	207	132	542	86	450	368	475	84	24	9.9	10	83
25	174	121	375	79	592	285	445	79	24	9.4	11	51
26	160	112	285	72	888	224	352	75	23	9.3	12	42
27	136	101	275	67	578	187	289	70	22	16	16	50
28	171	92	352	62	402	164	230	81	20	15	16	53
29	147	85	339	68	295	145	193	69	18	13	13	47
30	207	88	279	70	-	a135	164	61	16	11	12	36
31	475	-	326	61	-	a125	-	55	-	9.9	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	7,745.9	1,070	6.9	250	7.81	9.00	15,360
November	11,681	1,400	85	389	12.2	13.58	23,170
December	9,052	651	91	292	9.12	10.52	17,950
Calendar year 1947	58,625.0	1,660	5.4	161	5.03	68.13	116,300
January	10,972	1,160	61	354	11.1	12.75	21,760
February	10,955	1,200	55	378	11.8	12.73	21,730
March	7,348	1,240	92	237	7.41	8.54	14,570
April	7,202	528	115	240	7.50	8.37	14,280
May	5,708	582	55	184	5.75	6.63	11,320
June	925	51	16	30.8	.962	1.08	1,830
July	387.5	16	9.3	12.5	.391	.45	769
August	335.4	16	8.3	10.8	.338	.39	665
September	922.7	147	6.8	30.8	.962	1.07	1,830
Water year 1947-48	73,234.5	1,400	6.8	200	6.25	85.11	145,200

Peak discharge (base, 2,100 sec.-ft.).- Jan. 1 (6 p.m.) 2,400 sec.-ft.; Mar. 21 (8:30 p.m.) 2,640 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for Nehalem River near Foss.
h Computed from staff-gage reading.

NEHALEM RIVER BASIN

Nehalem River near Foss, Oreg.

Location.- Water-stage recorder, lat. 45°42', long. 123°45', in NW¼ sec. 35, T. 3 N., R. 9 W., a quarter of a mile upstream from Cook Creek and 2.2 miles northeast of Foss. Datum of gage is 32.60 feet above mean sea level, datum of 1929 (Oregon State Highway Department bench mark).

Drainage area.- 667 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge during year, 21,900 second-feet Feb. 22 (gage height, 13.95 feet); minimum, 93 second-feet Sept. 13, 14 (gage height, 1.58 feet).
1939-48: Maximum discharge, 35,100 second-feet Dec. 13, 1946 (gage height, 18.45 feet); minimum, 78 second-feet Sept. 11-13, 1944 (gage height, 1.45 feet).

Remarks.- Records good except those for periods of no gage-height record, which are fair. No known diversion or regulation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 21

1.7	110	3.0	880	7.5	5,950
1.8	150	3.5	1,260	9.0	8,940
2.0	245	4.2	1,840	10.5	12,600
2.3	410	5.0	2,620	12.0	16,600
2.6	600	6.0	3,760	13.5	20,600

Feb. 22 to Sept. 30

1.5	65	2.3	445
1.6	100	2.6	630
1.7	140	3.0	900
2.0	280	3.5	1,260

Note.- Same as preceding table above 3.5 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	6,980	1,480	10,300	a1,000	a5,500	2,210	2,490	1,110	368	208	162
2	458	7,250	1,410	15,400	a950	a4,500	2,090	2,250	1,050	352	194	149
3	1,040	5,930	1,580	14,600	a920	a4,000	2,110	3,450	991	341	185	158
4	712	4,930	1,650	13,100	a1,000	a3,500	2,180	4,340	942	341	185	176
5	522	4,520	1,580	10,400	a950	a3,200	2,430	5,110	893	346	180	158
6	452	5,370	1,490	11,300	a900	a2,800	2,730	7,270	851	363	180	144
7	392	10,800	1,630	16,400	895	a2,500	2,910	7,250	802	374	180	140
8	404	12,700	1,820	16,600	2,480	a2,400	2,900	5,850	754	374	180	132
9	587	9,820	1,990	12,300	4,290	a2,300	3,220	4,700	714	363	176	116
10	698	7,740	2,120	9,870	4,960	a2,100	3,940	3,890	682	336	176	108
11	1,080	6,640	2,490	9,450	4,120	1,950	4,030	3,290	665	310	172	104
12	962	5,730	2,650	9,060	3,330	1,820	3,760	2,990	656	296	158	100
13	824	5,240	3,340	7,570	2,840	1,700	3,500	3,260	650	280	158	96
14	684	5,280	4,760	5,860	3,090	1,640	3,300	3,400	630	275	158	104
15	2,450	7,490	5,200	4,670	6,120	1,570	3,250	3,150	610	260	172	176
16	4,310	8,050	4,900	3,880	8,560	1,530	3,060	2,950	584	250	176	226
17	7,790	6,790	5,590	3,320	10,700	1,510	2,940	2,810	565	235	194	194
18	8,400	5,900	7,040	2,900	12,200	1,670	2,840	2,600	553	230	221	167
19	11,500	5,060	8,090	2,540	10,200	1,880	2,660	2,390	529	230	216	158
20	9,470	4,360	7,170	2,280	7,650	2,140	2,500	2,330	553	230	198	154
21	7,430	3,770	5,860	2,050	10,900	6,450	2,460	2,300	596	230	190	149
22	5,170	3,270	4,920	1,870	20,500	15,400	3,350	2,100	596	230	190	280
23	4,180	2,860	4,860	1,710	17,700	13,300	4,200	1,910	541	230	185	493
24	3,400	2,540	5,590	1,600	12,900	8,530	4,410	1,770	493	226	185	529
25	2,860	2,300	5,050	1,470	9,470	5,980	4,460	1,630	475	216	185	451
26	2,470	2,090	4,420	1,370	11,800	4,600	4,110	1,520	469	216	185	391
27	2,140	1,890	4,050	1,260	10,400	3,790	3,720	1,420	457	250	185	385
28	2,220	1,720	4,180	1,210	8,010	3,290	3,340	1,440	439	260	180	409
29	2,110	1,580	4,410	a1,150	a7,000	2,940	3,040	1,450	415	240	176	415
30	2,370	1,500	4,150	a1,100	-	2,700	2,760	1,360	385	230	172	380
31	4,170	-	4,110	a1,050	-	2,440	-	1,200	-	226	167	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	91,381	11,500	126	2,948	4.42	5.10	181,300
November	160,100	12,700	1,500	5,337	8.00	8.93	317,600
December	119,580	8,090	1,410	3,857	5.78	6.67	237,200
Calendar year 1947	848,456	21,800	103	2,325	3.49	47.31	1,683,000
January	197,640	16,600	1,050	6,375	9.56	11.02	392,000
February	195,835	20,500	895	6,753	10.1	10.92	388,400
March	119,630	15,400	1,510	3,859	5.79	6.67	237,300
April	94,410	4,460	2,090	3,147	4.72	5.26	187,300
May	93,870	7,270	1,200	3,028	4.54	5.23	186,200
June	19,658	1,110	385	655	.982	1.10	38,990
July	8,707	374	216	281	.421	.49	17,270
August	5,667	221	158	183	.274	.32	11,240
September	6,804	529	96	227	.340	.38	13,500
Water year 1947-48	1,113,282	20,500	96	3,042	4.56	62.09	2,208,000

Peak discharge (base, 17,000 sec.-ft.).- Jan. 1 (9:30 p.m.) 17,300 sec.-ft.; Jan. 8 (4 to 6 a.m.) 17,300 sec.-ft.; Feb. 22 (4:30 a.m.) 21,900 sec.-ft.; Mar. 22 (3 a.m.) 17,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Trask and Wilson Rivers near Tillamook.

Wilson River near Tillamook, Oreg.

Location.- Water-stage recorder, lat. 45°29', long. 123°43', in NW¼ sec. 18, T. 1 S., R. 8 W., 1 mile upstream from North Fork and 6½ miles east of Tillamook. Datum of gage is 42.13 feet above mean sea level, datum of 1929.

Drainage area.- 159 square miles.

Records available.- July 1931 to September 1948. December 1914 to November 1916 (incomplete) at site three-quarters of a mile downstream.

Average discharge.- 17 years (1931-48), 1,186 second-feet.

Extremes.- Maximum discharge during year, 13,500 second-feet Feb. 22 (gage height, 12.49 feet); minimum, 76 second-feet Sept. 14.

1914-16, 1931-48: Maximum discharge, 30,000 second-feet Dec. 21, 1933 (gage height, 19.28 feet, site and datum then in use), from rating curve extended above 15,000 second-feet; minimum observed, 55 second-feet Sept. 10-12, 1944.

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station.

Revisions.- W 1014: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 21						Feb. 22 to Sept. 30					
1.1	136	2.3	620	5.0	3,020	0.7	68	2.0	512	5.5	3,610
1.3	190	2.8	950	6.2	4,460	.9	110	2.5	780	7.0	5,500
1.6	285	3.3	1,340	7.5	6,150	1.1	162	3.0	1,120	9.0	8,220
1.9	410	4.0	1,960	9.0	8,220	1.3	224	3.5	1,520	10.5	10,400
						1.6	337	4.5	2,470		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	a3,300	a620	5,480	410	1,930	959	973	494	186	118	92
2	1,560	a2,800	a560	8,190	388	1,730	938	910	466	180	115	97
3	2,510	a2,200	a640	5,190	374	1,500	917	2,590	453	177	112	118
4	1,450	a1,800	a600	4,600	401	1,340	917	2,870	421	174	112	110
5	985	a1,700	a560	3,500	357	1,210	938	2,830	418	180	112	101
6	758	a3,000	a520	4,450	325	1,120	973	3,690	382	208	112	95
7	632	a5,000	a800	7,530	337	1,040	973	2,950	379	192	106	92
8	738	a5,200	a1,000	5,160	1,300	1,020	959	2,250	362	183	103	88
9	1,040	a4,000	a1,100	3,610	1,420	924	1,420	1,790	345	174	103	84
10	1,320	a3,100	a1,200	3,830	1,070	845	2,080	1,490	337	165	101	82
11	2,350	a2,600	a1,300	3,620	880	786	1,820	1,280	337	162	99	82
12	1,720	a2,200	a1,250	2,960	758	738	1,610	1,240	329	159	97	80
13	1,280	a2,300	a1,700	2,360	686	714	1,480	1,520	317	154	97	78
14	1,010	a2,400	a2,400	1,890	1,130	720	1,560	1,660	305	151	99	84
15	2,530	a4,100	a2,100	1,590	3,770	744	1,960	1,480	297	146	122	135
16	4,410	a3,800	a1,850	1,360	3,320	732	1,870	1,400	286	143	130	159
17	6,150	a2,800	2,210	1,180	4,850	714	1,750	1,310	274	138	138	125
18	6,020	a2,300	3,350	1,040	4,970	838	1,540	1,170	270	138	132	110
19	6,720	a2,000	3,610	936	3,150	897	1,350	1,060	259	138	112	103
20	5,530	a1,700	2,540	838	2,500	945	1,230	987	253	138	110	101
21	3,830	a1,500	2,060	764	6,100	4,610	1,240	910	297	132	110	103
22	2,690	a1,300	1,820	712	10,400	8,530	1,820	838	263	130	110	211
23	2,180	a1,200	2,010	674	5,750	3,810	2,600	762	252	130	106	466
24	1,720	a1,100	2,910	632	3,500	2,560	2,690	709	238	125	110	392
25	1,450	a1,000	2,290	576	3,250	1,950	2,820	670	231	120	112	270
26	1,270	a900	1,830	532	5,230	1,590	2,210	632	224	125	106	256
27	1,120	a850	1,610	505	3,730	1,370	1,750	610	218	159	101	375
28	1,240	a800	1,770	470	2,770	1,280	1,450	682	208	151	101	379
29	1,180	a720	1,700	475	2,170	1,270	1,250	610	198	138	97	329
30	a1,400	a680	1,580	475	-	1,180	1,090	560	192	130	99	274
31	a2,200	-	1,590	430	-	1,060	-	522	-	120	97	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	69,137	6,720	144	2,230	14.0	16.17	137,100
November	68,350	5,200	680	2,278	14.3	15.99	135,600
December	51,080	3,610	520	1,648	10.4	11.95	101,300
Calendar year 1947	416,465	11,900	92	1,141	7.18	97.42	826,000
January	75,559	8,190	430	2,437	15.3	17.67	149,900
February	75,296	10,400	325	2,596	16.3	17.61	149,300
March	49,697	8,530	714	1,603	10.1	11.62	98,570
April	46,164	2,820	917	1,539	9.68	10.80	91,560
May	42,955	3,690	522	1,386	8.72	10.05	85,200
June	9,365	494	192	312	1.96	2.19	18,580
July	4,746	208	120	153	.962	1.11	9,410
August	3,379	138	97	109	.686	.79	6,700
September	5,071	466	78	169	1.06	1.19	10,060
Water year 1947-48	500,799	10,400	78	1,368	8.60	117.14	993,300

Peak discharge (base, 12,000 sec.-ft.).- Feb. 22 (2:30 a.m.) 13,500 sec.-ft.; Mar. 22 (1 a.m.) 13,400 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Trask River near Tillamook.

Trask River near Tillamook, Oreg.

Location.- Water-stage recorder, lat. 45°27', long. 123°44', in NW¼ sec. 31, T. 1 S., R. 8 W., half a mile upstream from Gold Creek and 6 miles east of Tillamook.

Drainage area.- 143 square miles.

Records available.- July 1931 to September 1948.

Average discharge.- 17 years, 962 second-feet.

Extremes.- Maximum discharge during year, 11,700 second-feet Feb. 22 (gage height, 9.20 feet); minimum, 70 second-feet Sept. 13, 14.
1931-48: Maximum discharge, 20,000 second-feet Dec. 22, 1933 (gage height, 13.00 feet); minimum, 58 second-feet Sept. 26, 27, 1939.
Maximum stage known, about 17 feet, probably occurred during flood of November 1921 or Mar. 31, 1931 (discharge, 30,000 second-feet, from rating curve extended above 12,000 second-feet).

Remarks.- Records good. No diversion or regulation above station.

Revisions.- W 1044: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1, 2)

0.4	62	1.7	520	4.0	2,640
.6	105	2.0	690	4.8	3,800
.8	158	2.4	960	6.0	5,710
1.1	255	2.8	1,290	7.0	7,480
1.4	375	3.3	1,800	8.1	9,530

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	118	2,670	548	3,240	420	1,790	885	945	490	188	125	84
2	781	2,180	531	5,980	398	1,600	871	878	465	188	122	81
3	1,430	1,690	660	4,100	393	1,380	843	1,910	445	188	122	108
4	776	1,460	597	3,640	420	1,240	829	2,180	430	185	122	96
5	542	1,400	542	2,910	380	1,130	850	2,120	411	194	120	89
6	435	1,910	520	3,600	362	1,060	892	2,510	386	220	120	82
7	375	4,940	738	6,050	366	968	908	2,220	375	204	115	82
8	536	5,560	815	4,330	951	952	885	1,800	362	191	110	78
9	789	3,500	885	2,990	1,060	885	1,200	1,480	346	185	110	74
10	988	2,640	908	3,060	843	815	1,810	1,270	344	182	108	72
11	1,800	2,180	1,070	2,920	714	756	1,620	1,110	339	173	105	72
12	1,250	1,800	1,050	2,510	648	708	1,440	1,050	334	170	105	72
13	930	1,860	1,460	2,030	597	678	1,300	1,200	330	167	105	72
14	750	1,940	2,020	1,650	820	720	1,270	1,160	326	161	105	80
15	1,620	3,420	1,740	1,380	2,560	750	1,380	1,080	318	158	118	89
16	2,840	3,070	1,520	1,190	2,510	732	1,320	1,050	306	158	130	84
17	3,600	2,360	1,740	1,040	3,560	708	1,300	1,000	306	158	141	82
18	4,140	1,940	2,640	938	3,580	829	1,170	922	306	155	136	78
19	4,750	1,650	2,960	843	2,510	864	1,060	871	290	158	118	80
20	4,380	1,420	2,140	776	2,120	885	976	822	a310	158	110	78
21	2,860	1,200	1,720	714	5,570	3,090	1,020	750	a320	150	108	82
22	2,000	1,060	1,480	666	9,420	6,290	1,410	714	a290	147	108	144
23	1,620	945	1,500	630	5,030	3,200	2,000	684	a270	144	105	241
24	1,280	864	1,990	597	5,170	2,270	2,260	636	248	141	105	191
25	1,100	796	1,700	570	2,910	1,790	2,330	624	238	136	105	136
26	960	732	1,420	526	4,670	1,460	1,950	592	227	138	100	133
27	871	672	1,260	495	3,420	1,280	1,610	630	220	176	98	201
28	900	630	1,350	475	2,560	1,170	1,360	654	217	161	96	179
29	829	586	1,370	475	2,020	1,120	1,200	592	204	144	94	161
30	1,140	575	1,230	470	-	1,060	1,050	542	198	136	91	138
31	1,840	-	1,260	425	-	960	-	520	-	130	89	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	48,230	4,750	118	1,556	10.9	12.54	95,660
November	57,650	5,560	575	1,922	13.4	14.99	114,300
December	41,364	2,960	520	1,334	9.33	10.76	82,040
Calendar year 1947	334,926	8,810	89	918	6.42	87.10	664,300
January	61,120	6,050	425	1,972	13.8	15.90	121,200
February	63,982	9,420	362	2,206	15.4	16.64	126,900
March	43,140	6,290	678	1,392	9.73	11.22	85,570
April	38,999	2,330	829	1,300	9.09	10.14	77,350
May	34,516	2,510	520	1,113	7.78	8.98	68,460
June	9,655	490	198	322	2.25	2.51	19,150
July	5,144	220	130	166	1.16	1.34	10,200
August	3,446	141	89	111	.776	.90	6,840
September	3,249	241	72	108	.755	.84	6,440
Water year 1947-48	410,495	9,420	72	1,122	7.85	106.76	814,100

Peak discharge (base, 9,300 sec.-ft.).- Feb. 22 (3 a.m.) 11,700 sec.-ft.
a No gage-height record; discharge computed on basis of records for Wilson River near Tillamook.

Siletz River at Siletz, Oreg.

Location.- Water-stage recorder, lat. 44°43', long. 123°53', in NW¼SW¼ sec. 11, T. 10 S., R. 10 W., 1½ miles east of Siletz. Datum of gage is 102.32 feet above mean sea level, datum of 1929.

Drainage area.- 202 square miles.

Records available.- November 1905 to May 1912, January 1924 to September 1948.

Average discharge.- 28 years (1906-11, 1925-48), 1,581 second-feet.

Extremes.- Maximum discharge during year, 24,400 second-feet Feb. 22 (gage height, 20.44 feet), from rating curve extended above 15,000 second-feet by logarithmic plotting; minimum, 97 second-feet Sept. 14 (gage height, 2.31 feet).

1905-12, 1924-48: Maximum discharge, 34,600 second-feet Nov. 22, 1909, from rating curve extended above 19,000 second-feet; minimum observed, 51 second-feet Dec. 6, 7, 1929.

Maximum discharge known, 40,800 second-feet Nov. 20, 1921 (gage height, 31.6 feet, site and datum then in use), from rating curve extended above 19,000 second-feet.

Remarks.- Records good. No diversion above station.

Revisions (water years).- W 814: 1935. W 754: 1922 (maximum gage height).

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.3	95	3.5	415	6.0	1,870	11.0	6,880
2.5	129	4.0	640	7.0	2,650	13.0	9,740
2.8	194	4.6	960	8.0	3,550	15.0	13,100
3.1	275	5.2	1,320	9.5	5,020	17.0	16,900

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	196	4,520	730	5,710	504	2,430	1,220	1,250	504	204	143	109
2	995	3,600	680	9,370	468	2,150	1,360	1,160	473	196	143	108
3	2,010	2,960	872	5,690	455	1,870	1,380	3,800	455	199	141	143
4	1,220	2,530	800	5,000	500	1,660	1,420	4,000	439	192	139	125
5	866	2,360	705	4,140	464	1,510	1,590	3,060	415	209	131	115
6	685	2,630	670	7,170	423	1,400	1,680	3,580	391	269	131	109
7	558	4,880	861	13,900	427	1,250	1,700	3,260	379	255	129	106
8	817	7,330	1,110	8,000	1,480	1,310	1,650	2,730	361	232	125	103
9	1,520	4,940	1,150	4,600	1,760	1,270	1,880	2,300	350	209	125	101
10	1,970	4,010	1,150	3,850	1,460	1,160	2,660	1,950	344	199	125	100
11	4,820	3,530	1,310	3,270	1,230	1,080	2,570	1,680	333	189	122	100
12	2,750	2,990	1,330	2,740	1,060	1,010	2,220	1,540	330	185	122	100
13	1,900	2,990	1,770	2,320	944	978	1,950	1,500	319	182	122	98
14	1,450	3,140	2,630	1,970	1,060	1,040	1,900	1,360	305	178	124	105
15	3,000	5,280	2,110	1,710	3,420	1,040	2,040	1,240	299	173	129	143
16	5,310	4,700	1,810	1,500	3,600	1,110	2,030	1,310	290	171	151	137
17	6,140	3,760	2,270	1,330	4,790	1,140	2,470	1,270	278	169	180	113
18	8,700	3,140	2,790	1,210	4,630	1,330	2,470	1,140	275	167	187	108
19	11,700	2,590	3,170	1,080	3,420	1,390	2,090	1,060	263	164	147	106
20	9,470	2,230	2,580	984	2,900	1,460	1,820	1,000	299	169	135	105
21	5,790	1,890	2,250	900	10,400	3,630	1,820	910	312	160	129	103
22	3,880	1,630	1,960	828	16,900	9,550	2,850	850	272	158	133	178
23	3,030	1,430	1,980	784	7,570	5,120	3,420	790	252	156	125	302
24	2,330	1,290	2,950	730	4,540	3,550	3,230	740	243	153	125	263
25	1,930	1,160	2,430	685	3,500	2,780	3,210	705	235	149	127	202
26	1,690	1,050	2,000	625	4,930	2,230	2,650	655	227	149	122	192
27	1,480	954	1,860	590	4,000	1,890	2,200	640	227	176	118	326
28	1,520	878	1,960	568	3,300	1,670	1,870	640	219	178	116	269
29	1,450	806	2,080	563	2,690	1,550	1,620	630	212	158	115	230
30	1,940	773	1,930	558	-	1,490	1,410	563	206	153	115	202
31	2,550	-	1,900	568	-	1,350	-	532	-	145	115	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	93,667	11,700	196	3,022	15.0	17.24	185,800
November	85,971	7,330	773	2,866	14.2	15.83	170,500
December	53,798	3,170	670	1,735	8.59	9.90	106,700
Calendar year 1947	532,229	14,200	145	1,458	7.22	97.97	1,056,000
January	92,943	13,900	558	2,998	14.8	17.11	184,300
February	92,825	16,900	423	3,201	15.8	17.09	184,100
March	62,398	9,550	978	2,013	9.97	11.49	123,800
April	62,380	3,420	1,220	2,079	10.3	11.48	123,700
May	47,845	4,000	532	1,543	7.64	8.81	94,900
June	9,507	504	206	317	1.57	1.75	18,860
July	5,846	269	145	182	.901	1.04	11,200
August	4,091	187	115	132	.653	.75	8,110
September	4,501	326	98	150	.743	.83	8,930
Water year 1947-48	615,572	16,900	98	1,682	8.33	113.32	1,221,000

Peak discharge (base, 12,000 sec.-ft.).- Oct. 19 (7 a.m.) 13,700 sec.-ft.; Jan. 1 (11:30 p.m.) 12,500 sec.-ft.; Jan. 7 (6 a.m.) 17,900 sec.-ft.; Feb. 22 (2:30 a.m.) 24,400 sec.-ft.; Mar. 22 (3:30 a.m.) 12,800 sec.-ft.

Alsea River near Tidewater, Oreg.

Location.- Water-stage recorder, lat. 44°23', long. 123°50', in NW¼NW¼ sec. 6, T. 14 S., R. 9 W., three-quarters of a mile downstream from Grass Creek, 2.3 miles upstream from Scott Creek, and 3.8 miles southeast of Tidewater. Datum of gage is 48.16 feet above mean sea level, datum of 1929.

Drainage area.- 334 square miles.

Records available.- October 1939 to September 1948.

Extremes.- Maximum discharge during year, 27,800 second-feet Jan. 7 (gage height, 22.43 feet), from rating curve extended above 12,000 second-feet; minimum, 91 second-feet Sept. 13, 14 (gage height, 1.60 feet).

1939-48: Maximum discharge, that of Jan. 7, 1948; minimum, 68 second-feet Sept. 1, 1940 (gage height, 1.43 feet).

Maximum stage known, 29.5 feet, from floodmark shown by old resident, on or about Feb. 3, 1890.

Remarks.- Records good except those above 15,000 second-feet, which are fair. No regulation; a few small diversions above station for irrigation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

1.7	104	4.5	1,400	15.0	14,200
2.0	176	6.0	2,410	18.0	19,500
2.4	305	7.5	3,720	20.2	23,500
2.9	515	9.0	5,340		
3.5	815	12.0	9,400		

Jan. 7 to Sept. 30

1.6	91	2.5	345
1.8	133	3.0	560
2.1	216	3.5	815

Note.- Same as preceding table above 3.5 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	4,510	947	4,080	725	2,420	1,470	1,330	715	277	155	117
2	153	3,750	876	13,800	695	3,030	1,610	1,250	675	271	155	114
3	321	2,900	1,000	8,220	655	2,040	1,800	2,620	655	271	155	119
4	227	2,470	992	6,280	730	1,860	1,960	3,460	640	268	155	119
5	176	2,380	892	5,060	725	1,760	2,360	2,490	620	274	150	114
6	150	2,700	848	11,400	655	1,670	2,760	2,210	600	401	145	110
7	143	3,010	1,040	23,400	640	1,530	2,850	2,120	715	361	142	108
8	257	4,340	1,610	12,100	2,040	1,610	2,550	2,060	625	297	142	102
9	434	3,850	1,540	7,580	3,180	1,660	2,680	1,880	580	277	142	97
10	605	3,130	1,490	5,460	2,420	1,550	3,390	1,700	570	265	145	95
11	1,650	2,830	1,590	4,400	1,890	1,450	3,150	1,550	546	252	142	95
12	974	2,550	1,520	3,520	1,560	1,340	2,630	1,490	528	246	140	93
13	595	2,600	1,640	2,940	1,350	1,290	2,280	1,640	515	240	140	93
14	443	2,940	2,540	2,500	1,320	1,400	2,100	1,630	492	228	140	97
15	1,390	4,700	2,190	2,170	2,860	1,410	2,040	1,490	474	222	145	124
16	6,420	4,340	1,870	1,920	3,010	1,750	1,910	1,460	456	213	150	124
17	4,850	4,480	2,140	1,720	3,400	2,170	2,070	1,440	443	210	196	112
18	10,400	2,940	2,740	1,560	3,600	2,070	2,230	1,330	438	204	228	106
19	8,940	2,520	4,160	1,430	3,100	2,050	1,980	1,260	413	204	179	102
20	12,100	2,240	3,120	1,290	2,620	2,100	1,780	1,200	448	199	155	102
21	6,140	1,980	2,600	1,200	8,930	2,430	1,760	1,110	443	196	148	99
22	3,890	1,760	2,350	1,120	17,100	7,930	2,550	1,030	393	193	145	142
23	2,940	1,590	2,090	1,050	9,420	5,960	3,060	969	369	190	142	237
24	2,280	1,450	1,930	980	5,820	4,250	2,710	920	349	182	142	397
25	1,900	1,330	1,730	930	4,200	3,430	2,440	881	334	179	140	225
26	1,650	1,240	1,600	881	4,050	2,830	2,190	837	328	176	133	176
27	1,480	1,150	1,520	832	3,450	2,450	1,960	859	317	179	126	187
28	1,570	1,080	1,690	793	3,120	2,160	1,780	848	307	179	124	187
29	1,500	1,010	2,070	776	2,660	1,930	1,630	820	294	179	119	176
30	2,000	964	2,050	760	-	1,790	1,470	771	284	171	119	158
31	2,460	-	1,870	720	-	1,600	-	745	-	163	117	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	78,151	12,100	113	2,521	7.55	8.70	155,000
November	78,734	4,700	964	2,624	7.86	8.77	156,200
December	56,245	4,160	848	1,814	5.43	6.26	111,600
Calendar year 1947	507,297	13,200	113	1,390	4.16	56.49	1,006,000
January	130,972	23,400	720	4,222	12.6	14.57	259,600
February	95,925	17,100	640	3,308	9.90	10.68	190,300
March	72,920	7,930	1,290	2,352	7.04	8.12	144,600
April	67,150	3,390	1,470	2,238	6.70	7.48	133,200
May	45,400	3,460	745	1,465	4.39	5.06	90,050
June	14,566	715	284	486	1.46	1.62	28,890
July	7,167	401	163	231	.692	.80	14,220
August	4,556	228	117	147	.440	.51	9,040
September	4,127	397	93	138	.413	.46	8,190
Water year 1947-48	655,813	23,400	93	1,792	5.37	73.03	1,301,000

Peak discharge (base, 9,400 sec.-ft.).- Oct. 20 (6 a.m.) 13,200 sec.-ft.; Jan. 1 (7:30 a.m.) 16,600 sec.-ft.; Jan. 7 (9 a.m.) 27,800 sec.-ft.; Feb. 22 (6 a.m.) 20,100 sec.-ft.; Mar. 22 (11:30 a.m.) 9,830 sec.-ft.

Lake Creek at Triangle Lake, Oreg.

Location.- Water-stage recorder, lat. 44°10', long. 123°34', in SW¼ sec. 20, T. 16 S., R. 7 W., 500 feet downstream from outlet of Triangle Lake. Datum of gage is 672.41 feet above mean sea level, datum of 1929.
Drainage area.- 50 square miles.
Records available.- August 1931 to September 1948.
Average discharge.- 17 years, 201 second-feet.
Extremes.- Maximum discharge during year, 3,560 second-feet Jan. 7 (gage height, 7.65 feet), from rating curve extended above 2,400 second-feet by logarithmic plotting; minimum recorded, 13 second-feet Sept. 13, 14, but may have been less during period Oct. 1-1931-48: Maximum discharge, 3,960 second-feet Dec. 22, 1933, Jan. 13, 1936 (gage height, 8.1 feet), from rating curve extended above 2,400 second-feet by logarithmic plotting; minimum, 2.7 second-feet Aug. 1, 1944; minimum daily, 5.5 second-feet Sept. to Oct. 3, 1939.
Remarks.- Records good except those for periods of no gage-height record or backwater from debris, which are fair. No diversion above station. Flow regulated by natural storage in Triangle Lake.

Rating table, water year 1947-48, except periods of backwater from debris
(gage height, in feet, and discharge, in second-feet)

0.6	12	1.6	107	4.0	950
.7	16	1.9	163	4.5	1,230
.8	22	2.2	234	5.0	1,530
.9	28	2.6	346	6.0	2,210
1.1	45	3.0	485	7.3	3,240
1.3	66	3.5	700		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.
1	a15	346	145	356	a125	448	265	229	119	48	26	18
2	a17	463	137	1,180	a130	402	255	214	114	46	26	18
3	a19	459	139	1,870	a120	362	263	260	109	44	25	18
4	a18	395	139	1,460	a125	322	257	466	104	42	25	17
5	a17	349	132	1,120	a130	299	274	521	101	44	24	17
6	a16	328	122	1,530	a110	287	316	434	98	49	23	17
7	a15	325	132	3,170	a150	268	352	378	96	52	23	17
8	h22	340	165	2,270	a250	265	352	356	95	52	22	16
9	a35	359	197	1,450	a340	268	365	337	95	51	22	15
10	a60	356	204	1,060	a320	265	388	302	89	49	22	15
11	a90	331	207	845	293	252	395	274	96	46	22	14
12	a70	307	207	678	239	237	375	257	96	45	20	14
13	a45	302	214	549	204	226	340	263	95	42	19	14
14	92	319	274	459	187	226	310	263	92	40	19	14
15	107	395	313	392	244	229	296	247	h89	38	19	14
16	352	501	290	340	381	255	282	242	h89	36	19	14
17	606	509	271	299	474	302	296	242	h79	37	20	14
18	1,130	455	274	271	533	331	331	226	h74	37	22	14
19	1,510	388	316	247	513	331	334	214	a66	36	23	14
20	1,670	340	334	226	459	331	304	209	a66	35	23	14
21	1,400	302	313	204	689	356	282	197	h67	35	23	14
22	925	268	293	192	1,800	646	307	190	67	34	23	15
23	632	242	268	181	1,940	1,040	378	172	65	33	23	22
24	459	222	244	170	1,400	1,000	409	159	63	32	23	38
25	356	204	222	159	995	785	392	149	60	30	23	47
26	290	190	204	151	790	606	362	139	58	30	22	47
27	250	176	195	143	660	485	328	137	56	28	22	46
28	234	163	207	135	574	412	299	144	54	28	21	47
29	222	155	229	132	509	359	274	143	52	28	20	46
30	222	149	237	130	-	328	250	135	51	27	20	43
31	250	-	234	a125	-	293	-	124	-	27	19	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	11,146	1,670	15	360	7.20	8.29	22,110
November	9,638	509	149	321	6.42	7.17	19,120
December	6,858	334	122	221	4.42	5.10	13,600
Calendar year 1947	68,548	1,670	12	188	3.76	50.98	136,000
January	21,494	3,170	125	693	13.9	15.99	42,630
February	14,684	1,940	110	506	10.1	10.92	29,130
March	12,216	1,040	226	394	7.88	9.09	24,230
April	9,631	409	250	321	6.42	7.16	19,100
May	7,620	521	124	246	4.92	5.67	15,110
June	2,451	119	51	81.7	1.63	1.82	4,860
July	1,201	52	27	38.7	.774	.89	2,380
August	683	26	19	22.0	.440	.51	1,350
September	673	47	14	22.4	.448	.50	1,330
Water year 1947-48	98,295	3,170	14	269	5.38	73.11	195,000

Peak discharge (base 1,200 sec.-ft.).- Oct. 20 (6 a.m.) 1,720 sec.-ft.; Jan. 3 (5 to 6 a.m.) 2,000 sec.-ft.; Jan. 7 (1 p.m.) 3,560 sec.-ft.; Feb. 22 (10 p.m.) 2,250 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage, when available, and records for Long Tom River near Noti.
h Computed from staff-gage reading.
Note.- Backwater from debris Feb. 21, 22, June 15-18, 21, Sept. 12-30.

South Umpqua River at Tiller, Oreg.

Location.- Water-stage recorder, lat. 42°56', long. 122°57', in NE¼ sec. 33, T. 30 S., R. 2 W., 0.3 mile upstream from Elk Creek, 0.4 mile downstream from Salt Creek, and 0.4 mile east of Tiller. Datum of gage is 991.8 feet above mean sea level, datum of 1929 (from river-profile survey).
Drainage area.- 454 square miles.
Records available.- November 1910 to November 1911, October 1939 to September 1948.
Extremes.- Maximum discharge during year, 21,300 second-feet Jan. 7 (gage height, 16.26 feet, referred to outside gage), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 53 second-feet Sept. 12-14.
1910-11, 1939-48: Maximum discharge, 29,900 second-feet Dec. 31, 1942 (gage height, 19.56 feet, corrected to outside gage), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum observed, 20 second-feet Sept. 3, 4, 1911.
Remarks.- Records excellent. Small diversions above station for irrigation; no regulation
Cooperation.- Water-stage recorder inspected by employee of U. S. Forest Service.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 29 to Sept. 22, Sept. 28-30)

Oct. 1 to Jan. 7

0.9	44	2.0	340	8.0	5,450
1.0	59	2.5	550	10.0	8,380
1.1	77	3.2	900	12.0	12,000
1.3	120	4.0	1,400	14.7	17,700
1.5	173	5.0	2,220		
1.7	235	6.5	3,650		

Jan. 8 to Sept. 30

2.0	340	3.5	1,130	7.0	4,300
2.4	510	4.5	1,880	8.5	6,130
3.0	820	5.5	2,810	10.0	8,380

Note.- Same as preceding table below 2.0 and above 10.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	1,610	655	1,360	442	1,800	1,800	1,180	1,200	372	120	72
2	56	1,580	622	7,260	412	1,750	2,210	1,080	1,260	340	115	72
3	58	1,410	823	4,510	392	1,530	2,090	1,310	1,350	326	115	70
4	63	1,390	979	6,230	396	1,360	1,770	2,260	1,210	312	115	68
5	58	1,490	840	4,260	384	1,290	1,560	1,880	1,080	336	113	66
6	56	1,500	745	16,600	356	1,480	1,440	1,960	1,120	372	111	66
7	54	1,510	730	17,600	344	1,480	1,360	1,930	1,120	319	108	66
8	58	2,230	828	8,110	384	1,470	1,270	1,850	1,090	288	106	63
9	85	2,230	1,000	4,620	640	2,010	1,270	1,740	1,110	270	102	61
10	235	1,660	1,020	3,330	580	1,880	1,280	1,520	1,060	252	102	58
11	294	1,700	922	2,580	506	1,570	1,280	1,420	1,130	242	99	56
12	219	1,720	916	2,040	478	1,400	1,220	1,310	948	229	95	54
13	140	1,930	1,040	1,700	465	1,480	1,150	1,280	886	219	95	53
14	113	2,170	2,660	1,470	456	1,550	1,290	1,160	776	209	95	54
15	192	3,240	2,020	1,290	807	1,540	1,880	1,080	695	200	91	58
16	2,260	4,480	1,530	1,160	1,270	1,620	2,180	1,190	645	194	89	61
17	878	2,340	1,460	1,060	1,430	1,510	2,200	1,360	595	188	91	66
18	541	1,920	1,520	982	1,820	1,460	2,430	1,380	787	179	91	68
19	392	1,620	1,520	886	1,910	1,500	2,140	1,330	738	173	89	68
20	2,080	1,350	1,310	792	1,490	1,400	2,140	1,300	904	165	87	64
21	1,680	1,170	1,210	726	8,280	1,570	2,290	1,350	1,100	162	83	61
22	916	991	1,250	690	14,000	2,310	2,350	1,360	904	156	83	72
23	655	867	1,120	655	5,820	2,510	2,180	1,330	760	151	93	145
24	510	765	997	625	3,510	2,160	1,920	1,560	670	145	108	167
25	416	695	889	595	2,740	1,870	1,880	1,880	595	142	91	153
26	352	690	834	550	3,780	1,620	1,710	1,880	540	138	87	128
27	326	690	790	520	3,440	1,580	1,480	1,830	492	135	83	145
28	372	670	997	496	2,680	1,940	1,380	1,600	460	138	79	118
29	622	622	1,250	474	2,120	2,200	1,280	1,360	424	132	75	111
30	1,190	622	1,180	460	-	2,400	1,210	1,210	408	130	73	99
31	840	-	1,020	438	-	2,010	-	1,190	-	128	73	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	15,767	2,260	54	509	1.12	1.29	31,270
November	46,862	4,480	622	1,562	3.44	3.84	92,950
December	34,677	2,660	622	1,119	2.46	2.84	68,780
Calendar year 1947	299,812	4,480	54	821	1.81	24.56	594,700
January	94,069	17,600	438	3,034	6.68	7.71	186,600
February	61,332	14,000	344	2,115	4.66	5.02	121,700
March	53,250	2,510	1,290	1,718	3.78	4.36	105,600
April	51,640	2,430	1,150	1,721	3.79	4.23	102,400
May	46,080	2,260	1,080	1,486	3.27	3.77	91,400
June	26,055	1,350	408	868	1.91	2.13	51,680
July	6,742	372	128	217	.478	.55	13,370
August	2,957	120	73	95.4	.210	.24	5,870
September	2,463	167	53	82.1	.181	.20	4,890
Water year 1947-48	441,894	17,600	53	1,207	2.66	36.18	876,500

Peak discharge (base, 7,000 sec.-ft.).- Jan. 2 (12:30 p.m.) 9,380 sec.-ft.; Jan. 7 (8 a.m.) 21,300 sec.-ft.; Feb. 22 (5 a.m.) 19,000 sec.-ft.

South Umpqua River near Brockway, Oreg.

Location.- Wire-weight gage, lat. 43°08', long. 123°24', in SW¼ sec. 15, T. 28 S., R. 6 W., at Winston Bridge on Pacific Highway, 2½ miles northeast of Brockway and 4 miles downstream from Lookingglass Creek. Datum of gage is 461.84 feet above mean sea level datum of 1929 (Oregon State Highway bench mark).

Drainage area.- 1,640 square miles.

Records available.- December 1905 to June 1912, October 1923 to September 1926, January 1942 to September 1948.

Average discharge.- 14 years (1906-11, 1923-26, 1942-48), 2,491 second-feet.

Extremes.- Maximum discharge during year, 67,800 second-feet Jan. 7 (gage height, 29.0 feet, from floodmark); minimum observed, 117 second-feet Oct. 1, Sept. 15.

1905-12, 1923-26, 1942-48: Maximum discharge, 71,000 second-feet Jan. 4, 1907 (gage height, 26.0 feet, from floodmark, former site and datum), from rating curve extended above 15,000 second-feet parallel to later curve defined by discharge measurements to 24,000 second-feet; minimum observed, 36 second-feet Aug. 12, 13, 1926.

Flood of Feb. 21, 1927, reached a stage of about 31.8 feet, present site and datum (discharge, about 78,000 second-feet). Flood of February 1890 reached a stage just 2 feet higher, according to John Lander who lived nearby at the time of both floods (discharge, about 85,000 second-feet).

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are poor. Gage read twice daily. Many small diversions above station for irrigation; no regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	3,190	1,370	4,740	1,280	5,040	4,310	3,240	2,200	770	265	166
2	136	6,060	1,460	23,100	1,250	4,810	4,290	3,040	2,130	698	238	166
3	134	5,000	1,510	19,900	1,200	4,380	4,680	2,970	2,230	680	241	166
4	134	3,980	2,420	19,900	1,160	3,880	d4,300	5,020	2,110	669	253	160
5	138	5,340	2,340	18,300	1,250	3,640	4,450	4,700	1,940	652	250	158
6	142	5,580	2,070	48,600	1,260	4,110	4,960	4,280	1,810	680	253	156
7	138	5,150	1,920	61,000	1,100	4,590	4,920	4,210	1,860	788	241	154
8	127	d5,800	3,170	32,400	1,040	5,000	4,650	4,160	1,810	642	232	146
9	156	6,020	3,520	15,700	2,090	5,320	4,660	4,120	1,940	565	222	144
10	356	4,500	4,040	11,400	2,760	5,660	5,400	3,740	2,030	560	217	144
11	722	3,760	3,680	8,680	2,320	4,920	5,210	3,290	2,720	505	205	140
12	652	4,340	3,140	6,820	2,000	4,280	4,720	3,070	2,640	485	205	132
13	525	4,180	2,930	5,780	1,740	3,700	4,330	2,900	2,130	d450	205	130
14	376	5,800	4,680	4,870	1,700	4,070	4,160	2,720	1,880	407	205	129
15	332	5,620	5,420	4,210	1,800	4,240	6,550	2,500	1,590	416	202	121
16	6,920	7,120	4,340	3,790	3,710	4,330	7,340	2,390	1,480	398	180	132
17	4,940	5,260	3,790	3,350	3,700	4,470	6,320	2,580	1,320	380	192	144
18	2,700	4,240	3,760	3,080	4,090	4,310	6,610	2,610	1,430	364	185	152
19	1,880	3,700	3,830	2,840	6,440	4,630	5,840	2,510	1,640	364	190	156
20	1,380	3,190	3,500	2,580	4,740	4,660	5,150	2,670	1,590	360	190	158
21	5,170	2,820	3,110	2,320	15,500	4,650	4,960	2,480	2,320	356	190	152
22	2,940	2,460	3,470	2,090	42,900	7,030	5,560	2,430	a1,900	340	180	152
23	1,970	2,190	3,190	2,020	24,800	11,100	5,960	2,330	1,680	340	205	174
24	1,550	1,940	2,800	1,920	13,400	9,420	5,320	2,410	1,470	316	220	223
25	1,260	1,740	2,650	1,820	9,400	8,620	4,790	2,720	1,310	312	235	324
26	1,070	1,620	2,240	1,650	8,000	6,910	4,430	2,840	1,200	304	229	360
27	947	1,570	2,170	1,620	8,680	5,660	4,030	2,820	1,100	286	200	286
28	863	1,510	2,330	1,460	7,210	d6,000	3,740	2,870	982	286	198	284
29	1,100	1,420	4,230	1,440	5,860	d6,500	3,660	2,510	912	272	188	265
30	2,820	1,330	5,040	1,400	-	d6,700	3,360	2,380	a840	272	178	232
31	2,870	-	3,850	1,280	-	5,090	-	2,240	-	276	176	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	44,575	6,920	127	1,438	0.877	1.01	88,410
November	116,430	7,120	1,330	3,881	2.37	2.64	230,900
Decsmber	97,970	5,420	1,370	3,160	1.93	2.22	194,300
Calendar year 1947	798,413	14,200	127	2,187	1.33	18.12	1,584,000
January	320,060	61,000	1,280	10,320	6.29	7.26	634,800
February	182,380	42,900	1,040	6,289	3.83	4.14	361,700
March	167,720	11,100	3,640	5,410	3.30	3.80	332,700
April	148,660	7,340	3,360	4,955	3.02	3.37	294,900
May	94,750	5,020	2,240	3,056	1.86	2.15	187,900
June	52,194	2,720	840	1,740	1.06	1.18	103,500
July	14,193	788	272	458	.279	.32	28,150
August	6,570	265	176	212	.129	.15	13,030
September	5,416	360	121	181	.110	.12	10,740
Water year 1947-48	1,250,918	61,000	121	3,418	2.08	28.36	2,481,000

a No gage-height record; discharge computed on basis of records for South Umpqua River at Tiller and Umpqua River near Elkton.
d Doubtful gage-height record; discharge computed as explained in footnote a.

Umpqua River near Elkton, Oreg.

Location.- Staff gage, lat. 43°35', long. 123°33', in sec. 8, T. 23 S., R. 7 W., 4 miles south of Elkton. Datum of gage is 91.33 feet above mean sea level, datum of 1929.

Drainage area.- 3,680 square miles.

Records available.- October 1950 to September 1948 (incomplete prior to November 1908).

Average discharge.- 43 years, 7,063 second-feet.

Extremes.- Maximum discharge during year, 154,000 second-feet Jan. 7 (gage height, 37.8 feet, from floodmark), from rating curve extended above 67,000 second-feet by logarithmic plotting; minimum observed, 1,050 second-feet Oct. 3, 5-7 (gage height, 1.30 feet).
1905-48: Maximum discharge, 172,000 second-feet Feb. 21, 1927, Dec. 31, 1942, from rating curve extended above 67,000 second-feet by logarithmic plotting; maximum gage height, 41.1 feet, Dec. 31, 1942; minimum discharge observed, 640 second-feet July 18, 1926 (gage height, 0.71 foot).
Maximum stage known, 45.5 feet sometime in 1861.

Remarks.- Records good except those above 70,000 second-feet, which are fair. Gage read twice daily. Some diversions for irrigation from streams in South Umpqua River Basin, but low flow probably only slightly affected. Power plant at Winchester and manipulation of gates and racks of fish hatchery at Diamond Lake ordinarily do not affect discharge at this station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.3	1,050	4.0	4,540	9.0	16,500	19.0	56,600
1.8	1,560	5.0	6,320	11.0	23,400	24.0	81,000
2.3	2,120	6.0	8,390	13.0	30,700	30.0	112,000
3.0	3,020	7.0	10,700	16.0	43,100	36.0	144,000

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,080	7,950	4,220	23,400	4,060	12,600	11,000	7,950	6,820	3,260	1,710	1,390
2	1,070	8,280	4,460	42,700	3,980	12,000	10,200	7,420	6,720	3,220	1,680	1,370
3	1,050	8,720	4,460	64,200	3,900	11,200	11,200	8,170	6,720	3,170	1,650	1,370
4	1,070	9,500	4,380	34,600	3,820	12,000	10,700	12,600	6,420	3,090	1,650	1,350
5	1,060	11,000	4,300	33,800	3,740	11,800	10,200	12,900	6,120	3,130	1,630	1,350
6	1,050	11,800	4,220	71,000	3,740	10,200	11,000	11,000	6,120	3,240	1,630	1,350
7	1,050	12,900	4,300	142,000	3,820	10,200	10,700	11,500	6,320	3,310	1,600	1,330
8	1,070	13,700	4,460	90,200	4,060	10,700	10,400	11,000	6,520	3,160	1,590	1,320
9	1,100	15,600	5,640	41,400	4,860	11,500	10,400	9,960	6,820	2,940	1,580	1,310
10	1,260	14,600	7,840	28,100	7,840	11,800	10,400	9,050	6,720	2,790	1,560	1,290
11	2,100	13,200	8,720	20,600	8,720	11,200	10,700	8,940	7,320	2,600	1,550	1,290
12	2,100	12,000	10,200	17,200	6,120	11,000	10,700	8,390	8,170	2,440	1,540	1,290
13	2,010	11,500	10,200	14,300	5,370	10,400	10,400	8,170	7,840	2,360	1,530	1,270
14	1,940	12,000	9,270	12,300	5,100	10,400	10,400	8,060	6,620	2,290	1,520	1,280
15	2,180	14,000	8,830	11,200	8,500	12,900	10,700	7,950	6,020	2,250	1,520	1,290
16	7,420	14,600	8,500	10,400	13,700	16,500	10,700	7,640	5,370	2,200	1,490	1,270
17	15,600	14,000	8,720	10,200	12,000	19,800	13,700	7,420	4,940	2,160	1,490	1,270
18	6,120	12,300	9,270	9,620	11,800	19,800	15,600	7,840	4,700	2,120	1,490	1,250
19	5,100	10,400	9,730	8,610	18,100	15,200	14,300	8,170	4,540	2,080	1,470	1,240
20	4,940	9,050	9,500	7,020	18,500	11,800	13,400	7,950	5,190	2,040	1,460	1,230
21	4,860	8,610	9,500	6,420	27,000	11,800	14,300	7,640	5,460	2,010	1,440	1,210
22	4,780	8,170	9,500	5,820	102,000	14,300	15,200	7,420	5,370	1,970	1,440	1,300
23	4,780	7,640	8,500	5,370	65,100	23,400	14,900	7,420	5,100	1,930	1,470	1,890
24	4,700	7,120	7,740	5,280	33,000	22,400	14,300	7,530	4,950	1,900	1,460	2,250
25	4,620	6,620	6,920	5,020	27,700	18,800	13,400	7,840	4,620	1,880	1,450	2,070
26	4,460	5,820	6,220	4,940	19,500	13,700	12,000	8,390	4,460	1,860	1,430	1,970
27	4,460	5,100	6,020	4,780	17,200	12,300	10,700	8,830	4,140	1,840	1,440	1,890
28	4,540	4,700	6,020	4,460	15,200	12,000	9,620	8,610	3,740	1,800	1,420	1,800
29	4,620	4,460	11,000	4,300	13,700	12,600	9,270	8,170	3,470	1,790	1,410	1,750
30	4,700	4,300	11,200	4,220	-	13,400	8,500	7,530	3,330	1,770	1,410	1,680
31	4,780	-	10,400	4,140	-	12,300	-	7,020	-	1,750	1,400	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	111,670	15,600	1,050	3,602	0.979	1.13	221,500
November	299,640	15,600	4,300	9,988	2.71	3.03	594,300
December	234,240	11,200	4,220	7,556	2.05	2.37	464,600
Calendar year 1947	2,223,160	29,900	1,050	6,091	1.66	22.47	4,410,000
January	747,600	142,000	4,140	24,120	6.55	7.56	1,483,000
February	472,130	102,000	3,740	16,280	4.42	4.77	936,500
March	419,600	23,400	10,200	13,540	3.68	4.24	832,300
April	348,990	15,600	8,500	11,630	3.16	3.53	692,200
May	268,480	12,900	7,020	8,661	2.35	2.71	532,500
June	170,440	8,170	3,330	5,681	1.54	1.72	338,100
July	74,350	3,310	1,750	2,398	.652	.75	147,500
August	47,110	1,710	1,400	1,520	.413	.48	93,440
September	43,920	2,250	1,210	1,464	.398	.44	87,110
Water year 1947-48	3,238,170	142,000	1,050	8,847	2.40	32.73	6,423,000

Peak discharge (base, 52,000 sec.-ft.).- Jan. 3 (about 1 p.m.) 70,000 sec.-ft.; Jan. 7 (about 10 a.m.) 154,000 sec.-ft.; Feb. 22 (about 2 p.m.) 120,000 sec.-ft.

Cow Creek near Azalea, Oreg.

Location.- Staff gage, lat. 42°50', long. 123°11', in sec. 4, T. 32 S., R. 4 W., 4 miles northeast of Azalea.

Drainage area.- 76 square miles.

Records available.- April 1926 to September 1948.

Average discharge.- 18 years (1929-31, 1932-48), 93.0 second-feet.

Extremes.- Maximum discharge observed during year, 5,540 second-feet Jan. 6 (gage height 11.50 feet), from rating curve extended above 1,200 second-feet; minimum observed, 9. second-feet Oct. 1.
1926-48: Maximum discharge, that of Jan. 6, 1948; minimum observed, 4 second-feet Sept. 9-19, 1929, Aug. 26-28, 1931, Aug. 21 to Sept. 6, 1934.

Remarks.- Records good except those above 500 second-feet, which are poor. Staff gage read once daily. Small diversions above station for irrigation.

Revisions (water years).- W 984: 1933-36.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 11 to Feb. 20
Backwater from debris Oct. 1-8)

Oct. 1 to Jan. 6

1.8	8.7	2.4	73	4.5	750
1.9	14	2.6	110	5.0	990
2.0	21	2.8	158	6.0	1,490
2.1	31	3.1	245	7.0	2,070
2.2	43	3.5	365	8.4	3,020
2.3	57	4.0	550	9.8	4,090

Jan. 7 to Sept. 30

1.8	10.5	2.2	55	3.0	233
1.9	17	2.3	73	3.3	312
2.0	26	2.5	113	3.6	400
2.1	39	2.7	158	4.0	550

Note.- Same as preceding table above 4.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.
1	9.2	400	57	89	62	187	223	197	69	44	20	1
2	9.8	191	67	1,190	60	163	217	192	66	42	20	1
3	10	138	82	670	57	158	215	202	64	39	21	1
4	10	158	91	890	59	149	207	223	60	35	21	1
5	10	197	78	710	57	153	212	202	59	49	21	1
6	10	275	73	4,090	53	158	197	197	60	45	20	1
7	12	180	70	3,230	55	163	187	192	59	41	20	1
8	15	174	84	1,190	88	172	180	182	69	38	19	1
9	29	163	89	670	111	212	172	172	92	36	19	1
10	43	143	91	470	81	184	212	163	117	34	18	1
11	29	169	87	298	75	172	192	156	105	34	18	1
12	20	185	84	290	69	163	182	144	84	32	18	1
13	17	275	91	269	66	158	177	133	77	31	17	1
14	15	251	95	225	62	153	182	126	71	30	17	1
15	57	215	117	197	137	142	238	120	62	30	17	1
16	795	191	110	165	126	146	262	113	59	27	16	1
17	143	169	102	151	115	149	269	107	55	26	16	1
18	91	148	97	137	170	151	249	105	88	26	16	1
19	63	133	93	124	137	149	228	122	84	25	16	1
20	197	110	91	111	124	144	217	109	73	25	15	1
21	115	93	106	102	435	142	249	105	105	24	16	1
22	87	91	102	96	1,190	254	285	98	84	24	17	2
23	63	84	97	90	630	264	264	92	75	23	21	2
24	54	75	93	86	349	340	249	84	66	22	18	1
25	46	70	91	82	301	332	238	79	62	22	16	1
26	41	65	86	79	280	309	217	77	60	22	16	1
27	38	62	95	75	259	290	207	73	59	22	16	1
28	49	59	104	69	233	254	197	77	53	22	16	1
29	57	56	99	66	207	249	184	81	49	21	15	1
30	80	53	97	64	-	254	192	77	45	20	14	1
31	63	-	93	66	-	228	-	71	-	20	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,278.0	795	9.2	73.5	0.967	1.11	4,520
November	4,573	400	53	152	2.00	2.24	9,070
December	2,812	117	57	90.7	1.19	1.38	5,580
Calendar year 1947	29,001.1	1,030	8.7	79.5	1.05	14.19	57,530
January	16,041	4,090	64	517	6.80	7.85	31,820
February	5,648	1,190	53	195	2.57	2.76	11,200
March	6,142	340	142	198	2.61	3.01	12,180
April	6,500	285	172	217	2.86	3.18	12,890
May	4,071	223	71	131	1.72	1.99	8,070
June	2,131	117	45	71.0	.934	1.04	4,230
July	931	49	20	30.0	.395	.46	1,850
August	544	21	14	17.5	.230	.27	1,080
September	462	21	12	15.4	.203	.23	916
Water year 1947-48	52,133.0	4,090	9.2	142	1.87	25.52	103,400

North Umpqua River below Lake Creek, Oreg.

Location.- Water-stage recorder, lat. 43°19', long. 122°11', in NW¼ sec. 13, T. 26 S., R. 5 E., 200 yards downstream from Lake Creek and 30 miles southwest of Crescent. Altitude of gage, 4,090 feet (from river-profile map).

Drainage area.- 175 square miles.

Records available.- October 1927 to September 1948.

Average discharge.- 20 years (1927-45, 1946-48), 370 second-feet.

Extremes.- Maximum discharge during year, 1,110 second-feet June 9 (gage height, 2.23 feet), from rating curve extended above 700 second-feet; minimum, 316 second-feet Dec. 30 (gage height, 0.91 foot).
1927-48: Maximum discharge, 1,190 second-feet June 9, 1933 (gage height, 2.34 feet), from rating curve extended above 700 second-feet; minimum, 206 second-feet Dec. 9 1931.

Remarks.- Records good. No diversion above station. Flow slightly regulated by Diamond Lake.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.9	312	1.6	615
1.0	351	1.8	735
1.2	430	2.0	895
1.4	515	2.2	1,080

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	335	398	355	355	367	386	378	414	664	585	422	386
2	339	386	355	359	363	386	386	414	683	570	422	386
3	339	370	355	355	351	386	378	434	735	565	422	386
4	339	370	355	370	370	382	378	422	742	550	418	382
5	343	367	351	363	363	382	378	402	742	560	418	382
6	343	367	347	438	351	378	378	410	772	540	418	390
7	347	367	351	506	355	374	374	422	810	525	418	382
8	343	378	351	462	370	374	370	422	802	515	418	382
9	339	370	351	450	370	374	370	422	913	506	418	382
10	343	367	355	442	370	374	370	422	1,010	502	414	382
11	343	367	351	434	363	370	370	442	895	497	414	382
12	335	363	347	426	359	367	370	466	844	492	410	382
13	339	367	351	422	370	367	378	470	788	474	410	382
14	347	363	355	414	367	367	382	470	722	458	406	382
15	359	382	351	410	374	367	390	479	709	454	406	382
16	382	382	351	406	370	367	390	488	683	450	406	382
17	370	374	351	402	370	367	398	497	659	450	402	382
18	363	374	355	398	374	367	398	502	670	450	402	382
19	351	370	351	398	370	367	402	506	659	446	402	378
20	370	367	347	390	367	367	406	506	664	442	398	374
21	367	363	351	386	402	367	410	506	670	442	398	370
22	359	359	347	382	426	367	418	506	659	438	406	386
23	359	359	343	382	402	370	422	515	648	438	406	386
24	370	359	343	382	394	370	422	550	632	434	402	382
25	398	359	339	378	390	370	426	615	626	434	398	382
26	398	359	339	374	406	370	422	670	605	430	398	386
27	394	359	343	378	396	367	422	702	600	430	394	386
28	398	355	347	370	390	367	418	728	595	426	394	382
29	398	355	347	370	386	374	414	690	595	426	390	378
30	394	355	332	370	-	374	414	664	605	422	390	378
31	394	-	339	367	-	370	-	654	-	422	390	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	11,198	398	335	361	2.06	2.38	22,210
November	11,031	398	355	368	2.10	2.34	21,880
December	10,806	355	332	349	1.99	2.30	21,430
Calendar year 1947	146,926	641	332	403	2.30	31.23	291,400
January	12,339	506	355	398	2.27	2.62	24,470
February	10,908	426	351	376	2.15	2.32	21,640
March	11,535	386	367	372	2.13	2.45	22,880
April	11,832	426	370	394	2.25	2.51	23,470
May	15,810	728	402	510	2.91	3.36	31,360
June	21,401	1,010	595	713	4.07	4.55	42,450
July	14,773	585	422	477	2.73	3.14	29,300
August	12,610	422	390	407	2.33	2.68	25,010
September	11,464	390	370	382	2.18	2.44	22,740
Water year 1947-48	155,707	1,010	332	425	2.43	33.09	308,800

Peak discharge (base, 480 sec.-ft.).- Jan. 7 (11 a.m.) 530 sec.-ft.; June 9 (11:30 p.m.) 1,110 sec.-ft.

North Umpqua River at Toketee Falls, Oreg.

Location.- Water-stage recorder, lat. 43°16', long. 122°25', in T. 26 S., R. 3 S., (unsurveyed), an eighth of a mile downstream from Clearwater River, half a mile upstrear from Toketee Falls, and 30 miles east of Hoaglin. Datum of gage is 2,373 feet above mean sea level (surveys of The California Oregon Power Co.).

Drainage area.- 337 square miles.

Records available.- February 1908 to July 1909, December 1914 to November 1917 (incomplete), July 1924 to September 1948 (discontinued).

Average discharge.- 22 years (1925-45, 1946-48), 875 second-feet.

Extremes.- Maximum discharge during year, 3,650 second-feet Jan. 7; maximum gage height, 4.63 feet Jan. 7 (backwater from log on control); minimum discharge, 654 second-feet Oct. 4 (gage height, 0.98 foot).
1908-9, 1914-17, 1924-48: Maximum discharge, 5,080 second-feet Dec. 31, 1942 (gag height, 5.90 feet), from rating curve extended above 1,900 second-feet by logarithmic plotting; minimum, 475 second-feet Nov. 27-29, Dec. 12, '14, 1931.

Remarks.- Records good except those for periods of no gage-height record and those for September, which are poor. No diversion above station; regulation at Diamond Lake ha little effect.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	665	823	907	970	928	1,220	1,050	1,140	1,730	1,180	835	7
2	665	811	907	1,240	900	1,170	1,200	1,120	1,800	1,130	829	7
3	665	799	949	1,130	868	1,120	1,170	1,240	1,870	1,120	823	7
4	660	793	921	1,280	900	1,080	1,130	1,320	1,800	1,120	823	7
5	665	793	894	1,200	874	1,070	1,090	1,270	1,760	1,160	817	7
6	665	787	880	2,470	848	1,040	1,050	1,360	1,800	1,110	811	7
7	676	817	887	3,300	835	1,030	1,030	1,410	1,850	1,070	811	7
8	682	956	861	2,530	894	1,030	1,000	1,380	1,840	1,040	811	7
9	698	907	861	2,030	880	1,020	1,000	1,340	1,930	1,020	811	7
10	726	861	842	1,760	861	998	991	1,300	2,000	1,000	817	7
11	731	868	835	1,570	a840	984	977	1,280	1,840	991	817	7
12	682	835	829	1,430	a820	970	970	1,340	1,750	970	811	7
13	670	848	854	1,360	a840	970	970	1,350	1,680	949	811	7
14	687	854	887	1,310	a840	963	1,000	1,330	1,600	921	811	7
15	753	1,130	861	1,280	a900	956	1,090	1,330	1,510	900	805	7
16	887	1,190	854	1,240	a880	956	1,170	1,400	1,470	894	805	7
17	787	1,100	874	1,190	a870	942	1,280	1,460	1,420	887	799	7
18	748	1,080	914	1,160	a910	928	1,300	1,480	1,440	880	793	7
19	726	1,020	921	1,130	a890	921	1,300	1,460	1,400	874	793	7
20	956	984	900	1,110	a900	914	1,340	1,420	1,440	861	787	7
21	848	956	900	1,080	a1,500	914	1,440	1,410	1,440	854	787	7
22	781	914	880	1,050	a2,000	942	1,510	1,400	1,400	848	805	8
23	758	887	874	1,040	1,560	928	1,470	1,460	1,360	848	811	8
24	748	868	854	1,030	1,340	921	1,400	1,600	1,340	835	787	7
25	770	868	848	1,010	1,260	914	1,400	1,780	1,320	823	781	7
26	764	880	848	991	1,520	894	1,350	1,900	1,280	823	775	7
27	758	887	861	977	1,480	900	1,290	2,020	1,250	835	781	7
28	793	887	928	970	1,370	914	1,260	1,940	1,230	848	781	7
29	811	880	900	963	1,280	991	1,200	1,840	1,210	842	781	7
30	823	894	861	942	-	1,080	1,170	1,760	1,240	842	775	7
31	793	-	880	935	-	1,050	-	1,740	-	842	775	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	23,041	956	660	743	2.20	2.54	45,70
November	27,177	1,190	787	906	2.69	3.00	53,90
December	27,272	949	829	880	2.61	3.01	54,09
Calendar year 1947	340,146	1,540	660	932	2.77	37.54	674,70
January	41,678	3,300	935	1,344	3.99	4.60	82,67
February	30,788	2,000	820	1,062	3.15	3.40	61,07
March	30,730	1,220	894	991	2.94	3.39	60,95
April	35,598	1,510	970	1,187	3.52	3.93	70,61
May	45,580	2,020	1,120	1,470	4.36	5.03	90,41
June	47,000	2,000	1,210	1,567	4.65	5.19	93,22
July	29,317	1,180	823	946	2.81	3.24	58,15
August	24,859	835	775	802	2.38	2.74	49,31
September	23,160	817	748	772	2.29	2.56	45,94
Water year 1947-48	386,200	3,300	660	1,055	3.13	42.63	766,00

Peak discharge (base, 1,700 sec.-ft.).- Jan. 7 (11 a.m.) 3,650 sec.-ft.; Feb. 22 (time unknown) 2,310 sec.-ft.; June 10 (3 a.m.) 2,080 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station below Lake Creek.

Lake Creek at Diamond Lake, near Fort Klamath, Oreg.

Location.- Water-stage recorder, lat. 43°11', long. 122°10', in SW¼ sec. 30, T. 27 S., R. 6 E., 260 feet downstream from outlet of Diamond Lake and 35 miles north of Fort Klamath. Altitude of gage, 5,180 feet (from river-profile map).

Drainage area.- 57 square miles.

Records available.- May 1922 to September 1925 (incomplete), October 1926 to September 1948.

Average discharge.- 21 years (1926-29, 1930-48), 48.8 second-feet.

Extremes.- Maximum discharge during year, 122 second-feet June 9 (gage height, 1.73 feet); minimum, 5.1 second-feet May 31; minimum daily, 18 second-feet Oct. 9.
1922-25, 1926-48: Maximum discharge observed, 336 second-feet Jan. 1, 1943 (gage height, 2.8 feet), from rating curve extended above 120 second-feet; no flow (result of regulation) Aug. 25-27, 1931.

Remarks.- Records good. Flow regulated by gates and fish racks at lake outlet, and at times by collection of moss on racks. No diversion above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to June 13				June 14 to Sept. 30	
0.8	17	1.4	72	0.9	25
1.0	30	1.6	101	1.0	33
1.2	49	1.7	117	1.2	53
				1.4	76
				1.6	103

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	95	50	59	62	80	62	64	58	86	39	35
2	26	79	50	68	61	80	61	a65	61	85	39	35
3	26	70	51	71	61	79	62	a65	57	85	39	35
4	32	70	50	75	61	78	64	a40	56	84	39	35
5	36	70	50	75	61	75	65	26	65	84	39	37
6	37	68	50	90	60	73	65	26	65	84	38	39
7	43	67	51	107	60	72	65	27	60	82	38	38
8	32	62	51	107	62	72	64	27	59	81	38	36
9	18	62	53	104	67	71	62	28	88	79	38	39
10	21	61	54	103	70	71	62	28	86	77	38	41
11	21	60	54	100	68	71	61	54	91	76	38	40
12	21	60	53	96	67	68	65	70	98	74	37	40
13	33	60	53	95	67	68	65	70	100	56	38	40
14	43	60	54	90	66	70	65	70	85	48	38	39
15	45	61	53	88	67	70	65	68	100	48	37	38
16	49	62	53	86	68	71	62	68	92	48	37	38
17	54	61	53	83	68	71	62	67	89	48	37	38
18	52	61	54	82	67	70	65	67	97	48	36	38
19	40	61	54	80	67	70	64	65	96	46	36	33
20	45	60	54	76	67	71	64	62	92	46	35	31
21	51	59	56	75	75	70	62	66	92	46	34	31
22	51	59	57	73	88	71	64	67	90	46	33	31
23	53	58	57	72	88	71	64	67	99	45	33	32
24	72	57	56	71	88	71	64	67	97	44	34	33
25	100	57	56	68	85	71	64	68	95	43	34	33
26	96	56	56	68	85	70	65	68	93	42	35	34
27	94	53	53	67	85	67	65	62	92	41	35	34
28	94	51	56	66	83	66	64	53	90	40	35	34
29	94	50	57	65	82	64	64	52	89	39	35	34
30	92	50	57	62	-	64	64	52	89	39	35	35
31	95	-	56	62	-	62	-	56	-	39	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,592	100	18	51.4	0.902	1.04	3,160
November	1,860	95	50	62.0	1.09	1.21	3,690
December	1,662	57	50	53.6	.940	1.08	3,300
Calendar year 1947	18,450	142	18	50.5	.886	12.02	36,600
January	2,484	107	59	80.1	1.41	1.62	4,930
February	2,056	88	60	70.9	1.24	1.34	4,080
March	2,198	80	62	70.9	1.24	1.43	4,360
April	1,910	65	61	63.7	1.12	1.25	3,790
May	1,735	70	26	56.0	.982	1.13	3,440
June	2,521	100	56	84.0	1.47	1.64	5,000
July	1,829	86	39	59.0	1.04	1.19	3,630
August	1,132	39	33	36.5	.640	.74	2,250
September	1,076	41	31	35.9	.630	.70	2,130
Water year 1947-48	22,055	107	18	60.3	1.06	14.37	43,760

a No gage-height record; discharge computed on basis of observer's notes, recorded range in stage, and records for North Umpqua River below Lake Creek.

Clearwater River above Trap Creek, Oreg.

Location.- Water-stage recorder, lat. 43°15', long. 122°17', in SE¼ sec. 1, T. 27 S., R. 4 E., 150 yards upstream from Trap Creek and 40 miles east of Glide. Altitude of gage 3,760 feet (from river-profile map).

Drainage area.- 41.6 square miles (revised).

Records available.- October 1927 to September 1948.

Average discharge.- 19 years (1928-45, 1946-48), 146 second-feet.

Extremes.- Maximum discharge during year, 445 second-feet Jan. 7 (gage height, 2.40 feet backwater from log), from rating curve extended above 260 second-feet; minimum, 138 second-feet Oct. 1-7 (gage height, 0.93 foot).

1927-48: Maximum discharge, 451 second-feet Jan. 1, 1943, from rating curve extended above 260 second-feet; maximum gage height, 2.40 feet Jan. 7, 1948 (backwater from log); minimum discharge, 91 second-feet Nov. 4-6, 27, Dec. 12, 29, 1931, Jan. 3, 1932.

Remarks.- Records good except those above 260 second-feet, which are poor. No diversion or regulation above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from log Jan. 6, 7)

Oct. 1 to June 16				June 16 to Sept. 30	
0.9	133	1.6	284	1.1	140
1.0	149	1.8	339	1.2	160
1.2	187	2.0	398	1.3	182
1.4	233			1.4	206
				1.6	257

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	138	151	151	149	151	160	154	173	268	216	156	14
2	138	147	151	153	151	158	158	171	287	204	156	14
3	139	147	153	147	151	158	156	191	306	199	154	14
4	138	147	149	154	151	158	154	189	287	201	154	14
5	138	146	149	153	151	156	154	189	284	216	154	14
6	138	146	147	269	151	154	154	194	295	206	154	14
7	139	147	147	380	151	154	154	200	300	196	152	14
8	141	154	147	300	151	156	154	196	303	189	152	14
9	149	149	147	246	149	154	154	194	317	187	152	14
10	151	149	146	223	149	154	154	191	298	184	152	14
11	149	151	146	205	149	154	153	191	281	184	152	14
12	144	147	146	191	149	154	153	194	271	182	152	14
13	143	149	146	187	149	153	153	196	268	180	150	14
14	141	149	146	181	149	153	156	194	256	178	150	14
15	149	158	146	177	153	153	160	198	248	178	150	14
16	171	158	146	173	149	153	162	205	242	175	150	14
17	153	156	146	171	149	151	165	214	241	175	150	14
18	151	154	147	169	151	151	165	214	252	173	148	14
19	146	154	146	167	149	151	167	214	241	171	148	14
20	167	153	146	163	149	149	171	207	254	167	148	14
21	154	151	146	162	160	149	181	205	252	167	148	14
22	151	149	146	162	171	151	183	207	236	164	150	15
23	151	149	146	162	156	151	183	216	228	164	150	15
24	144	149	144	160	154	151	181	233	226	162	148	14
25	143	149	144	160	154	151	181	258	224	162	148	14
26	143	149	144	158	165	151	179	284	221	160	148	14
27	143	149	146	158	162	151	179	300	218	162	146	14
28	149	149	149	156	162	151	177	287	224	160	146	14
29	154	149	146	156	160	153	175	271	226	158	146	14
30	153	151	146	153	-	153	175	258	231	158	146	14
31	149	-	146	151	-	151	-	266	-	158	146	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-fee
October	4,557	171	138	147	3.53	4.07	9,04
November	4,506	158	146	150	3.61	4.03	8,94
December	4,551	153	144	147	3.53	4.07	9,03
Calendar year 1947	59,151	228	138	162	3.89	52.87	117,30
January	5,696	380	147	184	4.42	5.09	11,30
February	4,448	171	149	153	3.68	3.97	8,82
March	4,747	160	149	153	3.68	4.24	9,42
April	4,945	183	153	165	3.97	4.42	9,81
May	6,700	300	171	216	5.19	5.99	13,29
June	7,785	317	218	260	6.25	6.96	15,44
July	5,536	216	158	179	4.30	4.95	10,98
August	4,656	156	146	150	3.61	4.16	9,24
September	4,332	154	142	144	3.46	3.87	8,55
Water year 1947-48	62,457	380	138	171	4.11	55.82	123,90

Peak discharge (base, 220 sec.-ft.).- Jan. 7 (6:30 a.m.) 445 sec.-ft.; June 8 (12 p.m.) 333 sec.-ft.

Clearwater River at mouth, Oreg.

Location.- Staff gage, lat. 43°15'50", long. 122°25'00", in SE¼ sec. 35, T. 26 S., R. 3 E., a quarter of a mile upstream from mouth and 3 miles northeast of Big Camas ranger station. Datum of gage is 2,437.5 feet above mean sea level (levels by The California Oregon Power Co.).

Drainage area.- 75 square miles.

Records available.- October 1947 to September 1948.

Extremes.- Maximum discharge during year, 1,340 second-feet Jan. 7 (gage height, 4.96 feet); minimum observed, 244 second-feet Oct. 2 (gage height, 2.38 feet)

Remarks.- Records good except those for periods of no gage-height record, which are fair. Gage read once daily. No diversion or regulation above station except natural regulation by large springs with steady flow.

Cooperation.- Gage-height record furnished by The California Oregon Power Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

2.3	233	4.0	860
2.5	263	4.5	1,110
3.0	405	5.0	1,360
3.5	615		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr	May	June	July	Aug.	Sept.
1	a245	a270	a285	a280	a270	a320	a300	a350	472	a330	a260	250
2	244	a265	a285	a300	a270	a320	a320	a340	a500	322	261	250
3	a245	265	a290	a280	267	a310	a310	a380	543	319	260	250
4	a245	265	a280	a300	267	a305	a310	377	a500	a320	258	a251
5	a245	263	a280	a300	263	302	a310	377	472	a330	a258	252
6	a245	265	a275	785	260	a300	310	a400	a487	319	a257	a251
7	a245	a270	a275	1,280	a260	a295	a300	a420	502	310	257	250
8	a245	295	274	900	a265	a295	298	408	a530	a305	257	250
9	252	a285	a270	695	267	292	a295	a400	a560	300	257	250
10	258	281	a270	570	a267	285	a295	a400	a520	a300	257	249
11	257	288	a270	498	261	285	a290	a390	a490	a295	257	a249
12	249	a285	a270	448	a260	283	290	a390	a450	a295	253	249
13	246	285	a270	419	a260	a280	a290	a400	433	290	257	249
14	a248	281	a270	398	a260	a285	a310	a400	a418	283	a255	247
15	249	a300	a270	377	a275	285	a330	a400	402	aa285	a255	247
16	319	a295	a270	364	a270	a285	a340	a410	391	285	255	a248
17	260	a295	272	a350	a270	a280	346	a420	384	a280	253	249
18	a255	a295	a270	a340	a275	a280	361	426	398	a280	253	249
19	a250	a290	a270	a330	270	278	a370	a425	391	278	253	249
20	305	a290	a270	322	a270	a280	380	a410	a400	a276	253	249
21	276	a290	a270	316	a350	a280	a400	405	405	274	253	a250
22	258	288	a270	310	436	283	416	a410	384	267	253	267
23	257	a285	a270	a360	a360	283	419	a420	377	a267	258	a260
24	253	283	a270	302	a330	a280	a410	a440	364	267	253	a255
25	a250	a280	a270	a302	a310	a275	a400	a480	a355	a266	253	a255
26	a250	a280	a270	292	a385	272	391	a520	a350	265	253	a255
27	252	a280	a275	a288	370	272	388	556	a345	267	253	255
28	260	a280	a280	285	a360	a280	377	a520	a340	a265	253	a255
29	a270	a280	a270	a283	a355	a290	a365	a480	346	263	252	253
30	a265	a280	a270	281	-	a300	358	a450	343	a263	252	a253
31	261	-	a270	a275	-	a290	-	a470	-	a262	252	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	7,959	319	244	257	3.43	3.95	15,790
November	8,454	300	263	282	3.76	4.19	16,770
December	8,471	290	270	273	3.64	4.20	16,800
Calendar year	-	-	-	-	-	-	-
January	12,776	1,280	275	412	5.49	6.34	25,340
February	8,581	436	260	296	3.95	4.26	17,020
March	8,950	320	272	289	3.85	4.44	17,750
April	10,279	419	290	343	4.57	5.10	20,390
May	13,074	556	340	422	5.63	6.48	25,930
June	12,852	560	340	428	5.71	6.37	25,490
July	8,928	330	262	288	3.84	4.43	17,710
August	7,911	261	252	255	3.40	3.92	15,690
September	7,546	267	247	252	3.36	3.74	14,970
Water year 1947-48	115,781	1,280	244	316	4.21	57.42	229,600

a No gage-height record; discharge computed on basis of records for station above Trap Creek.

South Fork Coquille River at Powers, Oreg.

Location.- Water-stage recorder, lat. 42°54', long. 124°04', in SE¼ sec. 12, T. 31 S., R 12 W., half a mile northeast of bridge at Powers and three-quarters of a mile upstrean from Woodward Creek. Datum of gage is 197.42 feet above mean sea level, datum of 192 supplemental adjustment of 1947.

Drainage area.- 169 square miles.

Records available.- October 1928 to September 1948. September 1916 to September 1926 at site 1½ miles upstream.

Average discharge.- 29 years (1916-26, 1929-48), 721 second-feet.

Extremes.- Maximum discharge during year, 16,500 second-feet Jan. 7 (gage height, 15.07 feet), from rating curve extended above 11,000 second-feet; minimum, 28 second-feet Sept. 13, 14.

1916-26, 1928-48: Maximum discharge, 27,700 second-feet Dec. 28, 1945 (gage height 20.57 feet), from rating curve extended above 11,000 second-feet; minimum, 12 second-feet Sept. 22-25, 27-30, 1939.

Remarks.- Records good. No regulation above station. Small diversions for irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 2, Jan. 10 to Feb. 8, May 23 to Sept. 30)

1.0	15	1.8	119	3.0	640	6.0	3,240
1.2	30	2.0	170	3.5	960	8.0	5,720
1.4	52	2.2	241	4.0	1,340	11.0	10,000
1.6	82	2.5	380	5.0	2,220	13.0	13,100

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a38	3,400	360	3,680	211	904	884	629	375	121	58	3
2	h36	2,260	345	9,490	186	870	974	866	335	117	58	3
3	39	1,690	495	4,380	167	760	1,060	1,280	302	113	58	3
4	39	1,450	730	5,320	190	652	1,130	1,570	275	109	58	3
5	38	1,570	602	3,790	200	736	1,440	1,160	258	109	56	3
6	37	1,670	520	13,100	177	1,120	1,400	1,040	245	126	55	3
7	36	1,500	602	11,800	162	1,030	1,090	1,170	230	121	52	3
8	44	1,600	1,040	4,760	1,050	911	974	1,790	214	109	5'	3
9	152	1,660	1,010	2,680	1,560	904	1,650	1,540	200	103	51	3
10	558	1,320	981	2,080	1,040	851	1,740	1,200	193	99	51	3
11	500	1,150	864	1,700	658	748	1,440	974	186	97	50	3
12	267	1,100	773	1,390	470	658	1,220	884	177	94	48	3
13	177	1,190	786	1,110	385	624	1,080	1,010	167	90	47	3
14	142	1,240	1,140	932	330	652	1,800	884	156	89	46	3
15	3,020	1,270	995	786	1,890	742	4,360	748	150	85	45	3
16	5,770	1,260	832	694	2,150	911	3,230	818	148	82	46	3
17	3,200	1,080	1,380	602	2,070	1,480	3,200	890	148	82	48	3
18	2,190	946	1,630	530	3,650	1,480	2,790	786	193	80	60	3
19	1,620	818	1,660	490	2,430	1,240	2,060	712	167	79	53	3
20	3,770	724	1,270	440	1,610	1,060	1,660	688	193	77	50	3
21	2,710	634	1,190	395	4,550	1,040	1,810	624	245	76	47	3
22	1,630	552	1,200	360	8,040	4,030	3,050	566	203	74	52	3
23	1,120	500	988	298	4,190	2,900	3,130	520	186	69	63	8
24	832	445	818	271	2,400	2,010	2,250	480	167	68	56	14
25	664	400	694	241	1,660	1,550	1,830	430	159	66	50	10
26	574	355	596	218	1,540	1,270	1,450	385	150	65	47	7
27	552	325	548	200	1,440	1,170	1,160	350	145	65	45	5
28	754	298	825	183	1,310	1,080	995	321	137	63	42	5
29	1,320	271	1,160	180	1,060	1,080	832	480	130	62	41	4
30	1,780	258	988	183	-	1,100	718	490	124	60	41	4
31	1,390	-	851	167	-	995	-	420	-	59	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	34,999	5,770	36	1,129	6.68	7.70	69,4
November	32,936	3,400	258	1,098	6.50	7.25	65,3
December	27,871	1,660	345	899	5.32	6.13	55,28
Calendar year 1947	237,945	5,770	36	652	3.86	52.37	472,00
January	72,450	13,100	167	2,337	13.8	15.94	143,7
February	46,776	8,040	162	1,613	9.54	10.29	92,78
March	36,558	4,030	624	1,179	6.98	8.04	72,51
April	52,407	4,560	718	1,747	10.3	11.53	103,9
May	25,705	1,790	321	829	4.91	5.66	50,9
June	5,958	375	124	199	1.18	1.31	11,8
July	2,709	126	59	87.4	.517	.60	5,3
August	1,566	63	41	50.5	.299	.34	3,1
September	1,370	140	29	45.7	.270	.30	2,7
Water year 1947-48	341,305	13,100	29	933	5.52	75.09	676,9

Peak discharge (base, 8,000 sec.-ft.).- Oct. 16 (2:30 a.m.) 9,160 sec.-ft.; Jan. 2 (6 a.m.) 11,80 sec.-ft.; Jan. 7 (4:30 a.m.) 16,500 sec.-ft.; Feb. 22 (4 a.m.) 9,600 sec.-ft.

a No gage-height record; discharge interpolated.

h Computed from staff-gage reading.

Rogue River above Bybee Creek, Oreg.

Location.- Water-stage recorder, lat. 42°56', long. 122°26', in NE¼ sec. 26, T. 30 S., R. 3 E., 700 feet upstream from Bybee Creek and 2 miles northeast of Union Creek. Altitude of gage, 3,465 feet (from river-profile map).
Drainage area.- 155 square miles.
Records available.- January 1930 to September 1948.
Average discharge.- 18 years, 473 second-feet.
Extremes.- Maximum discharge during year, 3,420 second-feet Jan. 7 (gage height, 6.64 feet), from rating curve extended above 1,600 second-feet); minimum, 296 second-feet Oct. 1, 6, 7 (gage height, 1.32 feet).
1930-48: Maximum discharge, 4,430 second-feet Nov. 29, 1942, Dec. 28, 1945 (gage height, 7.84 feet), from rating curve extended above 1,600 second-feet; minimum daily, 180 second-feet Jan. 7, 1937 (estimated).
Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. No diversion or regulation above station.
Cooperation.- Water-stage recorder inspected by employee of The California Oregon Power Co.
Revisions.- W 1044: Drainage area.

Rating table, water year 1947-48, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

1.3	290	2.4	705	4.2	1,670
1.5	350	3.0	990	5.0	2,180
1.9	490	3.6	1,310	6.0	2,910

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.
1	299	474	494	408	a410	506	446	549	1,190	624	377	341
2	305	443	462	450	a380	486	558	534	1,300	588	377	341
3	314	443	458	422	a360	466	514	651	1,390	584	374	341
4	302	436	432	534	a390	450	478	777	1,290	579	374	338
5	299	418	418	486	a370	446	462	741	1,250	678	371	335
6	299	404	408	1,800	a350	436	440	831	1,360	606	368	335
7	305	408	412	2,890	a360	426	422	850	1,350	562	368	335
8	323	490	401	1,630	a380	429	418	777	1,320	534	365	332
9	395	478	394	1,110	a380	415	429	741	1,350	518	365	332
10	426	443	384	915	371	404	415	718	1,350	502	362	329
11	398	440	380	786	b350	401	404	705	1,240	494	359	329
12	344	415	374	700	b350	398	404	741	1,160	482	359	329
13	323	418	377	646	b360	394	415	754	1,140	474	359	329
14	314	408	404	602	356	401	458	732	1,040	462	356	329
15	384	490	384	566	404	390	542	750	970	454	353	329
16	669	628	377	542	*380	390	610	826	955	443	353	335
17	462	546	*390	522	374	377	660	930	895	440	353	338
18	390	538	404	506	390	377	682	875	985	429	353	344
19	365	494	404	490	387	374	692	813	895	426	353	335
20	544	470	390	474	377	368	750	777	935	422	350	332
21	478	443	390	462	408	371	831	790	910	415	350	329
22	404	422	377	454	925	387	855	804	822	408	359	359
23	387	412	374	446	633	371	804	920	786	404	387	390
24	368	408	371	443	538	368	736	1,130	764	401	362	387
25	356	412	368	436	510	365	741	1,390	736	398	356	359
26	344	440	374	426	624	359	687	1,500	710	394	353	380
27	344	458	387	422	615	368	646	1,510	696	390	347	377
28	408	466	462	415	562	377	624	1,350	678	390	347	371
29	470	462	422	412	526	408	579	1,190	669	387	347	353
30	579	466	404	412	-	450	566	1,110	664	384	344	347
31	458	-	398	412	-	429	-	1,190	-	380	344	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	12,056	669	299	389	2.51	2.89	23,910
November	13,673	628	404	456	2.94	3.28	27,120
December	12,474	494	368	402	2.59	2.99	24,740
Calendar year 1947	175,365	1,020	299	480	3.10	42.07	347,800
January	21,219	2,890	408	684	4.41	5.09	42,090
February	12,820	925	350	442	2.85	3.08	25,430
March	12,587	506	359	406	2.62	3.02	24,970
April	17,268	855	404	576	3.72	4.14	34,250
May	27,953	1,510	534	902	5.82	6.71	55,440
June	30,800	1,390	664	1,027	6.63	7.39	61,090
July	14,652	678	380	473	3.05	3.52	29,060
August	11,145	387	344	360	2.32	2.67	22,110
September	10,340	390	329	345	2.23	2.48	20,510
Water year 1947-48	196,987	2,890	299	538	3.47	47.26	390,700

Peak discharge (base, 1,600 sec.-ft.).- Jan. 7 (12 m.) 3,420 sec.-ft.; May 26 (10:30 p.m.) 1,650 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for station above Prospect.
b Stage-discharge relation affected by ice.

Rogue River above Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°47', long. 122°30', in NE¼ sec. 19, T. 32 S., R. 3 E., 1½ miles upstream from intake of diversion of The California Oregon Power Co., 2 miles northwest of Prospect, and 3 miles upstream from Mill Creek. Altitude of gage, 2,620 feet (from river-profile map).

Drainage area.- 332 square miles.

Records available.- July 1907 to February 1912 (incomplete), October 1923 to September 1948.

Average discharge.- 26 years (1910-11, 1923-48), 727 second-feet.

Extremes.- Maximum discharge during year, 8,610 second-feet Jan. 7 (gage height, 7.18 feet), from rating curve extended above 4,900 second-feet; minimum, 370 second-feet Oct. 6, 7 (gage height, 1.50 feet).
1907-12, 1923-48: Maximum discharge, 11,900 second-feet Dec. 28, 1945 (gage height 8.4 feet, from floodmark), from rating curve extended above 4,900 second-feet; minimum observed, 200 second-feet Nov. 20, 1931 (gage height, 1.07 feet).

Remarks.- Records good except those above 2,000 second-feet, which are fair. No diversio or regulation above station.

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	379	714	721	658	600	904	856	920	1,860	864	495	426
2	379	707	693	901	570	864	1,120	888	2,020	819	490	42
3	397	679	686	888	528	791	1,110	1,080	2,160	805	490	42
4	384	679	658	1,310	576	763	968	1,470	2,000	812	485	420
5	379	651	624	1,140	564	749	888	1,300	1,900	888	480	42
6	374	618	606	5,090	516	721	812	1,500	2,070	864	470	42
7	374	612	606	7,550	528	693	763	1,560	2,060	784	465	419
8	402	763	600	3,940	582	693	756	1,400	2,010	742	470	419
9	451	805	582	2,470	588	686	763	1,300	2,060	714	465	41
10	570	721	552	1,870	558	651	756	1,250	2,070	693	470	419
11	546	707	558	1,560	510	637	700	1,210	1,900	672	465	41
12	475	672	540	1,330	505	630	672	1,260	1,710	658	465	41
13	420	665	546	1,170	528	630	693	1,270	1,730	637	465	42
14	406	651	618	1,050	522	637	791	1,210	1,540	618	465	42
15	467	784	594	968	624	618	1,040	1,230	1,420	612	465	41
16	1,050	1,090	588	912	612	618	1,230	1,380	1,410	606	465	42
17	714	928	594	880	600	612	1,320	1,570	1,310	588	460	42
18	582	912	644	840	651	594	1,400	1,530	1,430	582	460	420
19	522	826	686	812	686	588	1,370	1,360	1,310	576	460	420
20	773	770	651	784	658	588	1,490	1,260	1,370	570	456	41
21	756	721	644	756	1,010	582	1,690	1,280	1,350	564	451	41
22	612	665	637	728	2,500	618	1,790	1,250	1,230	564	460	42
23	570	637	618	721	1,510	612	1,660	1,470	1,130	546	510	485
24	528	618	606	714	1,130	606	1,470	1,870	1,080	540	470	485
25	505	618	588	700	1,000	594	1,420	2,340	1,040	534	460	456
26	485	651	594	658	a1,220	582	1,300	2,520	992	528	446	468
27	480	693	612	637	1,210	594	1,180	2,580	968	522	442	469
28	558	700	763	630	1,080	618	1,110	2,270	944	522	438	450
29	644	693	714	624	968	693	992	1,950	936	516	438	441
30	856	686	644	618	-	864	960	1,770	928	510	433	433
31	694	-	637	600	-	833	-	1,830	-	500	433	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	16,732	1,050	374	540	1.63	1.87	33,190
November	21,636	1,090	612	721	2.17	2.42	42,910
December	19,404	763	540	626	1.89	2.17	38,490
Calendar year 1947	262,764	1,650	374	720	2.17	29.42	521,200
January	43,509	7,550	600	1,404	4.23	4.87	86,300
February	23,134	2,500	505	798	2.40	2.59	45,890
March	20,863	904	582	673	2.03	2.34	41,380
April	33,070	1,790	672	1,102	3.32	3.70	65,590
May	47,078	2,580	888	1,519	4.58	5.27	93,380
June	45,938	2,160	928	1,531	4.61	5.15	91,120
July	19,950	888	500	644	1.94	2.23	39,570
August	14,387	510	433	464	1.40	1.61	28,540
September	12,862	485	410	429	1.29	1.44	25,510
Water year 1947-48	318,563	7,550	374	870	2.62	35.66	631,900

Peak discharge (base, 2,700 sec.-ft.).- Jan. 7 (10 a.m.) 8,610 sec.-ft.; Feb. 22 (6:30 a.m.) 2,970 sec.-ft.; May 27 (1 a.m.) 2,760 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station above Bybee Creek.

Rogue River below South Fork Rogue River, near Prospect, Oreg.

Location.- Water-stage recorder, lat 42°42', long. 122°36', in NW¼ sec. 16, T. 33 S., R. 2 E., at bridge 6 miles southwest of Prospect. Altitude of gage, 1,708 feet (from river-profile map).
Drainage area.- 643 square miles.
Records available.- April 1929 to September 1948.
Average discharge.- 19 years, 1,603 second-feet.
Extremes.- Maximum discharge during year, 15,200 second-feet Jan. 7 (gage height, 10.2 feet), from rating curve extended above 2,500 second-feet; minimum, 550 second-feet Oct. 14 (gage height, 0.21 foot); minimum daily, 880 second-feet Oct. 1.
1929-48: Maximum discharge, 19,800 second-feet Dec. 28, 1945 (gage height, 12.2 feet), from rating curve extended above 2,500 second-feet; minimum since intake was lowered on Aug. 18, 1934, 493 second-feet Sept. 1, 1934 (prior to Aug. 18, 1934, minimum discharge not determined).
Remarks.- Records good. Small diversions above station for irrigation. Considerable diurnal fluctuation caused by power plant 4 miles above station.
Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7

0.7	820	4.0	4,250
.9	955	5.0	5,700
1.4	1,350	6.0	7,300
2.0	1,870	8.0	10,800
3.0	2,950	9.2	13,200

Jan. 8 to Sept. 30

0.9	955	2.0	1,870	5.0	5,500
1.1	1,110	3.0	2,920	6.0	7,140
1.5	1,440	4.0	4,130	6.2	7,480

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	880	1,330	1,370	1,360	1,410	2,150	1,950	2,140	3,360	2,100	1,260	1,070
2	896	1,360	1,360	2,000	1,370	2,090	2,380	2,060	3,620	2,030	1,250	1,070
3	911	1,310	1,350	1,960	1,300	1,950	2,360	2,230	4,170	1,950	1,240	1,060
4	906	1,320	1,320	2,780	1,380	1,880	2,190	2,810	3,830	1,940	1,230	1,050
5	888	1,300	1,280	2,540	1,340	1,850	2,100	2,560	3,560	2,070	1,210	1,050
6	888	1,220	1,250	8,100	1,280	1,820	1,990	2,850	4,080	2,020	1,200	1,060
7	904	1,270	1,240	13,200	1,240	1,750	1,910	2,920	4,030	1,860	1,200	1,050
8	938	1,350	1,250	7,460	1,370	1,750	1,840	2,740	3,820	1,760	1,190	1,030
9	1,000	1,480	1,240	4,860	1,380	1,750	1,880	2,590	3,920	1,710	1,200	1,050
10	1,210	1,340	1,180	3,810	1,300	1,690	1,850	2,490	3,920	1,680	1,190	1,040
11	1,190	1,330	1,190	3,230	1,210	1,650	1,810	2,420	3,560	1,650	1,190	1,020
12	1,020	1,330	1,140	2,730	1,210	1,640	1,760	2,490	3,300	1,620	1,170	1,020
13	959	1,310	1,160	2,520	1,210	1,640	1,770	2,670	3,320	1,590	1,170	1,010
14	937	1,310	1,290	2,340	1,240	1,640	1,860	2,460	3,040	1,550	1,160	1,010
15	1,010	1,470	1,280	2,200	1,450	1,630	2,150	2,460	2,880	1,540	1,140	1,000
16	1,750	1,940	1,240	2,080	1,490	1,610	2,430	2,660	2,840	1,500	1,140	1,010
17	1,350	1,680	1,250	1,990	1,430	1,600	2,550	2,980	2,720	1,450	1,130	1,020
18	1,170	1,660	1,290	1,920	1,520	1,590	2,660	2,910	3,000	1,450	1,130	1,030
19	1,090	1,560	1,380	1,850	1,600	1,580	2,620	2,720	2,770	1,420	1,130	1,030
20	1,330	1,480	1,330	1,790	1,550	1,550	2,710	2,570	3,040	1,410	1,100	1,040
21	1,410	1,400	1,310	1,720	2,350	1,550	3,020	2,550	3,080	1,390	1,080	1,020
22	1,200	1,340	1,320	1,680	5,040	1,650	3,230	2,480	2,770	1,360	1,130	1,050
23	1,140	1,290	1,270	1,660	3,500	1,660	3,110	2,690	2,600	1,360	1,240	1,190
24	1,070	1,250	1,270	1,620	2,760	1,650	2,850	3,220	2,500	1,340	1,150	1,170
25	1,030	1,240	1,220	1,600	2,460	1,620	2,860	3,960	2,430	1,330	1,120	1,110
26	1,000	1,270	1,250	1,560	2,680	1,570	2,670	4,290	2,350	1,320	1,090	1,130
27	1,020	1,310	1,250	1,480	2,660	1,600	2,520	4,350	2,300	1,320	1,110	1,130
28	1,080	1,330	1,440	1,490	2,470	1,610	2,450	3,900	2,260	1,330	1,100	1,090
29	1,250	1,320	1,440	1,470	2,280	1,690	2,270	3,520	2,220	1,310	1,100	1,060
30	1,490	1,320	1,350	1,450	-	1,960	2,210	3,270	2,230	1,290	1,100	1,050
31	1,290	-	1,300	1,410	-	1,920	-	3,280	-	1,270	1,090	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	34,207	1,750	880	1,103	1.72	1.98	67,850
November	41,420	1,940	1,220	1,381	2.15	2.40	82,160
December	39,810	1,440	1,140	1,284	2.00	2.30	78,960
Calendar year 1947	548,150	2,940	880	1,502	2.34	31.70	1,087,000
January	87,860	13,200	1,360	2,834	4.41	5.08	174,300
February	53,480	5,040	1,210	1,844	2.87	3.09	106,100
March	53,270	2,150	1,550	1,718	2.67	3.08	105,700
April	69,960	3,230	1,760	2,332	3.63	4.05	138,800
May	89,240	4,350	2,060	2,879	4.48	5.16	177,000
June	93,520	4,170	2,220	3,117	4.85	5.41	185,500
July	48,920	2,100	1,270	1,578	2.45	2.83	97,030
August	35,940	1,260	1,080	1,159	1.80	2.08	71,290
September	31,720	1,190	1,000	1,057	1.64	1.83	62,920
Water year 1947-48	679,347	13,200	880	1,856	2.89	39.29	1,348,000

Peak discharge (base, 5,300 sec.-ft.).- Jan. 7 (11 a.m.) 15,200 sec.-ft.; Feb. 22 (8 a.m.) 5,860 sec.-ft.

Rogue River at Dodge Bridge, near Eagle Point, Oreg.

Location.- Water-stage recorder, lat. 42°32', long. 122°50', in SE¼ sec. 17, T. 35 S., R. 1 W., at Dodge Bridge, 0.6 mile downstream from Reese Creek and 4½ miles northwest of Eagle Point. Datum of gage is 1,273.66 feet above mean sea level, datum of 1929.

Records available.- October 1938 to September 1948.

Average discharge.- 10 years, 2,321 second-feet.

Extremes.- Maximum discharge during year, 32,000 second-feet Jan. 7 (gage height, 10.00 feet); minimum, 807 second-feet Oct. 6; minimum daily, 996 second-feet Oct. 6, 7.
1938-48: Maximum discharge, 41,900 second-feet Dec. 28, 1945 (gage height, 11.52 feet), from rating curve extended above 30,000 second-feet; minimum, 611 second-feet Aug. 6, 14, 29, Sept. 9, 1940 (gage height, 0.99 foot); minimum daily, 830 second-feet Sept. 1, 1940.

Remarks.- Records good. Many small diversions above station for irrigation; most of flow of Big Butte Creek is diverted near Butte Falls. Some diurnal fluctuation caused by power plant about 30 miles upstream.

Revisions (water years).- W 1094: 1942(M), 1943, 1945(M), 1946.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30					
1.4	960	3.3	4,310	7.0	16,200	1.3	1,060	2.5	2,950	5.0	9,45
1.8	1,480	4.0	6,090	8.0	20,700	1.6	1,440	3.0	3,960	6.0	12,80
2.3	2,270	5.0	9,140	9.4	28,400	2.0	2,040	4.0	6,420	6.4	14,20
2.8	3,220	6.0	12,600								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,020	1,970	1,740	2,150	1,790	3,460	3,260	3,600	4,160	2,520	1,390	1,180
2	1,020	2,000	1,750	6,540	1,760	3,320	3,860	3,320	4,280	2,370	1,380	1,190
3	1,040	1,840	1,800	4,550	1,660	3,060	4,220	3,540	4,860	2,280	1,380	1,180
4	1,040	1,860	1,880	8,850	1,760	2,870	3,860	4,490	4,660	2,260	1,380	1,190
5	1,030	1,860	1,780	5,600	1,730	2,840	3,830	3,980	4,270	2,430	1,360	1,180
6	996	1,880	1,690	21,000	1,620	2,990	3,710	4,180	4,770	2,500	1,380	1,180
7	996	1,830	1,660	28,000	1,550	2,860	3,440	4,250	4,800	2,250	1,360	1,180
8	1,030	1,970	1,830	14,000	1,800	2,990	3,220	4,090	4,520	2,090	1,360	1,180
9	1,110	2,270	1,830	8,870	2,120	3,220	3,300	3,790	4,630	1,990	1,360	1,170
10	1,420	1,960	1,750	6,620	1,940	2,950	3,480	3,580	4,730	1,940	1,360	1,170
11	1,410	1,920	1,700	5,390	1,730	2,780	3,360	3,420	4,360	1,900	1,350	1,170
12	1,240	1,970	1,680	4,520	1,670	2,660	3,140	3,420	3,980	1,860	1,310	1,170
13	1,130	2,000	1,660	3,980	1,680	2,700	3,010	3,460	4,000	1,820	1,280	1,180
14	1,110	2,180	2,020	3,580	1,680	2,800	3,140	3,340	3,680	1,780	1,270	1,170
15	1,180	2,380	2,070	3,300	2,570	2,720	3,600	3,260	3,480	1,730	1,270	1,170
16	2,580	3,060	1,890	3,040	2,780	2,700	3,920	3,420	3,420	1,720	1,240	1,180
17	1,910	2,540	1,840	2,870	2,590	2,720	4,000	3,770	3,300	1,680	1,230	1,190
18	1,470	2,360	1,970	2,720	2,760	2,660	4,250	3,770	3,600	1,620	1,220	1,210
19	1,350	2,200	2,120	2,590	2,820	2,780	4,050	3,600	3,480	1,640	1,240	1,190
20	1,660	2,040	1,990	2,440	2,590	2,680	a4,050	3,460	3,680	1,620	1,240	1,180
21	2,050	1,910	1,920	2,350	6,720	2,740	a4,300	3,400	3,900	1,600	1,230	1,170
22	1,600	1,780	2,050	2,260	12,300	3,540	a4,600	3,280	3,480	1,570	1,230	1,170
23	1,440	1,680	1,890	2,210	7,900	3,810	a4,600	3,440	3,200	1,540	1,390	1,320
24	1,400	1,630	1,810	2,140	5,520	3,560	a4,400	3,900	3,040	1,520	1,320	1,340
25	1,340	1,570	1,740	2,070	4,540	3,380	a4,400	4,820	2,930	1,500	1,300	1,300
26	1,260	1,570	1,680	2,010	4,470	3,010	a4,000	5,240	2,820	1,470	1,270	1,280
27	1,260	1,630	1,690	1,910	4,470	2,910	a3,800	5,110	2,720	1,440	1,260	1,310
28	1,340	1,660	1,840	1,900	4,180	2,970	a4,000	4,940	2,650	1,440	1,230	1,280
29	1,570	1,640	2,040	1,860	3,770	3,120	a4,000	4,470	2,650	1,410	1,220	1,270
30	1,880	1,630	1,890	1,850	-	3,540	3,750	4,160	2,630	1,410	1,220	1,260
31	1,680	-	1,780	1,820	-	3,380	-	4,160	-	1,400	1,220	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	42,562	2,580	996	1,373	84,420
November	58,790	3,060	1,570	1,960	116,600
December	56,980	2,120	1,660	1,838	113,000
Calendar year 1947	715,398	7,570	996	1,960	1,419,000
January	162,990	28,000	1,820	5,258	323,300
February	94,470	12,300	1,550	3,258	187,400
March	93,720	3,810	2,660	3,023	185,900
April	114,550	4,600	3,010	3,818	227,200
May	120,660	5,240	3,260	3,892	239,300
June	112,760	4,890	2,630	3,759	223,700
July	56,300	2,520	1,400	1,816	111,700
August	40,250	1,390	1,220	1,298	79,830
September	36,310	1,340	1,170	1,210	72,020
Water year 1947-48	990,342	28,000	996	2,706	1,964,000

Peak discharge (base, 9,000 sec.-ft.).- Jan. 4 (11 a.m.) 11,900 sec.-ft.; Jan. 7 (7 a.m.) 32,000 sec.-ft.; Feb. 22 (6 a.m.) 13,300 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations near Central Point and near Prospect.

Rogue River at Raygold, near Central Point, Oreg.

Location.- Water-stage recorder, lat. 42°26', long. 122°59', in sec. 18, T. 36 S., R. 2 W., at Raygold, just downstream from dam and powerhouse of The California Oregon Power Co., half a mile downstream from Bear Creek, and 6 miles northwest of Central Point. Datum of gage is 1,121.78 feet above mean sea level, datum of 1929.
Drainage area.- 2,020 square miles.
Records available.- August 1905 to September 1948.
Average discharge.- 43 years, 2,740 second-feet.
Extremes.- Maximum discharge during year, 46,200 second-feet Jan. 7 (gage height, 15.6 feet); minimum, 628 second-feet Aug. 11 (gage height, 0.08 foot); minimum daily, 1,050 second-feet Oct. 2, 6.
1905-48: Maximum discharge, 91,500 second-feet Feb. 21, 1927 (gage height, 24.8 feet, from floodmark), from rating curve extended above 36,000 second-feet; minimum no determined; minimum daily, 616 second-feet Sept. 6, 1931.
Remarks.- Records excellent. Many diversions above station for irrigation. Diurnal fluctuation caused by power plant just above station.
Cooperation.- Water-stage recorder inspected by employees of The California Oregon Power Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

0.6	990	3.0	4,000	10.0	23,500
1.0	1,330	4.0	5,900	12.0	31,100
1.5	1,850	5.0	8,060	14.1	39,600
2.0	2,460	6.0	10,500		
2.5	3,170	8.0	16,500		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,070	2,040	1,850	2,030	2,080	4,020	4,000	5,430	5,130	2,690	1,470	1,280
2	1,050	2,290	1,820	8,150	2,060	3,830	4,640	4,530	5,130	2,500	1,430	1,280
3	1,090	1,980	1,960	5,800	1,960	3,540	5,430	4,460	5,750	2,410	1,410	1,280
4	1,130	2,080	2,140	12,400	1,960	3,330	4,940	5,710	5,610	2,330	1,400	1,270
5	1,060	2,200	1,980	7,970	2,000	3,280	4,800	5,110	5,110	2,380	1,400	1,260
6	1,050	2,090	1,850	23,900	1,930	3,460	4,820	5,170	5,510	2,690	1,400	1,260
7	1,070	2,040	1,810	39,600	1,820	3,360	4,390	5,270	5,610	2,490	1,400	1,240
8	1,130	2,040	2,040	20,600	1,940	3,520	4,020	5,170	5,210	2,290	1,380	1,230
9	1,200	2,450	2,040	11,100	2,360	4,350	3,950	4,790	5,250	2,180	1,420	1,210
10	1,450	2,150	2,000	8,150	2,370	3,690	4,260	4,460	5,410	2,090	1,390	1,200
11	1,540	2,000	1,920	6,720	2,120	3,360	4,400	4,170	5,090	2,000	1,360	1,200
12	1,400	2,120	1,900	5,550	2,100	3,280	3,950	4,150	4,600	1,940	1,350	1,190
13	1,280	2,080	1,840	4,840	1,950	3,310	3,690	4,150	4,690	1,870	1,340	1,190
14	1,210	2,400	2,360	4,220	1,960	3,380	3,780	4,020	4,220	1,830	1,340	1,200
15	1,250	2,470	2,500	3,830	2,490	3,430	4,280	3,930	3,970	1,770	1,330	1,200
16	2,490	3,080	2,200	3,560	3,280	3,330	4,820	4,030	3,860	1,730	1,320	1,220
17	2,240	2,770	2,090	3,330	3,020	3,380	4,900	4,480	3,710	1,710	1,320	1,260
18	1,710	2,520	2,180	3,220	3,020	3,310	5,190	4,570	3,950	1,650	1,310	1,320
19	1,480	2,380	2,320	3,100	3,380	3,540	4,960	4,580	3,980	1,620	1,350	1,320
20	1,660	2,200	2,210	2,980	3,060	3,430	4,940	4,530	4,100	1,600	1,360	1,300
21	2,300	2,070	2,080	2,860	6,770	3,380	5,230	4,570	4,770	1,570	1,330	1,280
22	1,760	1,940	2,300	2,790	15,100	4,690	5,770	4,330	4,080	1,530	1,350	1,260
23	1,590	1,830	2,120	2,700	9,870	5,840	5,770	4,370	3,710	1,510	1,530	1,400
24	1,490	1,750	2,010	2,600	6,610	4,940	5,330	4,730	3,490	1,490	1,500	1,510
25	1,400	1,720	1,880	2,410	5,370	4,790	5,390	5,900	3,310	1,510	1,410	1,510
26	1,350	1,710	1,860	2,320	5,110	4,020	4,980	6,280	3,170	1,500	1,360	1,460
27	1,330	1,760	1,860	2,210	5,270	3,860	4,640	6,380	3,020	1,490	1,330	1,470
28	1,370	1,770	1,980	2,180	5,000	3,880	5,290	6,150	2,900	1,480	1,310	1,430
29	1,650	1,760	2,260	2,180	4,480	3,950	5,490	5,570	2,790	1,440	1,300	1,410
30	1,930	1,760	2,140	2,160	-	4,310	5,190	5,250	2,930	1,440	1,300	1,360
31	1,810	-	1,990	2,100	-	4,220	-	5,110	-	1,480	1,290	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	45,540	2,490	1,050	1,469	90,330
November	63,450	3,080	1,710	2,115	125,900
December	63,480	2,500	1,810	2,048	125,900
Calendar year 1947	791,940	8,180	1,020	2,170	1,571,000
January	207,560	39,600	2,030	6,695	411,700
February	110,440	15,100	1,820	3,808	219,100
March	118,010	5,840	3,280	3,807	234,100
April	143,240	5,770	3,690	4,775	284,100
May	151,350	6,380	3,930	4,882	300,200
June	130,060	5,750	2,790	4,335	258,000
July	58,210	2,690	1,440	1,878	115,500
August	42,490	1,530	1,290	1,371	84,280
September	39,000	1,510	1,190	1,300	77,360
Water year 1947-48	1,172,830	39,600	1,050	3,204	2,326,000

Peak discharge (base, 11,000 sec.-ft.).- Jan. 4 (2 p.m.) 20,600 sec.-ft.; Jan. 7 (1 p.m.) 46,200 sec.-ft.; Feb. 22 (9 a.m.) 16,900 sec.-ft.

Rogue River at Grants Pass, Oreg.

Location.- Water-stage recorder, lat. 42°26', long. 123°19', in NW¼ sec. 20, T. 36 S., R. 5 W., at filter plant 0.6 mile east of Pacific Highway bridge at Grants Pass. Datum o gage is 888.28 feet above mean sea level, datum of 1929.
Records available.- January 1939 to September 1948.
Extremes.- Maximum discharge during year, 59,900 second-feet Jan. 7 (gage height, 21.06 feet), from rating curve extended above 23,000 second-feet; minimum, 606 second-feet Oct. 8 (gage height, 0.47 foot); minimum daily, 910 second-feet Oct. 1.
1939-48: Maximum discharge, 70,000 second-feet Dec. 29, 1945 (gage height, 23.16 feet), from rating curve extended above 23,000 second-feet; minimum, 560 second-feet Aug. 8, 1940 (gage height, 0.30 foot); minimum daily, 637 second-feet Aug. 8, 1940.
Maximum stages known, about 32 feet in February 1890 and about 28 feet Feb. 22, 192 from floodmarks.
Remarks.- Records good. Many diversions from Rogue River and tributaries above station, the largest of which are at Savage Rapids Dam of Grants Pass Irrigation District, 5 miles upstream. Flow regulated slightly by dams at Savage Rapids and Raygold and by Fish Lake and Emigrant Gap Reservoirs.
Cooperation.- Water-stage recorder inspected by employees of Grants Pass Water Department

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30			
0.8	900	3.0	3,800	10.0	19,500	0.8	980	3.0	4,040
1.0	1,100	4.0	5,650	14.0	31,700	1.0	1,200	4.0	5,800
1.5	1,680	6.0	9,880	18.0	46,700	1.5	1,820	6.0	9,880
2.0	2,300	8.0	14,600	19.7	53,800	2.0	2,500		

Note.- Same as preceding table above 6.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	910	2,080	2,080	2,300	2,330	4,640	4,530	6,200	5,100	2,530	1,240	1,090
2	930	2,700	2,030	9,070	2,300	4,410	4,920	5,260	5,030	2,370	1,200	1,080
3	930	2,300	2,070	7,910	2,190	4,090	5,860	4,950	5,490	2,280	1,190	1,080
4	1,020	2,310	2,350	14,500	2,180	3,770	5,530	6,240	5,550	2,230	1,210	1,070
5	980	2,460	2,180	10,900	2,250	3,640	5,510	5,780	5,030	2,260	1,190	1,060
6	970	2,380	2,020	32,600	2,150	3,900	5,750	5,620	5,330	2,640	1,200	1,040
7	1,320	2,310	1,970	53,700	2,030	3,800	5,220	5,730	5,490	2,420	1,190	1,020
8	1,300	2,260	2,140	25,700	2,120	3,770	4,760	5,670	5,190	2,610	1,190	1,000
9	1,240	2,640	2,220	13,700	2,710	4,950	4,670	5,300	5,170	1,650	1,190	991
10	1,510	2,470	2,250	9,930	2,710	4,360	5,190	4,920	5,490	1,950	1,180	980
11	1,730	2,250	2,090	8,090	2,390	3,890	5,310	4,600	5,240	1,850	1,180	980
12	1,610	2,340	2,080	6,690	2,230	3,650	4,880	4,460	4,670	1,780	1,170	980
13	1,340	2,290	2,040	5,840	2,160	3,720	4,500	4,410	4,700	1,700	1,120	980
14	1,340	2,670	2,430	5,060	2,160	3,770	4,410	4,350	4,330	1,660	1,110	1,000
15	1,450	2,700	2,830	4,550	2,630	3,960	4,940	4,180	h4,040	1,590	1,110	1,020
16	3,250	3,250	2,520	4,190	3,780	3,720	5,480	4,160	3,890	1,550	1,100	1,060
17	2,880	3,160	2,340	3,920	3,430	3,840	5,580	4,500	3,730	1,500	1,080	1,090
18	2,040	2,780	2,400	3,650	3,460	3,720	5,820	4,700	3,730	1,460	1,080	1,190
19	1,750	2,640	2,550	3,440	3,900	4,040	5,570	4,670	4,070	1,460	1,080	1,200
20	1,740	2,390	2,470	3,280	3,480	3,920	5,390	4,850	3,870	1,450	1,140	1,170
21	2,480	2,290	2,360	3,120	6,600	3,870	5,570	4,650	4,730	1,430	1,100	1,130
22	2,120	2,140	2,520	3,000	16,900	4,910	6,290	4,530	4,210	1,400	1,120	1,130
23	1,840	2,030	2,400	2,930	12,400	7,190	6,430	4,410	3,730	1,370	1,250	1,270
24	1,640	1,940	2,300	2,860	8,110	6,010	5,880	4,620	3,520	1,330	1,360	1,490
25	1,580	1,900	2,170	2,780	6,430	5,880	5,970	5,550	3,180	1,320	1,240	1,490
26	1,480	1,860	2,070	2,650	5,820	4,990	5,490	6,100	3,040	1,310	1,190	1,430
27	1,430	1,910	2,050	2,530	6,080	4,620	5,170	6,240	2,930	1,260	1,140	1,440
28	1,450	1,920	2,130	2,460	5,690	4,550	5,620	6,180	2,800	1,270	1,120	1,400
29	1,720	1,870	2,480	2,440	5,220	4,580	6,280	5,640	2,650	1,250	1,110	1,370
30	2,030	1,940	2,430	2,400	-	4,830	5,690	5,300	2,730	1,210	1,100	1,340
31	2,080	-	2,240	2,360	-	4,860	-	5,130	-	1,210	1,090	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	50,090	3,250	910	1,616	99,350
November	70,180	3,250	1,860	2,339	139,200
December	70,210	2,830	1,970	2,265	139,300
Calendar year 1947	826,041	10,600	878	2,263	1,638,000
January	258,550	53,700	2,300	8,340	512,800
February	125,840	16,900	2,030	4,339	249,600
March	135,850	7,190	3,640	4,382	269,500
April	162,210	6,430	4,410	5,407	321,700
May	158,900	6,240	4,160	5,126	315,200
June	128,860	5,550	2,650	4,295	255,600
July	53,300	2,640	1,210	1,719	105,700
August	35,970	1,360	1,080	1,160	71,350
September	34,571	1,490	980	1,152	68,570
Water year 1947-48	1,284,531	53,700	910	3,510	2,548,000

Peak discharge (base, 11,000 sec.-ft.).- Jan. 4 (4:30 p.m.) 22,100 sec.-ft.; Jan. 7 (3 p.m.) 59,900 sec.-ft.; Feb. 22 (11 a.m.) 18,800 sec.-ft.
h Computed from staff-gage reading.

Reservoirs in Rogue River Basin, Oreg.

Fish Lake Reservoir.- Staff gage, lat. 42°23', long. 122°21', in SW¼ sec. 3, T. 37 S., R. 4 E., at reservoir outlet, 14 miles east of Lake Creek post office. Datum of gage is at mean sea level (irrigation district datum). Drainage area, 17 square miles. Records available, December 1915 to September 1948. Maximum conterts observed during year, 6,829 acre-feet July 12 (elevation, 4,824.26 feet); minimum observed, 469 acre-feet Oct. 1 (elevation, 4,803.89 feet). Maximum contents observed during period 1915-48, 7,975 acre-feet June 20, 1938 (elevation, 4,827.09 feet); no usable contents at times.

Reservoir is formed by rock-faced earth dam, completed in fall of 1915; storage began in November 1915. Capacity, 7,527 acre-feet between elevations 4,799 feet (outlet tunnel) and 4,826 feet (spillway channel, incomplete). Water is diverted during summer from Fourmile Lake in Klamath River Basin through Cascade Canal into Fish Lake. Gage read once daily by employee of Medford Irrigation District.

Emigrant Gap Reservoir.- Staff gage, lat. 42°10', long. 122°36', in SE¼ sec. 20, T. 39 S., R. 2 E., at Emigrant Gap Dam of Talent Irrigation District on Emigrant Creek, 6 miles southeast of Ashland. Datum of gage is at mean sea level (levels by Talent Irrigation District). Records available, December 1924 to September 1948. Maximum contents observed during year, 8,846 acre-feet Jan. 7 (elevation, 2,175.6 feet); minimum observed, 90 acre-feet Oct. 10 (elevation, 2,086.5 feet). Maximum contents during period 1924-48 that of Jan. 7, 1948; no usable contents at times.

Reservoir is formed by concrete arch dam, completed in 1924 by Talent Irrigation District; storage began in December 1924. Capacity, 8,342 acre-feet between elevations 2,070 feet (16-inch sluice pipe) and 2,173.5 feet (crest of spillway). Dead storage negligible. Water is used for irrigation of lands near Talent. Gage read once to six times monthly by employee of Talent Irrigation District.

Revisions (water years): W 834: 1936. W 1064: 1945.

Monthly elevation and contents, water year October 1947 to September 1948

Date	Fish Lake Reservoir			Emigrant Gap Reservoir		
	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	4,803.80	453	-	-	a50	-
Oct. 31	4,808.09	1,456	+1,003	-	a320	+270
Nov. 30	4,810.96	2,261	+805	-	a1,200	+880
Dec. 31	4,812.62	2,759	+498	-	a2,310	+1,110
Calendar year 1947	-	-	-889	-	-	+344
Jan. 31	-	a3,160	+401	-	a8,294	+5,984
Feb. 29	4,814.68	3,408	+248	2,173.2	8,271	-23
Mar. 31	4,815.39	3,638	+230	2,173.2	8,271	0
Apr. 30	4,816.39	3,968	+330	2,173.1	8,248	-23
May 31	4,819.78	5,143	+1,175	2,173.2	8,271	+23
June 30	4,823.60	6,572	+1,429	-	a8,190	-81
July 31	4,820.50	5,402	-1,170	-	a4,320	-3,870
Aug. 31	4,815.42	3,648	-1,754	2,121.4	1,297	-3,023
Sept.30	4,813.15	2,924	-724	2,105.5	550	-747
Water year 1947-48	-	-	+2,471	-	-	+500

a Interpolated.
Note.- Time of reading gages not known.

South Fork Rogue River above Imnaha Creek, near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°42', long. 122°23', in NE¼ sec. 18, T. 33 S., R. 4 E., 300 yards upstream from Imnaha Creek, 400 yards upstream from South Fork diversion dam, and 6 miles southeast of Prospect.

Drainage area.- 52 square miles.

Records available.- October 1931 to September 1948.

Average discharge.- 17 years, 125 second-feet.

Extremes.- Maximum discharge during year, 830 second-feet Jan. 7 (gage height, 4.20 feet); minimum, 45 second-feet Oct. 1-9.
1931-48: Maximum discharge, 2,170 second-feet Dec. 1, 1942 (gage height, 6.21 feet) from rating curve extended above 250 second-feet on basis of former curve well defined to 1,000 second-feet; minimum, 27 second-feet Oct. 1-21, 1931.

Remarks.- Records good. No diversion or regulation above station.

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

1.3	38	1.8	115	2.8	350
1.4	49	2.1	182	3.3	495
1.6	79	2.4	252	3.9	700

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	59	79	74	91	164	111	194	384	221	98	76
2	45	60	77	161	89	152	152	189	450	207	96	76
3	45	59	77	141	88	143	141	207	636	198	96	7
4	45	62	76	175	89	136	136	238	516	189	96	7
5	45	59	71	164	88	134	130	223	465	216	96	7
6	45	57	68	398	88	132	126	264	576	205	94	71
7	45	57	66	696	82	126	119	264	552	187	93	71
8	45	63	68	516	82	123	115	245	498	175	93	71
9	48	68	66	378	79	121	113	233	510	166	91	71
10	55	62	65	308	77	117	109	221	459	161	91	69
11	55	62	66	262	74	115	107	221	405	154	91	68
12	49	60	65	228	74	113	106	235	370	150	89	68
13	47	60	66	203	76	111	107	259	350	141	88	68
14	47	59	68	184	76	111	117	245	332	136	88	68
15	50	81	68	170	89	109	148	252	315	132	86	66
16	73	107	65	161	88	107	173	281	305	130	84	65
17	57	86	66	152	88	106	184	342	295	126	84	64
18	52	82	68	141	91	106	189	320	335	123	84	69
19	49	77	69	134	94	102	198	288	315	121	86	68
20	60	73	68	126	89	100	219	269	399	119	84	65
21	60	69	66	117	137	100	245	264	405	117	82	65
22	53	65	66	115	345	104	262	266	338	115	88	69
23	52	63	66	113	250	100	252	305	308	113	93	81
24	52	62	68	111	212	100	247	370	295	111	88	81
25	50	60	68	107	196	96	269	495	283	107	84	76
26	49	60	68	104	214	94	254	528	271	106	81	76
27	49	63	68	100	212	96	238	522	259	106	79	76
28	52	68	77	98	189	96	223	447	252	106	77	76
29	55	68	76	96	173	93	212	393	245	104	76	73
30	60	71	69	94	-	106	203	362	233	102	76	69
31	55	-	68	93	-	102	-	365	-	100	76	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,589	73	45	51.3	0.987	1.14	3,150
November	2,002	107	57	66.7	1.28	1.43	3,970
December	2,142	79	65	69.1	1.33	1.53	4,250
Calendar year 1947	37,702	262	45	103	1.98	26.96	74,800
January	5,920	696	74	191	3.67	4.23	11,740
February	3,620	345	74	125	2.40	2.59	7,180
March	3,515	164	93	113	2.17	2.51	6,970
April	5,205	269	106	174	3.35	3.72	10,320
May	9,307	528	189	300	5.77	6.66	18,460
June	11,356	636	233	379	7.29	8.12	22,520
July	4,444	221	100	143	2.75	3.18	8,810
August	2,708	98	76	87.4	1.68	1.94	5,370
September	2,139	81	65	71.3	1.37	1.53	4,240
Water year 1947-48	53,947	696	45	147	2.83	38.58	107,000

Peak discharge (base, 400 sec.-ft.).- Jan. 7 (11 a.m.) 830 sec.-ft.; Feb. 22 (7 a.m.) 399 sec.-ft. June 3 (1 a.m.) 708 sec.-ft.

Imnaha Creek near Prospect, Oreg.

Location.- Staff gage, lat. 42°42', long. 122°23', in NE¼ sec. 18, T. 33 S., R. 4 E., 400 yards upstream from mouth and 6 miles southeast of Prospect.

Drainage area.- 26 square miles.

Records available.- September 1931 to September 1948.

Average discharge.- 17 years, 42.1 second-feet.

Extremes.- Maximum daily discharge during year, 330 second-feet Jan. 7 (gage not read); minimum daily, 20 second-feet Oct. 1-8, 14, 27.
1931-48: Maximum daily discharge, 500 second-feet Feb. 13, 1945 (gage not read), computed on basis of records for South and Middle Forks Rogue River near Prospect; minimum observed, 11 second-feet Dec. 14, 1931 (gage height, 0.46 foot).

Remarks.- Records fair for days when gage was read, poor for other periods. Staff gage read once weekly; discharge for intervening days computed on basis of records for stations on South Fork Rogue River and power canal. No diversion or regulation above station.

Cooperation.- Gage readings furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	23	29	h28	44	61	h49	78	115	h74	40	31
2	h20	24	27	64	44	59	74	76	130	72	40	h31
3	20	23	26	58	43	58	70	85	h162	70	39	31
4	20	25	h26	72	43	h57	66	92	145	67	39	31
5	20	24	25	66	h42	56	63	h86	135	76	h38	31
6	20	h23	25	160	41	55	60	h91	155	69	38	31
7	20	22	25	330	40	54	58	98	150	65	38	31
8	20	24	25	h215	38	53	h56	91	140	h62	37	32
9	h21	27	25	180	37	52	53	85	150	60	37	h32
10	23	26	25	150	36	51	51	81	h137	57	37	32
11	23	25	h25	130	36	h50	49	82	120	55	36	32
12	22	25	25	110	h36	50	47	84	110	53	h36	32
13	21	h25	25	100	36	49	47	h86	105	51	35	32
14	h20	24	26	90	36	49	50	83	100	h50	35	32
15	21	28	26	81	36	48	h59	89	98	h50	35	32
16	h31	40	25	78	37	48	64	100	96	49	34	h32
17	26	31	25	74	h37	47	70	115	h92	48	33	32
18	22	29	h26	70	37	h47	78	105	105	48	33	32
19	21	27	27	66	h37	46	82	96	100	47	h33	31
20	26	h26	27	62	36	46	84	h88	120	46	33	31
21	26	25	26	60	56	49	88	86	125	46	32	31
22	22	24	25	h58	130	50	h92	84	110	h45	32	33
23	h22	24	25	56	80	48	90	90	95	45	38	h37
24	22	23	25	54	66	46	86	100	h87	44	37	37
25	22	23	h26	52	64	h44	94	110	85	44	36	34
26	21	24	26	50	h68	44	92	120	83	43	h35	34
27	20	h25	26	49	67	45	90	h121	81	43	34	34
28	21	26	28	48	66	44	88	115	80	43	33	34
29	22	27	29	h47	64	43	h86	110	78	h42	32	33
30	h23	28	27	46	-	49	82	105	76	42	32	h31
31	22	-	27	45	-	47	-	105	-	41	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	680	31	20	21.9	0.842	0.97	1,350
November	770	40	22	25.7	.988	1.10	1,530
December	805	29	25	26.0	1.00	1.15	1,600
Calendar year 1947	12,224	64	20	33.5	1.29	17.48	24,250
January	2,749	330	28	88.7	3.41	3.93	5,450
February	1,433	130	36	49.4	1.90	2.05	2,840
March	1,545	61	43	49.8	1.92	2.21	3,060
April	2,118	94	47	70.6	2.72	3.03	4,200
May	2,937	121	76	94.7	3.64	4.20	5,830
June	3,365	162	76	112	4.31	4.81	6,670
July	1,647	76	41	53.1	2.04	2.36	3,270
August	1,098	40	31	35.4	1.36	1.57	2,180
September	969	37	31	32.3	1.24	1.39	1,920
Water year 1947-48	20,116	330	20	55.0	2.12	28.77	39,900

h Gage read on this day.

South Fork power canal near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°43', long. 122°24', in E½ sec. 12, T. 33 S., R. 3 E., 1 mile downstream from head gate at diversion dam and 5 miles southeast of Prospect; electrical-output meter in power plant in W½ sec. 1, T. 33 S., R. 3 E. Datum of gage is about 3,357 feet above mean sea level (levels by The California Oregon Power Co.).

Records available.- April 1932 to September 1948.

Average discharge.- 16 years, 106 second-feet.

Extremes.- Maximum daily discharge during year, 159 second-feet Jan. 20; no flow Jan. 8-10.

1932-48: Maximum daily discharge, 170 second-feet June 18, 1933, Feb. 22, 1936, May 14, 1938, Apr. 4, 5, June 16, 1939; no flow at times.

Remarks.- Records good. Daily discharge computed on basis of electrical output of power plant below station, the relation between electrical output and discharge being based on discharge measurements. This canal, completed in March 1932, diverts water from South Fork Rogue River 200 feet below mouth of Imnaha Creek for use at power plant located in W½ sec. 1, T. 33 S., R. 3 E., from which water may be wasted into Middle Fork Rogue River or mingled with flow of other diversions in Main power canal.

Cooperation.- Water-stage recorder graph and record of electrical output furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	82	106	99	128	154	144	154	155	153	130	99
2	61	82	101	144	126	154	156	154	154	155	129	98
3	62	78	103	156	118	155	154	154	154	154	129	98
4	61	86	96	154	127	155	154	153	152	154	126	98
5	61	78	91	154	118	154	154	154	154	154	124	96
6	61	77	89	149	114	154	154	153	154	156	124	98
7	61	76	87	16	110	154	154	154	150	155	123	95
8	62	86	89	0	119	154	153	154	154	154	123	94
9	70	91	85	0	110	154	154	154	154	154	118	93
10	72	80	84	0	113	150	153	154	154	154	119	93
11	76	81	84	51	106	149	153	154	154	154	119	92
12	67	80	83	149	102	146	152	154	154	154	115	91
13	64	80	82	152	104	147	154	154	154	154	115	90
14	62	79	91	154	103	152	154	154	154	154	114	90
15	68	107	89	153	134	146	154	154	155	150	112	90
16	103	141	86	153	118	146	154	154	154	150	111	90
17	74	112	88	152	115	143	153	154	154	145	108	92
18	70	110	92	150	119	139	154	154	154	106	110	95
19	65	102	96	157	122	138	153	154	154	151	113	94
20	86	95	91	159	113	135	154	154	156	148	109	90
21	80	90	90	157	145	136	154	154	155	146	107	90
22	71	86	87	156	153	143	154	154	154	142	110	93
23	68	84	87	156	156	136	153	154	155	141	126	112
24	66	81	86	154	157	134	154	155	154	135	114	113
25	65	79	82	150	156	129	154	154	155	135	109	103
26	63	81	84	140	156	127	153	154	154	134	107	108
27	66	85	84	138	156	130	154	154	154	133	104	105
28	71	89	98	140	155	132	154	149	154	133	103	102
29	74	90	102	136	156	134	154	151	157	131	103	99
30	77	90	94	134	-	146	154	154	154	129	101	95
31	70	-	94	130	-	146	-	154	-	130	101	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,137	103	60	68.9	4,240
November	2,658	141	76	88.6	5,270
December	2,801	106	82	90.4	5,560
Calendar year 1947	41,044	156	60	112	81,420
January	3,893	159	0	126	7,720
February	3,709	157	102	128	7,360
March	4,472	155	127	144	8,870
April	4,603	156	144	153	9,130
May	4,765	155	149	154	9,450
June	4,624	157	150	154	9,170
July	4,498	156	106	145	8,920
August	3,556	130	101	115	7,050
September	2,896	113	90	96.5	5,740
Water year 1947-48	44,612	159	0	122	88,480

Middle Fork Rogue River near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°44', long. 122°24', in NE¼ sec. 1, T. 33 S., R. 3 E., 1,000 feet downstream from diversion dam and intake of Middle Fork power canal and 4½ miles southeast of Prospect. Datum of gage is 2,617 feet above mean sea level (levels by The California Oregon Power Co.).

Drainage area.- 57 square miles.

Records available.- May 1925 to September 1948 (include flow of Middle Fork power canal).

Average discharge.- 23 years, 173 second-feet.

Extremes.- Maximum combined discharge of river and canal during year, 1,640 second-feet Jan. 7 (river gage height, 4.2 feet, from floodmark), from rating curve extended above 1,100 second-feet; minimum daily, 106 second-feet Oct. 5, 6.
1925-48: Maximum discharge, 2,760 second-feet Nov. 29, 1942 (river gage height, 5.15 feet), from rating curve extended above 1,100 second-feet; minimum, 72 second-feet Aug. 24 to Sept. 5, 1931.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Rating curve for river only defined to 320 second-feet by measurements and to 1,100 second-feet by study of increments of discharge when flow in canal was changed. Low flow in river controlled since Nov. 19, 1931, by head gates at diversion dam of power canal which diverts water around station; practically no storage above diversion dam. Records include flow of Middle Fork power canal (see following page).

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	133	151	146	142	238	187	218	330	276	152	a139
2	109	128	142	187	140	223	218	212	399	256	152	a139
3	110	128	144	175	136	204	213	237	502	251	148	a139
4	108	126	136	245	a136	198	207	254	426	240	146	a139
5	106	125	133	238	a134	195	204	254	394	257	147	a139
6	106	124	130	620	a133	186	192	276	a490	240	146	a139
7	109	125	131	a1,360	a132	184	187	283	a470	228	145	a138
8	109	136	130	763	a131	180	181	265	a470	220	144	a137
9	118	130	128	524	a130	178	184	254	480	213	143	a135
10	126	126	a128	412	a129	162	178	244	h426	209	143	a134
11	127	131	128	355	a128	158	a175	241	a410	205	142	a134
12	115	126	128	302	a127	160	a176	248	a380	201	142	a134
13	113	126	127	288	a126	159	a181	258	a370	197	142	a134
14	112	a128	138	241	a126	159	a196	251	359	191	142	a134
15	122	a153	138	225	a138	156	222	258	a340	183	141	a134
16	167	a204	133	211	a133	156	242	283	a330	176	140	a136
17	128	a174	133	201	134	154	258	314	h314	175	140	a136
18	120	a156	144	193	146	153	265	298	404	173	140	a135
19	116	a148	138	187	143	151	272	279	346	168	142	a135
20	142	143	134	177	140	150	279	258	435	165	140	a134
21	127	139	137	170	251	150	298	248	440	163	140	a133
22	120	132	134	166	433	155	306	254	359	162	144	a138
23	117	a131	133	163	331	154	295	291	334	160	145	144
24	114	a130	131	158	288	153	283	355	334	158	142	146
25	114	a130	131	156	266	152	287	435	334	155	140	a140
26	114	a135	131	151	315	151	276	465	326	155	a138	a142
27	114	142	133	149	296	152	265	435	318	158	a136	a142
28	123	142	151	a148	273	155	251	377	318	159	a136	a140
29	128	140	142	146	252	158	237	330	312	157	a135	a138
30	126	144	138	145	-	a181	228	306	305	155	a135	a137
31	120	-	137	142	-	179	-	306	-	154	a137	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	3,688	167	106	119	2.09	2.41	7,320
November	4,135	204	124	138	2.42	2.70	8,200
December	4,192	151	127	135	2.37	2.74	8,310
Calendar year 1947	60,003	320	106	164	2.88	39.17	119,000
January	8,724	1,360	142	281	4.93	5.69	17,300
February	5,389	433	126	186	3.26	3.52	10,690
March	5,244	238	150	169	2.96	3.42	10,400
April	6,943	306	175	231	4.05	4.53	13,770
May	8,987	465	212	290	5.09	5.86	17,830
June	11,455	502	305	382	6.70	7.47	22,720
July	5,959	276	154	192	3.37	3.89	11,820
August	4,405	152	135	142	2.49	2.87	8,740
September	4,125	146	133	138	2.42	2.69	8,180
Water year 1947-48	73,246	1,360	106	200	3.51	47.79	145,300

a No river gage-height record; discharge computed on basis of recorded range in stage, when available, and records for Rogue River and Middle Fork power canal near Prospect.
h River discharge computed from staff-gage reading.

Middle Fork power canal near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°44', long. 122°24', in NE¼ sec. 1, T. 33 S., R. 3 E., 1,000 feet downstream from head gate at diversion dam and 4½ miles southeast of Prospect. Datum of gage is about 2,632 feet above mean sea level (levels by The California Oregon Power Co.).

Records available.- November 1931 to September 1948.

Average discharge.- 17 years, 107 second-feet.

Extremes.- Maximum daily discharge during year, 142 second-feet Sept. 24; minimum daily, 0.2 second-foot Jan. 13-15, Apr. 21 to June 28.
1931-48: Maximum daily discharge, 191 second-feet Feb. 2, 1935; no flow at times.

Remarks.- Records excellent. This canal, completed in November 1931, diverts water from Middle Fork Rogue River into Main power canal to supplement flow of Rogue River above Prospect diversion dam.

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	105	118	120	121	120	0.7	126	0.2	0.2	45	132	136
2	106	118	120	122	119	.7	48	.2	.2	62	136	136
3	106	118	120	122	118	29	.9	.2	.2	74	136	136
4	105	118	120	62	118	68	.8	.2	.2	74	135	136
5	104	118	120	.9	118	68	.8	.2	.2	74	136	136
6	104	118	120	.9	118	68	.8	.2	.2	74	136	136
7	106	118	120	.5	118	68	.7	.2	.2	92	136	135
8	106	118	120	.4	118	68	40	.2	.2	106	136	134
9	112	118	120	.4	118	68	95	.2	.2	110	136	132
10	118	118	120	.3	118	88	95	.2	.2	110	136	131
11	124	118	120	.3	118	110	95	.2	.2	110	135	131
12	115	118	120	.3	118	114	96	.2	.2	110	136	131
13	112	118	120	.2	118	114	96	.2	.2	114	136	131
14	110	118	120	.2	118	114	96	.2	.2	122	136	131
15	116	118	120	.2	118	118	36	.2	.2	123	135	131
16	118	114	120	60	118	120	.5	.2	.2	122	135	133
17	118	114	120	110	120	120	.5	.2	.2	122	135	133
18	114	116	120	110	122	120	.4	.2	.2	122	135	133
19	110	118	119	110	122	120	.3	.2	.2	122	136	132
20	115	118	119	110	122	120	.3	.2	.2	122	135	131
21	116	118	120	110	125	120	.2	.2	.2	122	134	130
22	114	118	120	110	65	121	.2	.2	.2	122	136	135
23	112	118	120	117	.9	121	.2	.2	.2	122	138	140
24	110	118	120	120	.9	121	.2	.2	.2	122	137	142
25	110	118	120	120	.7	120	.2	.2	.2	122	135	137
26	110	118	120	119	.7	124	.2	.2	.2	124	134	139
27	110	119	120	119	.7	126	.2	.2	.2	130	132	139
28	116	119	120	120	.7	126	.2	.2	.2	132	132	137
29	118	119	120	120	.7	126	.2	.2	10	133	131	135
30	118	119	121	120	-	126	.2	.2	33	133	131	134
31	114	-	121	120	-	126	-	.2	-	133	133	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,472	124	104	112	6,890
November	3,534	119	114	118	7,010
December	3,720	121	119	120	7,380
Calendar year 1947	37,073.1	142	.5	102	73,540
January	2,226.6	122	.2	71.8	4,420
February	2,572.3	125	.7	88.7	5,100
March	3,053.4	126	.7	98.5	6,060
April	831.0	126	.2	27.7	1,650
May	6.2	.2	.2	.20	12
June	48.6	33	.2	1.62	96
July	3,405	133	45	110	6,750
August	4,182	138	131	135	8,290
September	4,033	142	130	134	8,000
Water year 1947-48	31,084.1	142	.2	84.9	61,660

Red Blanket Creek near Prospect, Oreg.

Location.- Staff gage, lat. 42°47', long. 122°26', in NE¼ sec. 23, T. 32 S., R. 3 E., 3 miles northeast of Prospect.

Drainage area.- 40 square miles.

Records available.- May 1925 to September 1948. Prior to October 1928 in NE¼ sec. 34, T. 32 S., R. 3 E.

Average discharge.- 23 years, 104 second-feet.

Extremes.- Maximum discharge during year, 1,400 second-feet Jan. 7 (gage height, 4.3 feet, from floodmark), from rating curve extended above 350 second-feet; minimum daily, 56 second-feet Oct. 1.

1925-48: Maximum discharge observed, 1,880 second-feet Nov. 29, 1942 (gage height, 5.1 feet, from floodmark), from rating curve extended above 350 second-feet; minimum observed, 34 second-feet Sept. 3, 4, 25, Oct. 9, 16, 1931.

Remarks.- Records fair for days when gage was read, poor for other periods. Gage read once weekly; discharge for intervening days computed on basis of records for South Fork Rogue River near Prospect and Red Blanket power canal. One diversion above station for irrigation.

Cooperation.- Gage readings furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	82	84	82	88	135	105	125	190	147	88	69
2	59	78	80	h127	86	125	h132	120	220	h143	87	69
3	h57	77	78	110	84	120	128	130	330	140	86	h69
4	57	76	75	140	85	115	124	h146	h213	140	85	68
5	57	75	h71	130	83	h112	120	140	200	160	85	68
6	57	74	71	250	h82	110	116	160	300	145	h85	68
7	58	h73	71	700	82	110	113	h164	280	135	84	68
8	60	77	71	350	85	108	110	160	260	125	82	67
9	67	82	70	h260	86	106	h108	150	270	h121	81	67
10	73	78	69	210	82	104	104	135	250	118	80	h67
11	69	74	70	180	80	103	100	135	h224	115	78	67
12	62	74	68	160	79	h98	100	140	215	112	77	67
13	59	74	69	150	h79	98	102	150	210	h110	h76	66
14	57	h76	78	140	79	97	110	h140	200	109	76	67
15	h60	88	73	130	89	96	120	155	195	109	76	67
16	86	96	72	h124	h96	95	h135	170	195	h108	74	68
17	h78	92	h73	115	86	94	150	200	190	106	73	h67
18	70	88	75	112	89	93	155	180	h208	104	75	68
19	66	86	78	110	92	h92	160	160	200	102	76	67
20	82	84	77	108	h90	91	170	145	230	100	h73	66
21	78	h83	77	106	110	90	175	h135	230	98	72	67
22	72	80	76	103	250	95	180	145	215	96	75	66
23	68	78	74	h100	200	94	h167	165	200	h95	82	75
24	h66	77	73	98	170	94	165	195	180	94	76	h76
25	64	76	71	96	145	91	180	250	h167	93	74	73
26	64	78	h71	94	160	h90	170	280	160	92	72	75
27	66	80	72	93	h158	92	160	280	158	91	h71	71
28	72	h81	83	92	145	92	150	h217	155	90	71	69
29	77	80	82	91	140	92	140	190	152	89	70	67
30	84	80	78	h90	-	98	h129	175	150	h88	70	67
31	h74	-	76	88	-	98	-	175	-	88	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square m'le	Runoff Inches	Runoff Acre-feet
October	2,075	86	56	66.9	1.67	1.93	4,120
November	2,397	96	73	79.9	2.00	2.23	4,750
December	2,306	84	68	74.4	1.86	2.14	4,570
Calendar year 1947	33,970	180	50	93.1	2.33	31.58	67,370
January	4,739	700	82	153	3.82	4.41	9,400
February	3,170	250	79	109	2.72	2.95	6,290
March	3,128	135	90	101	2.52	2.91	6,200
April	4,078	180	100	136	3.40	3.79	8,090
May	5,212	280	120	168	4.20	4.85	10,340
June	6,347	330	150	212	5.30	5.90	12,590
July	3,463	160	88	112	2.80	3.22	6,870
August	2,399	88	69	77.4	1.94	2.23	4,760
September	2,056	76	66	68.5	1.71	1.91	4,080
Water year 1947-48	41,370	700	56	113	2.82	38.47	82,060

h Gage read on this day.

Red Blanket power canal near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°45', long. 122°27', in SE¼ sec. 27, T. 32 S., R. 3 E., 200 yards downstream from head gate and diversion dam and 2 miles east of Prospec Datum of gage is 2,612 feet above mean sea level (levels by The California Oregon Power Co.).

Records available.- November 1931 to September 1948.

Average discharge.- 16 years, 68.5 second-feet.

Extremes.- Maximum daily discharge during year, 95 second-feet July 5, 6; minimum daily, 11 second-feet Apr. 23-27.
1931-48: Maximum daily discharge, 106 second-feet July 7-13, 1932; no flow for part of days Sept. 24, 25, 1932.

Remarks.- Records excellent. This canal, completed in October 1931 (corrected), diverts water from Red Blanket Creek into Main power canal to supplement flow of Rogue River above Prospect diversion dam.

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	83	80	79	88	91	93	91	76	89	87	72
2	58	80	76	88	86	91	93	93	77	89	86	72
3	58	79	78	89	84	91	93	93	77	91	85	72
4	57	78	75	90	85	91	93	56	76	94	84	71
5	57	78	73	90	83	91	93	32	77	95	84	70
6	57	76	72	87	81	91	93	32	78	95	84	70
7	58	76	72	84	81	91	93	32	78	94	83	69
8	59	82	72	80	84	91	93	32	78	94	82	68
9	70	84	71	78	85	91	93	31	78	94	81	68
10	73	79	69	76	81	91	93	30	78	93	81	67
11	70	79	70	75	79	91	93	30	77	93	80	67
12	62	75	68	75	78	92	93	30	76	93	79	67
13	60	75	69	76	78	92	93	30	76	93	79	66
14	59	76	78	81	78	92	93	29	76	93	79	67
15	66	91	74	90	88	91	74	26	76	93	79	67
16	87	91	72	91	87	91	28	26	76	93	77	68
17	78	87	74	91	87	91	27	26	76	93	76	68
18	70	87	76	91	89	90	27	42	77	92	78	69
19	66	86	79	91	90	90	27	76	76	92	79	68
20	80	85	77	92	88	90	19	76	76	92	76	67
21	81	84	78	93	93	90	12	76	76	91	75	68
22	72	82	77	93	91	90	12	76	76	90	78	71
23	69	80	75	92	90	91	11	76	76	90	85	79
24	67	78	74	92	90	91	11	76	82	90	79	80
25	66	77	72	91	90	91	11	76	89	90	78	75
26	65	79	72	91	90	90	11	76	89	89	76	78
27	66	81	73	91	90	90	11	76	89	89	76	74
28	73	81	84	91	90	90	36	77	88	89	74	72
29	78	79	82	90	90	91	47	77	88	88	73	70
30	87	78	78	90	-	92	78	76	89	87	73	70
31	77	-	76	88	-	93	-	76	-	87	72	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,102	87	56	67.8	4,170
November	2,426	91	75	80.9	4,810
December	2,316	84	68	74.7	4,590
Calendar year 1947	29,423	98	49	80.6	58,360
January	2,696	93	75	87.0	5,350
February	2,494	93	78	86.0	4,950
March	2,819	93	90	90.9	5,590
April	1,744	93	11	58.1	3,460
May	1,751	93	26	56.5	3,470
June	2,377	89	76	79.2	4,710
July	2,835	95	87	91.5	5,620
August	2,458	87	72	79.3	4,880
September	2,110	80	66	70.3	4,190
Water year 1947-48	28,128	95	11	76.9	55,790

Main power canal below all feeders, near Prospect, Oreg.

Location.- Water-stage recorder, lat. 42°45', long. 122°28', in SW¼ sec. 28, T. 32 S., R. 3 E., 0.8 mile downstream from outlet of Red Blanket power canal, 1 mile east of Prospect, and 1.6 miles upstream from diversion dam on Rogue River. Datum of gage is 2,599.0 feet above mean sea level, datum of 1929.

Records available.- November 1931 to September 1948.

Average discharge.- 16 years (1932-48), 266 second-feet.

Extremes.- Maximum daily discharge during year, 364 second-feet July 19; no flow April 21-28.

1931-48: Maximum daily discharge, 423 second-feet June 23-28, 1936; no flow at times.

Remarks.- Records good. This canal, completed in November 1931, carries water diverted from South and Middle Forks Rogue River and Red Blanket Creek into Rogue River above Prospect diversion dam.

Cooperation.- Water-stage recorder graph furnished by The California Oregon Power Co.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	220	286	316	313	337	162	294	86	76	151	346	310
2	224	282	308	260	332	243	181	87	76	158	347	310
3	227	282	310	246	326	272	114	88	76	180	349	307
4	220	286	302	a165	329	310	114	53	74	182	349	305
5	219	280	295	a80	324	311	114	32	74	184	346	303
6	219	277	292	a80	310	313	198	32	74	171	344	303
7	220	277	292	a80	313	311	240	32	75	193	342	302
8	224	294	289	a80	323	310	265	32	75	270	340	300
9	246	299	286	80	321	311	278	31	74	302	339	300
10	266	286	282	78	313	327	299	30	75	302	337	292
11	272	291	283	77	305	349	300	30	75	302	a335	292
12	244	286	282	77	300	354	308	30	76	329	a333	291
13	236	286	284	79	300	354	319	30	74	351	a330	291
14	233	289	302	85	300	356	291	28	74	359	326	292
15	252	300	295	93	324	352	121	26	74	362	326	294
16	253	180	292	197	323	356	27	26	74	361	321	294
17	250	160	297	a275	323	351	27	25	73	359	319	300
18	254	160	302	a275	334	349	27	38	75	318	321	305
19	244	191	311	277	334	346	26	73	74	364	324	299
20	280	270	305	278	321	340	20	72	76	362	319	294
21	284	300	305	307	253	334	1	72	76	359	318	294
22	258	292	302	323	156	344	0	72	75	361	329	308
23	252	289	299	337	102	344	0	73	73	359	347	339
24	246	284	295	332	89	340	0	72	80	351	331	342
25	240	283	292	327	89	337	0	72	86	340	327	323
26	237	288	291	334	89	335	0	72	94	346	324	332
27	240	294	292	334	88	340	0	73	124	349	319	324
28	259	299	291	a350	88	342	29	74	138	349	316	318
29	274	299	299	349	88	334	44	75	148	351	316	311
30	286	302	307	344	-	324	74	75	165	347	313	307
31	265	-	305	339	-	294	-	76	-	346	311	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,644	286	219	247	15,160
November	8,192	302	160	273	16,250
December	9,203	316	282	297	18,250
Calendar year 1947	102,464	385	72	281	203,200
January	6,851	350	77	221	13,590
February	7,434	337	88	256	14,750
March	10,045	356	162	324	19,920
April	3,711	319	0	124	7,360
May	1,687	88	25	54.4	3,350
June	2,553	165	72	85.1	5,060
July	9,418	364	151	304	18,680
August	10,244	349	311	330	20,320
September	9,182	342	291	306	18,210
Water year 1947-48	86,164	364	0	235	170,900

a No gage-height record; discharge computed on basis of recorded range in stage, power company employee's notes, and records of combined flow for 3 feeder canals.

South Fork Big Butte Creek near Butte Falls, Oreg.

Location.- Water-stage recorder, lat. 42°32', long. 122°33', in SW¼ sec. 11, T. 35 S., R. 2 E., just downstream from Ginger Creek and 1 mile east of Butte Falls.

Records available.- September 1910 to October 1911, August to October 1915, October 1917 to September 1922, March 1925 to September 1948. August 1922 to March 1925 at site at Butte Falls.

Average discharge.- 32 years (1910-11, 1917-48), 155 second-feet.

Extremes.- Maximum discharge during year, 1,240 second-feet Jan. 7 (gage height, 2.77 feet); minimum, 65 second-feet Oct. 1 (gage height, 0.56 foot).
1910-11, 1915, 1917-48: Maximum discharge, 2,470 second-feet Feb. 20, 1927 (gage height, 4.05 feet), from rating curve extended above 1,600 second-feet; minimum, 39 second-feet Oct. 14, 1931 (gage height, 0.32 foot).

Remarks.- Records good except those for period of no gage-height record, which are poor. Diversions above station for irrigation, and since 1927 for Medford municipal supply. No regulation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 25 to Sept. 30)

0.5	54	1.2	243
.6	72	1.4	334
.7	93	1.7	505
.8	117	2.0	695
1.0	172	2.5	1,040

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	100	89	110	105	247	282	296	310	149	115	103
2	68	95	85	277	103	239	366	282	256	143	112	103
3	68	89	95	205	93	216	371	300	360	140	112	103
4	68	91	95	412	a100	198	350	324	334	140	112	103
5	68	93	91	310	a95	198	329	305	305	152	110	100
6	68	93	89	578	a85	198	315	305	315	152	110	98
7	68	89	91	1,030	a90	182	286	310	256	143	110	98
8	68	89	93	728	a100	188	273	305	273	135	110	98
9	70	89	93	523	a120	209	277	286	269	135	110	93
10	74	87	89	422	103	192	273	269	264	133	107	93
11	76	89	93	355	98	185	264	256	252	130	105	95
12	74	87	91	296	93	182	247	252	232	130	105	95
13	72	93	91	260	98	182	239	252	228	127	105	95
14	72	98	120	235	98	198	235	235	209	125	105	95
15	76	98	112	213	140	182	264	232	198	122	105	98
16	93	100	103	198	133	188	300	235	192	122	105	98
17	80	93	103	185	127	188	320	273	185	122	105	100
18	78	91	105	172	155	198	320	260	202	122	107	105
19	76	89	100	163	166	213	305	277	192	122	112	103
20	93	89	98	155	155	205	300	273	216	122	107	100
21	91	87	103	149	372	205	315	277	228	120	105	100
22	82	85	103	143	714	252	320	269	198	117	107	103
23	80	85	98	138	529	269	305	264	188	120	117	105
24	78	82	98	135	428	273	305	277	179	120	110	107
25	76	82	93	127	355	260	305	387	175	117	107	107
26	76	82	93	122	345	235	286	371	169	117	105	107
27	76	82	95	112	315	235	286	366	160	117	103	103
28	78	85	100	112	296	235	305	345	155	115	103	103
29	87	85	105	110	269	247	291	345	140	115	103	103
30	87	85	98	112	-	277	296	329	149	115	103	100
31	80	-	95	107	-	277	-	324	-	115	103	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,368	93	67	76.4	4,700
November	2,682	100	82	89.4	5,320
December	3,007	120	85	97.0	5,960
Calendar year 1947	40,468	315	67	111	80,270
January	8,194	1,030	107	264	16,250
February	5,880	714	85	203	11,660
March	6,753	277	182	218	13,390
April	8,930	371	235	298	17,710
May	9,081	387	232	293	18,010
June	6,869	360	140	229	13,620
July	3,954	152	115	128	7,840
August	3,335	117	103	108	6,610
September	3,014	107	93	100	5,980
Water year 1947-48	64,067	1,030	67	175	127,000

Peak discharge (base, 350 sec.-ft.).- Jan. 4 (9 a.m.) 547 sec.-ft.; Jan. 7 (10 a.m.) 1,240 sec.-ft; Feb. 22 (4:30 a.m.) 774 sec.-ft.; Apr. 2 (10 p.m.) 399 sec.-ft.; May 25 (5 to 9 a.m.) 404 sec.-ft.; June 3 (9 a.m.) 387 sec.-ft.

a No gage-height record; discharge computed on basis of records for South Fork Little Butte Creek and North Fork Little Butte Creek near Lake Creek and Big Butte Creek near McLeod.

Big Butte Creek near McLeod, Oreg.

Location.- Staff gage, lat. 42°39', long. 122°41', in NW¼ sec. 3, T. 34 S., R. 1 E., at bridge on county road 1 mile upstream from mouth and 1 mile south of McLeod. Datum of gage is 1,526.48 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Records available.- October 1945 to September 1948.

Extremes.- Maximum discharge during year, 4,680 second-feet Jan. 7 (gage height, 9.4 feet, from floodmark), from rating curve extended above 2,700 second-feet by logarithmic plotting; minimum observed, 72 second-feet Oct. 4.
1945-48: Maximum discharge, that of Jan. 7, 1948; minimum observed, 70 second-feet Sept. 23, 1947.

Remarks.- Records good. Staff gage read twice daily. Slight regulation by fish hatchery 200 yards above station. Several diversions in vicinity of Butte Falls, the two largest being the city of Medford diversion and the Eagle Point Irrigation District canal.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	281	184	306	213	533	533	582	414	179	113	97
2	73	213	171	928	201	516	652	526	382	176	111	101
3	75	193	213	512	184	466	708	603	428	174	109	101
4	73	195	201	1,420	213	446	676	596	410	174	109	99
5	75	207	184	712	207	432	684	550	376	a180	109	97
6	75	207	179	2,230	187	424	642	544	396	195	111	97
7	77	187	a180	3,380	190	404	578	544	376	179	111	97
8	78	190	234	1,680	250	460	530	550	348	174	111	97
9	97	179	219	1,100	312	494	533	512	326	168	111	93
10	158	174	201	860	244	428	533	480	326	164	109	93
11	154	184	213	704	216	418	558	452	312	156	105	93
12	146	184	201	614	219	404	508	424	292	158	105	97
13	141	216	187	536	201	410	474	410	298	156	105	97
14	144	213	292	480	207	449	466	393	267	174	105	97
15	154	225	257	435	393	410	488	376	244	148	105	97
16	210	219	225	410	320	407	536	368	238	139	103	101
17	174	204	225	376	302	418	558	404	222	139	103	105
18	146	195	231	348	354	418	575	396	260	139	107	113
19	139	190	222	323	368	452	530	435	247	139	109	109
20	182	179	219	309	348	442	522	421	344	134	107	109
21	184	179	216	292	1,300	452	544	428	312	134	109	105
22	161	174	234	284	1,890	634	575	404	257	130	107	111
23	154	168	219	274	1,200	648	540	379	238	130	117	119
24	154	164	207	254	888	620	530	376	225	125	111	130
25	148	164	195	250	750	592	530	494	219	121	105	125
26	148	164	190	238	712	536	502	456	207	123	103	125
27	139	164	190	219	656	516	480	442	207	121	101	121
28	164	a170	213	219	670	502	620	474	190	117	101	121
29	174	184	231	219	586	512	530	452	187	117	101	125
30	179	184	219	219	-	561	586	442	179	117	99	121
31	164	-	201	219	-	544	-	480	-	117	97	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,213	210	73	136	8,360
November	5,750	281	164	192	11,400
December	6,553	292	171	211	13,000
Calendar year 1947	69,979	736	72	192	138,800
January	20,350	3,380	219	656	40,360
February	13,781	1,890	184	475	27,330
March	14,948	648	404	482	29,650
April	16,721	708	466	557	33,170
May	14,393	603	368	464	28,550
June	8,727	428	179	291	17,310
July	4,597	195	117	148	9,120
August	3,309	117	97	107	6,560
September	3,193	130	93	106	6,330
Water year 1947-48	116,535	3,380	73	318	231,100

a No gage-height record; discharge computed on basis of records for South Fork Big Butte Creek near Butte Falls and Elk Creek near Trail.

Elk Creek near Trail, Oreg.

Location.- Staff gage, lat. 42°40', long. 122°45', in SE¼ (corrected) sec. 30, T. 33 S. R. 1 E., 0.7 mile upstream from mouth and 3½ miles northeast of Trail. Datum of gage is 1,468.70 feet above mean sea level, datum of 1929, supplementary adjustment of 19

Drainage area.- 133 square miles.

Records available.- November 1945 to September 1948.

Extremes.- Maximum discharge during year, 7,960 second-feet Jan. 6 (gage height, 11.7 feet, from floodmark); minimum observed, 4.0 second-feet Oct. 1.
1945-48: Maximum discharge, 9,880 second-feet Dec. 28 (corrected) 1945, (gage height, 13.2 feet, from floodmark, present site and datum), from rating curve extende above 6,600 second-feet by logarithmic plotting; minimum observed, 0.9 second-foot Aug. 29, 1946.

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are poor. Staff gage read twice daily. No regulation. Several small diversio above station for irrigation.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 9 to July 1, July 16 to Sept. 30)

0.5	3.5	1.4	60	4.0	790
.6	6.0	1.7	101	4.5	1,080
.7	9.5	2.0	152	5.5	1,760
.8	14	2.5	255	7.0	2,980
1.0	26	3.0	395	8.5	4,400
1.2	41	3.5	570	9.7	5,690

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	206	86	156	85	292	374	341	138	56	13	6.0
2	5.0	212	.82	1,920	76	270	416	320	114	50	12	6.0
3	5.0	197	104	1,080	73	242	453	317	136	46	12	6.7
4	5.5	193	163	1,840	76	218	416	395	138	46	14	7.4
5	6.0	177	150	1,030	75	210	416	371	122	53	12	6.0
6	6.0	235	129	5,610	67	253	392	365	117	58	10	4.5
7	6.0	233	127	4,960	65	290	365	311	111	47	11	4.5
8	5.8	338	127	2,080	86	298	347	311	112	42	12	6.7
9	6.7	368	154	978	156	347	383	285	111	39	12	5.8
10	35	242	152	672	136	353	450	262	112	39	12	5.2
11	33	204	141	495	117	308	425	233	119	37	11	5.0
12	25	248	150	398	112	262	383	227	115	34	11	5.0
13	18	246	179	329	106	246	353	218	107	34	11	5.0
14	15	314	392	275	101	253	398	179	111	30	10	5.8
15	33	413	329	244	371	255	502	179	106	28	7.8	5.2
16	458	502	260	216	422	262	523	199	104	27	7.8	5.5
17	134	401	248	199	410	272	481	204	106	27	7.8	5.5
18	78	300	280	179	304	278	476	208	141	27	7.8	5.5
19	54	248	292	160	304	270	432	202	a130	26	7.8	6.4
20	165	204	260	148	332	270	401	193	a180	23	7.4	7.0
21	216	175	237	131	1,770	280	425	183	a160	23	7.4	6.4
22	111	152	237	124	2,680	422	492	179	127	22	8.1	6.7
23	67	127	225	119	1,190	542	484	183	114	21	8.8	7.4
24	48	107	197	111	659	498	492	183	98	20	8.4	11
25	39	98	173	109	498	407	416	206	83	18	8.1	14
26	32	95	148	101	506	347	392	212	75	15	7.0	13
27	30	89	132	95	450	347	d370	206	65	15	7.0	11
28	35	88	150	89	389	401	d360	189	59	15	6.4	9.5
29	82	82	160	85	329	425	356	173	54	15	6.7	8.8
30	106	82	156	83	-	512	d350	156	73	15	7.4	8.4
31	78	-	141	80	-	453	-	147	-	14	6.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,942.2	458	4.2	62.7	0.471	0.54	3,850
November	6,576	502	82	219	1.65	1.84	13,040
December	5,761	392	82	186	1.40	1.61	11,430
Calendar year 1947	49,456.1	2,100	3.8	135	1.02	13.83	98,100
January	24,096	5,610	80	777	5.84	6.74	47,790
February	11,945	2,680	65	412	3.10	3.34	23,690
March	10,083	542	210	325	2.44	2.82	20,000
April	12,525	523	347	418	3.14	3.50	24,840
May	7,337	395	147	237	1.78	2.05	14,550
June	3,338	180	54	111	.835	.93	6,620
July	962	58	14	31.0	.233	.27	1,910
August	291.4	14	6.4	9.40	.071	.08	578
September	210.9	14	4.5	7.03	.053	.06	418
Water year 1947-48	85,067.6	5,610	4.2	232	1.74	23.78	168,700

a No gage-height record; discharge computed on basis of weather records and records for South Umpqua River at Tiller.
d Douhtful gage-height record; discharge computed as explained in footnote a.

South Fork Little Butte Creek near Lake Creek, Oreg.

Location.- Water-stage recorder, lat. 42°25', long. 122°36', in SE¼ sec. 29, T. 36 S., R. 2 E., a quarter of a mile upstream from intake of Rogue River Valley Canal and 1½ miles southeast of Lake Creek post office.

Records available.- April 1921 to September 1948. November 1910 to April 1913 at site in sec. 11, T. 37 S., R. 2 E., 5 miles above Lake Creek.

Average discharge.- 28 years (1911-12, 1921-48), 97.4 second-feet.

Extremes.- Maximum discharge during year, 3,920 second-feet Jan. 7 (gage height, 6.48 feet), from rating curve extended above 350 second-feet by logarithmic plotting; minimum, 12 second-feet Oct. 1 (gage height, 1.24 feet).
1910-13, 1921-48: Maximum discharge, that of Jan. 7, 1948; minimum, 2 second-feet Aug. 10, 1931 (gage height, 0.97 foot).

Remarks.- Records good except those above 1,000 second-feet, and those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Revisions (water years).- W 934: 1925(M).

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	35	42	121	57	162	226	362	508	79	30	21
2	13	38	45	378	50	146	325	320	508	73	28	20
3	13	38	66	198	b45	129	320	346	508	73	27	20
4	13	61	68	1,070	50	118	275	357	472	68	26	20
5	13	61	54	579	50	112	255	352	436	73	27	20
6	13	52	50	1,660	b45	112	235	384	460	79	25	19
7	14	47	47	2,480	b45	109	212	408	412	68	27	18
8	14	49	61	1,070	47	129	190	379	372	61	27	18
9	15	52	68	720	50	182	204	346	356	59	28	17
10	18	42	57	534	48	136	204	325	328	55	27	18
11	21	45	66	420	42	115	212	315	290	51	a26	18
12	19	52	61	330	b40	109	182	325	255	49	a25	18
13	17	61	59	275	42	106	178	325	231	49	a25	18
14	16	78	164	240	42	136	222	320	204	47	a24	18
15	18	66	114	186	60	129	346	315	187	43	a23	18
16	33	86	86	178	64	126	362	325	171	43	22	19
17	26	66	83	162	64	129	379	384	155	42	21	25
18	20	61	80	143	91	140	414	408	167	40	25	26
19	18	57	75	122	91	162	414	438	163	36	47	21
20	34	49	70	115	74	140	444	414	213	34	31	21
21	33	47	73	106	228	140	468	498	213	34	27	21
22	24	38	70	97	498	259	462	450	167	36	30	24
23	21	38	66	88	285	240	420	438	144	34	36	28
24	19	38	59	80	204	217	426	492	130	34	30	31
25	18	35	54	71	182	186	438	756	120	34	27	30
26	18	34	54	60	255	162	390	700	111	34	26	28
27	18	33	54	59	240	162	374	682	101	34	24	26
28	20	32	70	62	204	186	432	628	92	34	22	25
29	22	32	75	59	182	190	374	574	86	32	24	24
30	22	32	70	60	-	226	390	538	84	31	24	22
31	20	-	66	57	-	204	-	538	-	31	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	595	34	12	19.2	1,180
November	1,455	86	32	48.5	2,890
December	2,127	164	42	68.6	4,220
Calendar year 1947	23,820	318	10	65.3	47,250
January	11,780	2,480	57	380	23,370
February	3,375	498	40	116	6,690
March	4,799	259	106	155	9,520
April	9,773	468	178	326	19,380
May	13,442	756	315	434	26,660
June	7,644	508	84	255	15,160
July	1,490	79	31	48.1	2,960
August	833	47	21	26.9	1,650
September	652	31	17	21.7	1,290
Water year 1947-48	57,965	2,480	12	158	115,000

Peak discharge (base, 500 sec.-ft.).- Jan. 4 (9 a.m.) 2,120 sec.-ft.; Jan. 7 (8 a.m.) 3,920 sec.-ft.; Feb. 22 (2 a.m.) 564 sec.-ft.; Apr. 20 (11 p.m.) 510 sec.-ft.; May 25 (1 a.m.) 882 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Fork Little Butte Creek near Lake Creek and South Fork Big Butte Creek near Butte Falls.

b Stage-discharge relation affected by ice.

Little Butte Creek below Eagle Point, Oreg.

Location.- Staff gage, lat. 42°27'45", long. 122°48'45", in SW¼ sec. 3, T. 36 S., R. 1 W., 300 feet upstream from State Highway 62, 1 mile southwest of Eagle Point, and 3½ miles upstream from mouth.

Records available.- May 1924 to September 1926 (irrigation season only), October 1945 to September 1948. July 1907 to April 1916 at site 2½ miles upstream.

Extremes.- Maximum discharge during year, 10,000 second-feet Jan. 7 (gage height, 11.4 feet, from floodmark), by slope-area method; minimum, 9.8 second-feet July 28.
1907-16, 1924-26, 1945-48: Maximum discharge, that of Jan. 7, 1948; minimum observed, 5.1 second-feet Sept. 18, 1924.

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are poor. Gage read twice daily. Flow regulated by Fish Lake Reservoir. Diversions above station for irrigation. Since September 1923 water has been diverted by Cascade Canal from Fourmile Lake, in Klamath River Basin, into Fish Lake Basin.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Sept. 22-30)

Oct. 1 to Jan. 7

0.3	18	1.8	203	4.5	1,580
.5	25	2.1	308	5.0	2,000
.7	36	2.5	475	6.0	2,950
.9	52	3.0	700	7.0	4,000
1.2	85	3.5	940	8.3	5,590
1.5	130	4.0	1,230		

Jan. 8 to Sept. 30

0.1	11	1.0	66	2.2	361
.3	18	1.2	93	2.6	515
.5	27	1.5	149	3.2	790
.7	40	1.8	229		

Note.- Same as preceding table above 3.2 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	125	81	a260	a125	316	372	810	569	46	a14	24
2	22	a80	92	1,050	107	295	528	a620	533	45	14	21
3	37	62	158	475	100	260	582	528	578	39	22	2?
4	26	115	152	2,360	107	229	a535	582	524	32	20	2?
5	a25	148	112	790	100	229	491	499	475	a48	23	a2?
6	24	113	108	3,180	98	235	520	542	a510	64	19	2?
7	29	93	a110	5,590	95	a230	416	542	459	42	19	2?
8	33	92	203	1,480	a120	408	375	538	416	36	a20	2?
9	35	a97	175	910	163	546	375	a500	375	34	21	21
10	42	75	142	672	159	319	408	451	365	32	17	20
11	41	85	142	538	115	273	a420	443	393	a26	22	21
12	a32	100	132	424	103	260	401	451	299	19	18	a2?
13	26	118	115	379	102	266	354	405	a280	17	17	2?
14	23	160	a320	326	105	a360	344	393	266	19	16	24
15	26	122	227	289	a190	330	447	379	235	16	a18	2?
16	85	a130	155	266	176	286	524	a380	212	18	19	25
17	46	107	140	238	154	319	551	455	178	14	20	30
18	37	104	134	a219	220	289	a580	479	203	a16	19	33
19	a35	100	125	200	212	451	546	600	223	17	54	a30
20	92	90	118	184	171	379	546	507	a400	17	29	28
21	66	88	a138	176	935	a400	600	623	358	16	28	26
22	44	79	132	168	a1,660	880	582	538	235	20	a30	32
23	38	a77	123	156	641	760	560	a500	189	16	39	35
24	36	75	108	151	424	605	533	533	163	18	26	43
25	34	71	a104	a137	d350	538	a560	790	136	a18	26	51
26	a34	70	101	123	471	405	511	726	124	18	26	a46
27	35	a68	98	115	455	372	507	713	a107	18	25	40
28	42	66	a160	123	435	a380	930	700	90	12	24	41
29	46	66	181	121	a370	383	700	632	70	15	a24	37
30	45	a66	150	123	-	416	731	a600	71	13	23	34
31	43	-	123	121	-	386	-	596	-	14	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,199	92	20	38.7	2,380
November	2,842	160	62	94.7	5,640
December	4,359	320	81	141	8,650
Calendar year 1947	39,482	745	12	108	78,330
January	21,344	5,590	115	689	42,340
February	8,463	1,660	95	292	16,790
March	11,805	880	229	381	23,410
April	15,529	930	344	518	30,800
May	17,055	810	379	550	33,830
June	9,036	578	70	301	17,920
July	775	64	12	25.0	1,540
August	718	54	14	23.2	1,420
September	862	51	20	28.7	1,710
Water year 1947-48	93,987	5,590	12	257	186,400

a No gage-height record: discharge computed on basis of combined flow of North Fork and South Fo Little Butte Creek near Lake Creek, or by interpolation.
d Doubtful gage-height record; discharge computed as explained in footnote a.

North Fork Little Butte Creek at Fish Lake, near Lake Creek, Oreg.

Location.- Water-stage recorder, lat. 42°23', long. 122°21', in S½ sec. 4, T. 37 S., R. 4 E., half a mile downstream from outlet of Fish Lake and 14 miles east of Lake Creek post office.

Drainage area.- 18 square miles.

Records available.- October 1914 to September 1948.

Average discharge.- 33 years (1915-48), 32.7 second-feet.

Extremes.- Maximum discharge during year, 132 second-feet Aug. 1 (gage height, 1.57 feet); minimum, 0.5 second-foot Oct. 13-26.
1914-48: Maximum discharge, 158 second-feet July 10, 1930; no flow at times.

Remarks.- Records good June to September, fair October to May. Flow regulated by Fish Lake Reservoir. Since September 1923 water has been diverted by Cascade Canal from Fourmile Lake, in Klamath River Basin, into Fish Lake Basin. No diversion from creek above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

-0.1	0.2	0.5	7.2	1.1	48
0.0	.7	.6	11	1.2	61
.1	1.5	.7	15	1.3	77
.2	2.4	.8	21	1.4	98
.3	3.5	.9	28	1.6	139
.4	5.0	1.0	37		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	2.0	5.0	8.5	12	14	14	20	41	44	126	63
2	9.0	2.0	5.5	9.0	12	14	15	20	41	44	128	63
3	9.5	2.0	a5.5	9.0	12	14	15	21	42	44	126	63
4	9.5	2.0	a6.0	10	12	14	15	21	42	42	128	61
5	9.5	2.5	a6.0	10	12	14	15	22	44	42	128	61
6	9.5	2.5	6.0	10	12	14	15	22	42	41	126	60
7	9.5	2.5	6.0	12	12	14	15	22	42	41	124	60
8	9.5	3.0	6.5	12	12	14	15	22	42	41	124	61
9	9.5	2.5	6.5	11	12	14	15	23	44	41	121	74
10	10	3.0	6.5	11	12	14	15	24	44	41	128	74
11	5.0	3.0	7.0	11	12	14	15	25	44	41	126	83
12	1.0	3.0	7.0	11	12	14	15	25	45	51	126	88
13	.5	3.5	7.0	11	12	14	15	26	45	90	121	88
14	.5	3.5	7.0	11	12	14	15	26	45	90	119	86
15	.5	4.0	a7.0	11	12	14	16	27	45	88	119	86
16	.5	4.0	a7.0	11	12	13	16	28	45	100	121	81
17	.5	4.0	a7.0	11	12	13	16	29	45	106	121	74
18	.5	4.0	a7.5	11	12	13	16	30	45	106	117	64
19	.5	4.0	a7.5	12	12	13	18	30	45	106	113	48
20	.5	4.0	7.5	12	12	14	18	31	46	109	104	42
21	.5	4.0	7.5	12	13	14	18	31	46	113	104	42
22	.5	a4.0	a7.5	12	13	14	19	32	46	113	100	30
23	.5	a4.5	a7.5	12	13	14	18	32	45	113	88	25
24	.5	4.5	a8.0	12	13	14	18	35	46	117	81	25
25	.5	4.5	a8.0	12	13	14	18	37	45	117	81	18
26	.5	5.0	a8.0	12	14	14	19	38	45	117	79	12
27	1.0	5.0	8.0	12	14	14	19	40	44	117	71	12
28	1.0	5.0	8.0	12	14	14	20	40	44	119	64	12
29	1.0	5.0	8.0	12	14	14	20	40	44	121	61	12
30	1.0	5.0	8.0	12	-	14	20	40	44	126	61	13
31	1.5	-	8.0	12	-	14	-	40	-	126	61	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	113.0	10	0.5	3.65	224
November	107.5	5.0	2.0	3.58	213
December	217.5	8.0	5.0	7.02	431
Calendar year 1947	11,982.0	135	0.5	32.8	23,760
January	346.5	12	8.5	11.2	687
February	361	14	12	12.4	716
March	430	14	13	13.9	853
April	497	20	14	16.6	986
May	899	40	20	29.0	1,780
June	1,323	46	41	44.1	2,620
July	2,607	126	41	84.1	5,170
August	3,297	128	61	106	6,540
September	1,581	88	12	52.7	3,140
Water year 1947-48	11,779.5	128	0.5	32.2	23,360

a No gage-height record; discharge interpolated.

North Fork Little Butte Creek near Lake Creek, Oreg.

Location.- Water-stage recorder, lat. 42°24', long. 122°32', in SW¼ sec. 25, T. 36 S., R 2 E., a quarter of a mile upstream from point of diversion of Hanley South Canal and 4½ miles east of Lake Creek post office. Datum of gage is 2,125.01 feet above mean s level, datum of 1929.

Records available.- September 1911 to March 1913, May 1922 to September 1928 (incomplete and October 1931 to September 1948 in reports of Geological Survey. September 1911 t March 1913 and May 1922 to September 1941, in reports of State engineer.

Average discharge.- 22 years (1911-12, 1922-23, 1928-48), 66.6 second-feet.

Extremes.- Maximum discharge during year, 464 second-feet Jan. 7 (gage height, 3.04 feet from rating curve extended above 160 second-feet; minimum, 20 second-feet Oct. 12-15, 17-28, 30, 31.

1911-13, 1922-28, 1931-48: Maximum discharge, 680 second-feet Dec. 30, 1924 (gage height, 3.30 feet), from rating curve extended above 170 second-feet; minimum, 11 sec ond-feet (computed on basis of records for station at Fish Lake, near Lake Creek) Oct. 29 to Nov. 8, 1931.

Remarks.- Records good Flow regulated by Fish Lake Reservoir. Small diversions above station for irrigation; some water diverted into Fish Lake from Fourmile Lake, in Klamath River Basin, since September 1923.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6				Jan. 7 to Sept. 30			
1.4	16	1.8	53	1.8	30	2.1	75
1.5	21	1.9	69	1.9	42	2.3	125
1.6	29	2.0	90	2.0	57	2.5	190
1.7	40	2.2	148				

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	27	29	68	48	70	84	91	114	77	146	8
2	29	24	28	67	46	64	91	84	128	77	152	8
3	28	27	41	49	46	61	93	86	131	77	149	8
4	28	29	33	124	46	59	89	86	122	77	158	8
5	28	29	31	66	46	59	86	84	117	80	158	8
6	28	28	30	98	46	61	84	86	112	77	152	8
7	28	27	31	185	46	59	80	89	103	75	152	8
8	28	27	37	106	48	66	77	91	98	75	149	8
9	29	26	37	82	50	80	80	86	96	75	149	9
10	30	25	33	75	48	68	82	86	98	75	155	9
11	27	30	34	73	48	64	84	84	96	75	152	10
12	20	28	34	68	46	62	80	84	96	80	149	11
13	20	33	38	64	46	64	75	84	91	117	143	11
14	20	32	52	62	46	71	77	82	86	131	143	11
15	20	31	41	61	54	71	82	82	86	120	143	10
16	24	29	38	59	52	70	84	84	84	134	146	10
17	20	28	39	57	51	68	89	89	84	137	146	10
18	20	28	38	56	59	71	91	89	86	137	146	9
19	20	27	37	54	56	73	89	103	84	134	140	8
20	27	27	37	52	52	71	91	98	117	137	134	7
21	20	27	38	52	91	71	91	101	96	140	131	7
22	20	27	37	51	109	86	93	98	89	137	134	6
23	20	27	37	51	84	84	91	98	86	134	120	5
24	20	27	36	50	75	82	91	109	84	143	109	5
25	20	27	34	48	71	82	89	134	84	140	109	5
26	20	27	34	48	84	77	86	122	82	137	106	4
27	20	27	34	48	80	77	86	122	82	137	96	4
28	20	27	40	46	75	77	89	120	82	140	91	4
29	21	27	40	46	71	80	86	120	80	140	91	4
30	20	27	38	46	-	84	98	117	80	146	91	4
31	20	-	37	46	-	82	-	120	-	146	89	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	723	30	20	23.3	1,43
November	832	33	24	27.7	1,65
December	1,123	52	28	36.2	2,23
Calendar year 1947	22,009	159	20	60.3	43,66
January	2,058	185	46	66.4	4,08
February	1,720	109	46	59.3	3,41
March	2,214	86	59	71.4	4,39
April	2,588	98	75	86.3	5,13
May	3,009	134	82	97.1	5,97
June	2,874	131	80	95.8	5,70
July	3,507	146	75	113	6,96
August	4,129	158	89	133	8,19
September	2,416	114	41	80.5	4,79
Water year 1947-48	27,193	185	20	74.3	53,93

Diversions from Little Butte Creek near Lake Creek, Oreg.

The following canals divert water from Little Butte Creek and its tributaries near Lake Creek post office:

Hanley South and Hanley North Canals, from North Fork in SE¼ (corrected) sec. 26, T. 36 S., R. 2 E. Water used for irrigation of land on both sides of Little Butte Creek near Lake Creek.

Rogue River Valley Canal, from South Fork in SE¼ sec. 29, T. 36 S., R. 2 E., and from North Fork in NE¼ sec. 20, T. 36 S., R. 2 E. Water used for irrigation of about 15,000 acres of land, chiefly in Bear Creek Basin, on both sides of that creek below Phoenix.

Eagle Point Canal, from main stream in SE¼ sec. 31, T. 35 S., R. 1 E. Water used for irrigation of lands near Eagle Point.

Records for Hanley South and North Canals and Eagel Point Canal are partly estimated.

Records for these canals, published as a group, are available from April 1929 to September 1948; records for some of the canals published separately prior to 1929.

Many smaller canals divert from Little Butte Creek and its tributaries.

Diversions, in acre-feet, water year October 1947 to September 1948

Month	Hanley South Canal	Hanley North Canal	Rogue River Valley Canal below junction of intakes	Eagle Point Canal
October	-	-	c851	e639
November	-	-	-	-
December	-	-	-	-
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	d780	-
May	-	-	4,010	f674
June	-	-	4,890	952
July	a237	a486	8,190	928
August	337	706	7,870	926
September	b238	b459	4,440	b754

a July 12-31.
b Sept. 1-24.
c Oct. 1-20.
d Apr. 22-30.
e Oct. 1-27.
f May 12-31.

Bear Creek at Medford, Oreg.

Location.- Water-stage recorder, lat. 42°19', long. 122°52', in NW¼ sec. 30, T. 37 S., R. 1 W., just upstream from Main Street Bridge in Medford. Prior to Dec. 21, 1947, at sit 40 feet upstream at same datum. Datum of gage is 1,343.47 feet above mean sea level, datum of 1929.
Records available.- March 1915 to September 1948 (incomplete prior to April 1927).
Average discharge.- 27 years (1920-26, 1927-48), 80.0 second-feet.
Extremes.- Maximum discharge during year, 6,810 second-feet Jan. 7 (gage height, 6.94 feet from floodmark); minimum, 3.8 second-feet Oct. 1.
1915-48: Maximum discharge, 10,200 second-feet Feb. 20, 1927 (gage height, 10.57 feet, site then in use), from rating curve extended above 1,600 second-feet; practicall no flow at times,
Remarks.- Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation. Flow partly regulated since December 1924 by Emigrant Cap Reservoir.
Revisions (water years).- W 1044: 1944.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-10, Nov. 2 to Dec. 1)

Oct. 1 to Dec. 30

0.2	4.2	0.5	34	0.3	10	0.8	92	2.5	910
.3	12	.6	49	.4	21	1.0	145	3.0	1,330
.4	20	.7	68	.5	34	1.3	245	4.0	2,330
				.6	51	1.6	370	5.0	3,570
				.7	70	2.0	590	5.6	4,460

Dec. 31 to Sept. 30

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.9	27	46	37	83	164	265	519	238	66	18	19
2	7.1	34	68	179	79	148	325	431	217	60	13	18
3	12	36	46	137	74	131	334	395	203	49	14	16
4	12	48	46	612	77	125	309	405	193	51	16	16
5	12	57	42	370	74	125	285	356	186	79	16	14
6	12	46	34	1,400	66	151	269	343	217	102	14	12
7	12	43	31	g4,380	64	151	245	325	186	83	17	12
8	15	37	33	1,600	68	179	217	309	179	66	16	12
9	16	43	36	826	70	228	210	285	183	57	16	11
10	17	42	37	608	74	183	214	257	207	39	17	10
11	17	40	34	502	68	164	214	231	196	25	17	13
12	16	40	34	436	66	145	210	210	200	21	19	17
13	16	43	36	348	68	139	200	a205	214	16	22	18
14	17	49	64	200	70	145	196	a195	190	13	28	12
15	19	48	68	179	79	148	257	a190	179	13	25	13
16	42	51	53	160	102	139	305	a190	179	10	20	18
17	33	51	48	148	110	145	297	a195	170	11	18	19
18	34	46	48	137	114	154	277	a220	179	12	19	
19	30	44	44	128	117	167	273	a250	173	13	25	
20	33	42	42	123	107	164	269	a290	203	14	25	
21	31	40	40	125	154	164	293	a350	237	10	26	
22	26	37	43	125	395	269	309	a310	217	8.8	29	
23	25	34	38	123	305	420	285	a290	196	8.8	60	
24	25	34	37	117	217	375	297	269	176	8.8	57	a20
25	23	34	36	110	200	338	313	257	148	8.8	53	
26	22	34	36	94	200	305	277	238	128	10	48	
27	22	36	36	88	200	366	257	228	100	12	33	
28	25	36	40	85	186	375	375	249	83	12	29	
29	25	36	40	90	173	330	400	228	66	13	29	
30	25	34	38	88	-	313	453	234	83	18	24	
31	22	-	34	88	-	277	-	245	-	62	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	648.0	42	4.9	20.9	1,290
November	1,222	57	27	40.7	2,420
December	1,308	68	31	42.2	2,590
Calendar year 1947	13,811.2	319	4.2	37.8	27,400
January	13,843	4,380	37	447	27,460
February	3,660	395	64	126	7,260
March	6,627	420	125	214	13,140
April	8,430	453	196	281	16,720
May	8,699	519	190	281	17,250
June	5,346	257	66	178	10,600
July	972.2	102	8.8	31.4	1,930
August	785	60	13	25.3	1,560
September	510	-	10	17.0	1,010
Water year 1947-48	52,050.2	4,380	4.9	142	103,200

Peak discharge (base, 400 sec.-ft.).- Jan. 4 (2:30 p.m.) 1,700 sec.-ft.; Jan. 7 (about 1 p.m.) 6,810 sec.-ft.; Feb. 22 (10 a.m.) 442 sec.-ft.; Mar. 22 (8 p.m.) 486 sec.-ft.; May 1 (3 a.m.) 602 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for Emigrant Creek below Walker Creek, near Ashland.
g Computed from graph base[illegible] gage readings.

Diversions in Bear Creek Basin, Oreg.

The following canals divert from streams in Bear Creek Basin:

Ashland lateral of Talent Irrigation District, from Sampson Creek in SW¼ sec. 26, T. 39 S., R. 2 E. Water used to irrigate lands near Ashland. Most of flow is received from Keene Creek, in Klamath River Basin, through Keene Creek Canal.

East lateral of Talent Irrigation District, from Emigrant Gap Reservoir in SE¼ sec. 20, T. 39 S., R. 2 E. Water used to irrigate lands mostly on east side of Bear Creek above Medford.

Talent lateral of Talent Irrigation District, from Bear Creek in SW¼ sec. 33, T. 38 S., R. 1 E. Water used to irrigate lands near Talent.

Phoenix Canal, from Bear Creek in NW¼ sec. 23, T. 38 S., R. 1 W. Water supplements flow of Medford Irrigation District Canal, used to irrigate lands west of Bear Creek.

Bear Creek Canal, from Bear Creek at Medford. Water used to irrigate lands west of Bear Creek near Central Point.

Records of these canals, published as a group, are available from April 1929 to September 1948; records for some of the canals published separately prior to 1929.

Many smaller canals also divert from Bear Creek and its tributaries.

Diversions, in acre-feet, water year October 1947 to September 1948

Month	Ashland lateral	East lateral	Talent lateral	Phoenix Canal	Bear Creek Canal
October	-	-	-	a1.2	b87
November	-	-	-	-	-
December	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	44	-	c549	-
May	-	597	d407	648	-
June	e50	1,340	717	143	-
July	760	3,750	2,190	981	f744
August	725	3,870	2,220	1,180	1,320
September	504	h1,240	h656	492	g12

a Oct. 1-6.
b Oct. 1-10.
c Apr. 15-30.
d May 8-31.
e June 25-30.
f July 6-31.
g Sept. 1-3.
h Sept. 1-24.

Applegate River near Copper, Oreg.

Location.- Water-stage recorder, lat. 42°03', long. 123°07', in SE¼ sec. 25, T. 40 S., R. 4 W., a quarter of a mile downstream from French Gulch, 1½ miles downstream from Squaw Creek, and 3 miles northeast of Copper store. Datum of gage is 1,759.66 feet above mean sea level, datum of 1929.
Drainage area.- 220 square miles.
Records available.- December 1938 to September 1948.
Extremes.- Maximum discharge during year, 13,400 second-feet Jan. 6 (gage height, 17.84 feet), from rating curve extended above 6,300 second-feet by logarithmic plotting; minimum, 27 second-feet Oct. 5-7 (gage height, 1.00 foot).
1938-48: Maximum discharge, that of Jan. 6, 1948; minimum, 20 second-feet Sept. 23-25, 1939.
Remarks.- Records good except those for periods of no gage-height record, which are fair. About 11 second-feet diverted for irrigation of 482 acres above station in Applegate River Basin; Grand Applegate ditch diverts about 3.3 second-feet around station on left bank. About 21 second-feet for irrigation and 8 second-feet for mining use are diverted at times into Thompson Creek Basin. Several hundred acre-feet normally stored each winter in Squaw Lake for irrigation the following summer.
Revisions.- W 1064: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 25 to Feb. 14)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30					
1.0	27	2.1	178	6.0	2,170	1.4	59	2.2	184	4.0	850
1.1	35	2.5	275	8.0	3,780	1.5	69	2.5	255	5.0	1,500
1.2	45	3.0	435	12.0	7,210	1.6	82	3.0	405	6.5	2,650
1.5	81	4.0	835	16.0	11,200	1.9	127	3.5	600	8.0	3,850
1.8	124	5.0	1,440								

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	380	a145	244	295	433	416	600	1,010	262	106	66
2	28	350	a140	956	280	408	476	580	1,110	248	104	66
3	28	299	150	573	268	380	436	822	1,070	238	100	65
4	28	a270	139	1,850	268	364	422	964	958	238	100	64
5	27	a240	a130	1,320	258	364	412	940	1,010	270	98	65
6	27	a230	a128	10,600	242	352	384	1,090	1,060	272	93	64
7	31	222	a125	9,220	238	337	367	1,000	952	238	89	63
8	50	218	a122	3,490	270	337	370	822	922	220	89	63
9	127	208	a120	2,000	255	331	412	740	868	206	92	63
10	163	187	a115	1,490	240	316	416	700	812	202	92	62
11	126	185	a112	1,230	228	307	405	710	720	193	86	62
12	81	174	111	1,030	223	307	394	768	681	184	83	59
13	69	176	a111	898	220	301	408	751	622	176	85	56
14	62	174	a130	800	220	298	532	690	564	171	86	55
15	339	196	h129	715	364	286	958	735	532	165	85	58
16	1,160	198	a126	663	336	295	1,140	904	512	161	83	60
17	418	185	a135	614	358	286	1,110	928	476	161	82	68
18	275	180	a140	568	419	275	982	812	548	152	82	70
19	202	172	a150	532	402	270	922	746	504	144	82	65
20	295	a160	a145	492	358	260	958	690	512	139	81	64
21	299	h155	a143	468	544	260	1,110	790	504	136	79	64
22	228	a145	h141	444	1,410	325	1,090	850	448	127	79	65
23	189	a142	a135	422	886	334	958	1,020	412	125	89	77
24	165	a138	131	405	681	346	892	1,260	398	127	81	78
25	146	a135	127	380	596	334	868	1,330	377	124	78	79
26	134	a134	127	358	572	322	790	1,320	355	121	74	79
27	127	a137	127	349	540	334	735	1,370	334	119	72	77
28	143	a135	155	337	500	364	710	1,160	319	119	70	76
29	306	a130	143	328	456	370	658	1,030	295	116	70	74
30	335	a130	134	316	-	388	632	988	275	114	68	73
31	240	-	134	307	-	388	-	988	-	110	68	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,876	1,160	27	190	11,650
November	5,785	380	130	193	11,470
December	4,100	155	111	132	8,130
Calendar year 1947	84,762	2,000	27	232	168,100
January	43,399	10,600	244	1,400	86,080
February	11,927	1,410	220	411	23,660
March	10,272	433	260	331	20,370
April	20,363	1,140	367	679	40,390
May	28,098	1,370	580	906	55,730
June	19,160	1,110	275	639	38,000
July	5,378	272	110	173	10,670
August	2,626	106	68	84.7	5,210
September	2,000	79	55	66.7	3,970
Water year 1947-48	158,984	10,600	27	434	315,300

Peak discharge (base, 1,100 sec.-ft.).- Oct. 16 (3 a.m.) 2,070 sec.-ft.; Jan. 6 (5 p.m.) 13,400 sec.-ft.; Feb. 22 (4:30 a.m.) 1,780 sec.-ft.; May 25 (8 to 10 p.m.) 1,470 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for station near Ruch.
h Computed from staff-gage reading.

Applegate River near Ruch, Oreg.

Location.- Water-stage recorder, lat. 42°11', long. 123°03', in sec. 15, T. 39 S., R. 3 W., at Cameron Bridge, 1½ miles upstream from Little Applegate River and 4½ miles south of Ruch. Datum of gage is 1,475.09 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).
Drainage area.- 297 square miles.
Records available.- June 1911 to September 1914, September 1925 to September 1948.
Average discharge.- 25 years (1911-14, 1925-26, 1927-48), 349 second-feet.
Extremes.- Maximum discharge during year, 14,000 second-feet Jan. 6 (gage height, 12.8 feet); minimum, 29 second-feet Oct. 1-3.
1911-14, 1925-48: Maximum discharge, 20,000 second-feet Feb. 20, 1927 (gage height, 16.0 feet), from rating curve extended above 8,000 second-feet; minimum, 7 second-feet Sept. 2, 1929 (gage height, 0.26 foot).
Remarks.- Records good except those for periods of no gage-height record and those above 10,000 second-feet, which are fair. Diversions above station for irrigation.
Revisions (water years).- W 1064: Drainage area. W 1094: 1946(M).

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

-0.4	24	0.3	139	2.2	1,040
- .3	32	.5	190	3.0	1,690
- .2	43	.8	292	4.0	2,640
- .1	57	1.1	410	6.0	4,970
0.0	75	1.4	540	8.0	7,460
.1	95	1.8	760	12.0	12,900

Jan. 7 to Sept. 30

-0.2	42	0.3	134	1.5	630
- .1	55	.5	195	2.0	940
0.0	70	.8	305	2.5	1,290
.1	88	1.1	430	3.0	1,690

Note.- Same as preceding table above 3.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	a400	146	195	317	448	444	684	1,090	275	103	68
2	29	a350	144	1,030	301	421	510	660	1,200	263	96	66
3	29	a300	144	800	286	394	475	847	1,160	248	96	62
4	30	a270	144	2,130	286	373	462	1,090	1,040	245	96	60
5	30	a240	134	1,460	278	373	452	1,020	1,080	271	94	60
6	30	a230	132	11,500	267	361	421	1,160	1,160	297	92	60
7	30	220	128	10,900	a260	349	403	1,120	1,040	252	88	58
8	46	214	125	4,210	297	345	408	947	1,010	230	84	55
9	106	211	123	2,320	278	341	457	849	968	226	88	56
10	171	193	121	1,650	a265	329	462	804	908	212	92	51
11	156	187	121	1,290	a245	321	457	798	816	202	90	54
12	97	179	116	1,090	230	317	448	862	768	a195	81	52
13	81	176	118	940	230	317	452	862	702	a185	81	50
14	68	176	137	849	230	313	560	774	630	a175	83	50
15	216	193	137	768	349	297	996	798	586	a170	81	52
16	1,320	202	130	690	337	305	1,180	975	565	166	79	55
17	410	187	141	648	357	294	1,160	1,020	520	160	79	61
18	266	182	144	597	408	290	1,040	908	606	154	75	67
19	202	171	153	555	408	286	996	849	575	143	75	60
20	248	163	149	510	357	282	1,010	780	565	140	77	55
21	285	158	146	480	490	278	1,160	888	575	134	75	54
22	220	149	146	457	1,460	349	1,150	940	505	126	77	58
23	187	144	141	439	940	361	1,040	1,090	466	124	83	75
24	166	141	137	421	738	385	982	1,310	439	122	74	83
25	149	139	134	403	624	377	968	1,380	412	124	70	86
26	137	139	134	377	592	369	888	1,390	385	116	66	84
27	130	141	134	365	555	377	836	1,470	361	109	64	81
28	a140	137	158	357	515	403	823	1,240	337	109	64	79
29	a320	132	153	345	470	412	750	1,090	313	112	66	79
30	a340	132	141	337	-	426	714	1,070	290	112	68	75
31	a260	-	141	325	-	426	-	1,070	-	107	70	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,929	1,320	29	191	11,760
November	5,856	400	132	195	11,620
December	4,252	158	116	137	8,430
Calendar year 1947	86,416	2,300	28	237	171,400
January	48,238	11,500	195	1,556	95,680
February	12,370	1,460	230	427	24,540
March	10,919	448	278	352	21,660
April	22,104	1,180	403	737	43,840
May	30,745	1,470	630	992	60,980
June	21,074	1,200	230	702	41,800
July	5,504	297	107	178	10,920
August	2,507	103	64	80.9	4,970
September	1,906	86	50	63.5	3,780
Water year 1947-48	171,404	11,500	29	468	340,000

Peak discharge (base, 1,800 sec.-ft.).- Oct. 16 (4:30 a.m.) 2,380 sec.-ft.; Jan. 4 (9 a.m.) 3,700 sec.-ft.; Jan. 6 (8:30 p.m.) 14,000 sec.-ft.; Feb. 22 (6 a.m.) 1,920 sec.-ft.
a No gage-height record; discharge computed on basis of records for stations near Copper and near Applegate.

Applegate River near Applegate, Oreg.

Location.- Water-stage recorder, lat. 42°14', long. 123°08', in NE¼ sec. 26, T. 38 S., R. 4 W., 0.9 mile downstream from Keeler Creek and 2 miles southeast of Applegate. Datum of gage is 1,285.33 feet above mean sea level, datum of 1929.

Drainage area.- 480 square miles.

Records available.- October 1938 to September 1948.

Average discharge.- 10 years, 439 second-feet.

Extremes.- Maximum discharge during year, 21,200 second-feet Jan. 6 (gage height, 14.20 feet), from rating curve extended above 5,100 second-feet by logarithmic plotting; minimum, 14 second-feet Oct. 5, 6 (gage height, 0.67 foot).
1938-48: Maximum discharge, that of Jan. 6, 1948; minimum, 7 second-feet Sept. 18, 1945 (gage height, 0.30 foot).

Remarks.- Records good. Many diversions above station for irrigation of about 4,000 acres in Applegate River Basin. About 10 second-feet is diverted through Wagner Gap to Bear Creek Basin for several months each year; Fowler-Keeler and Berryman ditches may divert 4.3 and 13.6 second-feet, respectively, around station.

Revisions.- W 1064: Drainage area.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves and moss July 25 to Sept. 30)

0.6	11	2.4	405	5.0	2,580
.8	23	2.8	610	6.0	3,900
1.0	42	3.2	845	8.0	6,860
1.3	81	3.6	1,130	10.0	10,900
1.6	133	4.0	1,480	12.0	15,600
2.0	237	4.5	2,000		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	376	185	188	400	535	530	800	1,280	366	84	55
2	17	420	188	1,100	376	515	599	768	1,440	325	75	54
3	18	343	185	774	356	480	577	925	1,430	312	75	52
4	17	366	191	2,520	361	455	566	1,260	1,250	300	77	50
5	14	339	175	1,720	343	455	566	1,140	1,260	321	80	47
6	17	296	168	14,400	330	445	540	1,370	1,440	356	78	44
7	20	272	160	15,300	316	430	515	1,330	1,260	300	73	43
8	29	254	160	5,270	356	425	510	1,100	1,230	272	68	39
9	70	258	158	2,850	347	420	555	980	1,210	262	74	38
10	191	231	151	2,130	325	395	577	924	1,180	248	78	35
11	199	228	151	1,640	304	395	577	910	1,040	228	81	28
12	124	219	148	1,350	284	390	560	966	987	216	75	26
13	102	216	148	1,170	288	395	560	980	931	204	71	29
14	92	228	162	1,040	284	390	654	884	832	188	74	28
15	146	231	170	938	410	366	1,070	884	774	185	70	31
16	1,570	262	160	858	415	371	1,410	1,070	768	172	63	30
17	550	234	170	800	430	366	1,360	1,160	714	165	60	35
18	343	228	172	744	490	347	1,190	1,040	826	151	55	48
19	254	219	188	692	495	343	1,110	973	783	127	58	50
20	293	207	183	660	440	325	1,140	917	806	118	50	43
21	371	196	175	621	540	316	1,330	1,040	871	125	47	43
22	276	185	183	588	1,590	395	1,350	1,090	762	118	47	46
23	234	178	172	560	1,070	445	1,190	1,280	682	112	55	63
24	204	175	165	540	832	475	1,090	1,570	654	107	53	74
25	180	172	160	520	720	475	1,080	1,690	604	107	53	86
26	168	172	160	480	682	455	994	1,740	555	100	52	84
27	158	175	160	470	648	470	924	1,870	520	94	49	78
28	158	172	188	450	621	505	931	1,550	490	91	48	77
29	265	168	191	435	566	510	858	1,340	440	92	50	77
30	415	168	175	425	-	525	826	1,280	415	92	53	77
31	288	-	170	405	-	525	-	1,270	-	87	57	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,800	1,570	14	219	13,490
November	7,187	420	168	240	14,260
December	5,272	191	148	170	10,460
Calendar year 1947	97,940	2,810	13	268	194,300
January	61,638	15,300	188	1,988	122,300
February	14,619	1,590	284	504	29,000
March	13,339	535	316	430	26,460
April	25,739	1,410	510	858	51,050
May	36,101	1,870	768	1,165	71,610
June	27,454	1,440	415	915	54,450
July	5,941	366	87	192	11,780
August	1,983	84	47	64.0	3,930
September	1,510	86	26	50.3	3,000
Water year 1947-48	207,583	15,300	14	567	411,800

Peak discharge (base, 1,400 sec.-ft.).- Oct. 16 (6:30 a.m.) 2,810 sec.-ft.; Jan. 6 (9 p.m.) 21,200 sec.-ft.; Feb. 22 (8 a.m.) 2,130 sec.-ft.; May 26 (12 p.m.) 1,960 sec.-ft.

Applegate River near Wilderville, Oreg.

Location.- Staff gage, lat. 42°21', long. 123°24', in W½ sec. 15, T. 37 S., R. 6 W., 900 feet downstream from Jackson Creek and 4 miles southeast of Wilderville. Datum of gage is 949.54 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 694 square miles.

Records available.- October 1938 to September 1948.

Average discharge.- 10 years, 623 second-feet.

Extremes.- Maximum discharge observed during year, 23,100 second-feet Jan. 6 (gage height, 15.44 feet), from rating curve extended above 9,500 second-feet by logarithmic plotting; minimum observed, 28 second-feet Oct. 1.
1938-48: Maximum discharge, that of Jan. 6, 1948; minimum observed, 3.0 second-feet Sept. 12-15, 18-25, 1939.

Remarks.- Records good. Gage read once daily Oct. 1-31, Apr. 13 to Sept. 30, twice daily Nov. 1 to Apr. 12. Many diversions above station for irrigation and mining. Two irrigation ditches on left bank divert about 17 second-feet around station.

Revisions.- W 1064: Drainage area.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30					
1.2	20	2.4	195	5.0	1,900	1.4	33	2.2	149	4.5	1,400
1.3	26	2.7	300	6.0	2,930	1.5	40	2.5	235	5.0	1,900
1.5	40	3.0	440	8.0	5,650	1.6	49	3.0	430	6.0	3,100
1.7	60	3.5	745	10.0	9,100	1.8	73	3.5	690	8.0	5,800
1.9	88	4.0	1,080	12.0	13,000	2.0	104	4.0	1,000	10.0	9,100
2.1	122	4.5	1,460	15.5	20,800						

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	386	225	276	510	840	762	1,250	1,550	398	76	46
2	29	578	239	2,200	475	780	798	1,210	1,650	374	73	44
3	30	458	225	1,630	455	702	840	1,400	1,690	350	70	58
4	32	494	246	4,490	465	660	822	1,790	1,550	342	73	60
5	32	506	219	2,740	450	636	958	1,670	1,470	374	76	47
6	36	440	207	15,000	426	678	993	1,860	1,650	406	73	49
7	40	395	213	20,800	410	630	918	1,830	1,440	382	79	45
8	44	354	201	8,100	460	636	882	1,590	1,380	346	82	44
9	74	345	204	4,480	520	620	972	1,420	1,400	318	79	42
10	253	327	195	3,330	485	585	1,080	1,290	1,380	302	74	41
11	300	322	192	2,490	450	565	1,040	1,250	1,310	286	82	36
12	219	296	190	2,050	418	575	986	1,290	1,210	246	78	34
13	160	292	192	1,750	414	595	986	1,310	1,150	226	79	35
14	140	332	195	1,490	422	575	1,120	1,170	1,010	205	76	36
15	213	304	216	1,300	485	555	1,920	1,130	930	193	73	37
16	2,200	345	210	1,180	590	550	2,190	1,330	906	172	76	40
17	1,010	327	216	1,080	605	570	2,260	1,410	858	159	70	43
18	512	288	236	993	672	535	1,940	1,330	958	144	68	45
19	390	276	250	918	744	530	1,770	1,350	930	124	51	53
20	430	264	239	858	654	505	1,690	1,200	986	112	47	61
21	524	260	232	798	894	485	1,860	1,360	1,030	101	42	65
22	430	242	250	750	3,360	575	2,120	1,410	958	98	44	68
23	390	225	232	702	2,280	774	1,900	1,570	858	104	45	101
24	318	225	225	666	1,590	846	1,710	1,810	762	98	44	124
25	272	222	219	625	1,280	846	1,650	1,900	690	94	43	144
26	242	216	216	605	1,130	786	1,490	1,940	620	91	53	152
27	228	219	219	575	1,040	744	1,380	2,360	590	88	60	149
28	216	219	236	545	986	786	1,420	1,970	535	86	47	144
29	253	216	288	525	900	780	1,290	1,710	480	90	41	139
30	488	210	253	535	-	792	1,280	1,630	430	85	53	144
31	354	-	242	515	-	756	-	1,590	-	88	56	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	9,887	2,200	28	319	19,610
November	9,583	578	210	319	19,010
December	6,922	288	190	223	13,730
Calendar year 1947	137,485	3,040	7	377	272,700
January	83,996	20,800	276	2,710	166,600
February	23,570	3,360	410	813	46,750
March	20,492	846	435	661	40,650
April	41,027	2,260	762	1,368	81,380
May	47,330	2,360	1,130	1,527	93,880
June	32,361	1,690	430	1,079	64,190
July	6,482	406	85	209	12,860
August	1,983	82	41	64.0	3,930
September	2,126	152	34	70.9	4,220
Water year 1947-48	285,759	20,800	28	781	566,800

East Fork Williams Creek near Williams, Oreg.

Location.-Staff gage, lat. 42°11', long. 123°16', in NW¼ sec. 14, T. 39 S., R. 5 W., a quarter of a mile downstream from Rocky Creek (also known as Rock Creek and Clapboard Gulch) and 4 miles south of Williams.

Drainage area.- 11.8 square miles.

Records available.- August 1946 to September 1948 (irrigation seasons only).

Extremes (not including diversion).- Maximum discharge observed during year, 55 second-feet July 4 (gage height, 1.50 feet); minimum observed, 1.0 second-foot Sept. 17, 18. 1946-48: Maximum discharge observed, that of July 4, 1948; minimum observed, 0.7 second-foot Sept. 26, 27, 1946.

Remarks.- Records good. Staff gage read twice daily. Several small diversions above station for irrigation; Eastside Canal diverts on right bank around station.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							16	28	31	11	4.3	3.0
2							16	28	31	11	4.6	3.1
3							17	39	31	11	4.3	3.1
4							17	41	31	29	4.3	3.1
5							18	33	31	19	4.3	3.3
6							20	31	31	13	4.6	3.3
7							20	31	32	10	4.8	3.3
8							18	30	34	9.9	5.0	3.3
9							18	30	33	9.5	4.8	3.3
10							20	29	33	8.8	4.8	3.3
11							20	28	32	7.1	4.3	3.6
12							20	27	31	5.8	4.3	3.6
13							20	35	30	5.0	4.3	3.3
14							30	35	26	4.3	4.0	2.1
15							43	30	23	4.8	3.8	1.3
16							41	24	21	4.8	3.8	1.3
17							34	23	20	4.3	3.6	1.1
18							34	24	21	4.3	3.3	1.4
19							31	28	21	4.3	3.3	1.9
20							29	29	20	4.3	3.1	2.1
21							44	29	18	4.0	3.1	2.1
22						18	50	29	17	3.8	3.1	3.1
23							45	29	17	4.3	3.1	3.1
24							43	29	16	4.3	3.1	3.0
25							41	28	16	3.8	3.1	2.8
26							38	28	16	3.8	3.1	2.4
27							37	39	14	4.3	3.1	2.4
28							35	35	13	4.3	2.8	2.3
29							29	39	12	4.3	2.8	2.1
30							29	31	12	4.3	2.8	1.8
31							-	31	-	4.3	2.8	-

Month	Observed				Eastside Canal diversion (acre-feet)	River and canal combined			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October									
November									
December									
Calendar year									
January	-	-	-	-	-	-	-		
February	-	-	-	-	-	-	-		
March	-	-	-	-	-	-	-		
April	50	16	29.1	1,730	104	1,834	30.8		
May	41	23	30.6	1,880	273	2,153	35.0		
June	34	12	23.7	1,410	314	1,724	29.0		
July	29	3.8	7.31	450	277	727	11.8		
August	5.0	2.8	3.76	231	126	357	5.81		
September	3.6	1.1	2.63	156	143	299	5.02		
The period	-	-	-	5,857	1,237	7,094	-		

West Fork Williams Creek near Williams, Oreg.

Location.- Staff gage, lat. 42°11', long. 123°20', in NW¼ sec. 18, T. 39 S., R. 5 W., three-quarters of a mile upstream from Lone Creek and 5½ miles southwest of Williams.

Drainage area.- 12.8 square miles.

Records available.- August 1946 to September 1948 (irrigation seasons only).

Extremes.- Maximum discharge observed during year, 114 second-feet Apr. 22 (gage height, 2.78 feet); minimum observed, 5.7 second-feet Sept. 10.
1946-48: Maximum discharge observed, that of Apr. 22, 1948; minimum observed, 3.7 second-feet Sept. 23, 24, 1947.

Remarks.- Records good. Gage read once daily. One diversion above station for irrigation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							38	55	52	19	9.0	6.4
2							39	52	49	18	9.0	6.1
3							40	96	46	18	9.4	6.6
4							40	110	43	18	9.0	6.4
5							40	65	40	18	8.7	6.4
6							38	65	38	19	8.7	6.4
7							36	68	36	18	8.7	6.4
8							39	68	33	17	9.0	6.4
9							52	65	34	16	8.7	6.4
10							52	60	36	16	8.7	5.7
11							44	57	34	16	8.4	6.1
12							44	55	31	15	8.1	6.1
13							58	55	29	14	7.8	5.9
14							68	55	28	14	7.5	5.9
15							86	52	27	14	7.5	6.1
16							85	50	27	14	7.3	6.8
17							106	52	26	14	7.5	6.6
18							94	50	27	14	7.5	6.4
19							81	51	26	14	7.8	6.4
20							76	49	26	14	7.3	6.1
21							78	49	24	14	7.5	5.9
22							114	49	22	12	7.8	17
23						46	106	49	22	11	7.5	18
24							104	50	21	11	7.3	8.1
25							86	50	21	11	7.3	7.5
26							78	50	21	11	6.8	6.8
27							68	55	21	10	6.8	6.6
28							68	52	19	9.7	6.6	6.8
29							62	52	19	9.7	6.4	7.0
30							60	58	19	9.4	6.6	6.6
31							-	55	-	9.4	6.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	1,980	114	36	66.0	3,930
May	1,789	110	49	57.7	3,550
June	897	52	19	29.9	1,780
July	438.2	19	9.4	14.1	869
August	242.6	9.4	6.4	7.83	481
September	215.9	18	5.7	7.20	428
The period	-	-	-	-	11,040

Mungers Creek near Williams, Oreg.

Location.- Staff gage, lat. 42°13', long. 123°20', in NW¼ sec. 6, T. 39 S., R. 5 W., 75 feet downstream from Swamp Creek and 4 miles southwest of Williams.

Drainage area.- 6.8 square miles.

Records available.- August 1946 to September 1948 (irrigation seasons only).

Extremes.- Maximum discharge observed during year, 54 second-feet Apr. 18, 23 (gage height, 2.24 feet); minimum observed, 1.4 second-feet Sept. 13, 14.
1946-48: Maximum discharge observed, that of Apr. 18, 23, 1948; minimum observed, 0.8 second-foot Aug. 24, 25, 1946.

Remarks.- Records good. Staff gage read once daily. No diversions above station.

Rating table, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Aug. 1-30)

1.0	1.4	1.5	14
1.1	2.7	1.6	18
1.2	4.4	1.8	26
1.3	6.8	2.0	38
1.4	9.8	2.3	58

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							18	26	16	5.6	2.9	1.9
2							19	24	15	5.4	2.7	1.9
3							18	e38	15	5.4	2.7	1.9
4							19	42	14	5.4	2.6	1.9
5							19	37	14	5.6	2.6	1.9
6							17	33	12	5.8	2.6	1.9
7							16	30	12	5.6	2.6	1.9
8							16	28	12	5.4	2.6	1.8
9							18	28	11	5.1	2.4	1.7
10							22	26	11	4.6	2.4	1.7
11							22	24	11	4.4	2.4	1.5
12							21	22	10	4.4	2.4	1.5
13							22	22	9.8	4.4	2.4	1.4
14							26	22	9.2	4.2	2.4	1.4
15							42	21	8.9	4.1	2.4	1.7
16							48	20	8.3	4.1	2.4	1.9
17							52	19	8.3	4.1	2.3	2.0
18							54	19	8.8	3.9	2.3	2.0
19							48	19	8.0	3.7	2.3	1.9
20							43	18	8.3	3.7	2.3	1.9
21							39	19	8.0	3.6	2.3	1.8
22						23	43	18	7.7	3.6	2.3	1.9
23							54	18	7.4	3.6	2.4	3.7
24							47	18	6.8	3.6	2.3	2.7
25							43	17	6.3	a3.5	2.2	2.2
26							39	16	5.8	3.4	2.0	1.9
27							36	19	6.1	3.2	2.0	2.0
28							32	20	5.8	3.2	1.9	2.0
29							29	20	5.8	3.2	1.9	2.0
30							28	17	5.6	3.2	1.9	2.0
31							-	16	-	3.0	1.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	950	54	16	31.7	4.66	5.20	1,880
May	716	42	16	23.1	3.40	3.92	1,420
June	288.9	16	5.6	9.63	1.42	1.58	573
July	132.0	5.8	3.0	4.26	.626	.72	262
August	72.8	2.9	1.9	2.35	.346	.40	144
September	57.9	3.7	1.4	1.93	.284	.32	115
The period	-	-	-	-	-	-	4,390

a No gage-height record; discharge interpolated.
e Gage height not representative of mean for day; discharge computed on basis of records for East Fork Williams Creek near Williams and Deer Creek near Dryden.

Powell Creek near Williams, Oreg.

Location.- Water-stage recorder, lat. 42°16', long. 123°18', near center of sec. 16, T. 38 S., R. 5 W., 0.1 mile upstream from Blodgett ditch intake and 2 miles northwest of Williams.

Drainage area.- 8.6 square miles.

Records available.- September 1946 to September 1948.

Extremes.- Maximum discharge during year, 780 second-feet Jan. 6 (gage height, 4.92 feet), determined by slope-area method; minimum, 1.4 second-feet Sept. 12, 13.
1946-48: Maximum discharge, that of Jan. 6, 1948; minimum, 1.3 second-feet Sept. 9-12, 24, 25, 1946, Sept. 15, 1947.

Remarks.- Records good except those above 60 second-feet and those for periods of no gage-height record, which are poor. No diversions above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Nov. 15 to Dec. 15)

Oct. 1 to Jan. 6

1.2	1.4	2.1	24	3.4	192
1.3	2.3	2.3	37	3.8	300
1.5	4.8	2.6	64	4.2	450
1.7	8.8	2.9	102	4.6	620
1.9	15	3.2	151		

Jan. 7 to Sept. 30

0.7	1.4	1.4	8.6	2.8	95
.8	1.9	1.6	13	3.2	152
1.0	3.4	2.0	29	3.4	192
1.2	5.4	2.4	55		

Note.- Same as preceding table above 3.4 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	6.6	4.3	26		18	17	26	11	5.2	2.8	2.0
2	1.9	7.3	4.0	138		17	16		10	5.2	2.8	1.9
3	1.9	6.8	4.4	67		15	15		10	5.1	2.9	2.0
4	1.9	9.3	4.2	208		14	15		9.6	5.2	2.8	2.0
5	1.8	12	4.0	105		14	15		9.2	5.4	2.8	1.9
6	1.8	11	4.0	578	a8	14	16		9.0	5.4	2.8	1.8
7	2.1	9.6	4.0	478		14	17		8.2	5.1	2.8	1.8
8	2.4	8.6	3.9	165		14	17		8.8	4.8	2.8	1.8
9	4.0	7.9	3.9	99		13	20		8.2	4.6	2.8	1.8
10	4.5	7.3	3.8	67		13	25	a21	8.4	4.5	2.8	1.8
11	3.1	6.8	3.8	48		13	26		8.1	4.4	2.6	1.6
12	2.4	6.2	3.8	38		13	28		7.9	4.3	2.5	1.6
13	2.2	7.3	3.8	32	7.9	12	31		7.3	4.1	2.5	1.6
14	2.1	7.3	3.8	26	8.1	12	39		6.8	4.0	2.5	1.7
15	17	7.0	3.8	23	20	11	60		6.5	4.0	2.5	1.8
16	34	6.8	3.8	20	23	12	60		6.4	3.8	2.4	2.0
17	9.6	6.6	3.8	17	21	12	59		6.2	3.8	2.4	2.1
18	6.4	6.2	4.4	15	23	12	53		7.3	3.8	2.4	2.0
19	5.3	6.1	4.7	14	23	12	44		6.4	3.7	2.4	1.8
20	7.9	5.9	4.7	13	21	11	38	14	7.5	3.7	2.4	1.8
21	7.5	5.3	5.2	12	44	11	36	14	8.2	3.6	2.4	1.8
22	6.2	5.0	5.5	11	105	16	41	14	7.3	3.4	2.5	2.3
23	5.7	4.8	5.3	10	69	21	43	13	6.8	3.4	2.6	2.8
24	5.2	4.7	5.2	9.8	49	26	39	13	6.5	3.2	2.4	2.5
25	4.8	4.4	4.7	9.2	38	26	34	12	6.4	3.2	2.3	2.2
26	4.5	4.3	4.5	a9	32	23	30	11	6.1	3.2	2.2	2.1
27	4.4	4.2	4.4	a8	26	22	28	13	5.8	3.2	2.1	2.0
28	4.4	4.0	5.2	a8	23	22	26	12	5.7	3.2	2.1	2.0
29	4.8	4.0	5.2	a7	20	21	24	12	5.5	3.2	2.0	2.0
30	4.7	4.0	5.0	a7	-	20	24	12	5.4	3.2	2.0	2.0
31	4.4	-	5.0	a7	-	18	-	11	-	3.0	2.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff: For square mile	Runoff: Inches	Runoff: Acre-feet
October	170.7	34	1.8	5.51	0.641	0.74	339
November	197.3	12	4.0	6.58	.765	.85	391
December	136.1	5.5	3.8	4.39	.510	.59	270
Calendar year 1947	2,803.9	155	1.6	7.68	.893	12.14	5,560
January	2,275.0	578	7	73.4	8.53	9.84	4,510
February	649.0	105	-	22.4	2.60	2.81	1,290
March	492	26	11	15.9	1.85	2.13	976
April	936	60	15	31.2	3.63	4.05	1,860
May	555	-	11	17.9	2.08	2.40	1,100
June	226.5	11	5.4	7.55	.878	.98	449
July	125.9	5.4	3.0	4.06	.472	.54	250
August	77.3	2.9	2.0	2.49	.290	.33	153
September	58.5	2.8	1.6	1.95	.227	.25	116
Water year 1947-48	5,899.3	578	1.6	16.1	1.87	25.51	11,700

Peak discharge (base, 150 sec.-ft.).- Jan. 4 (5 a.m.) 318 sec.-ft.; Jan. 6 (5 p.m.) 780 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage and records for Deer Creek near Dryden and Mungers Creek near Williams.

Slate Creek at Wonder, Oreg.

Location.- Water-stage recorder, lat. 42°22', long. 123°31', in SW¼ sec. 10, T. 37 S., R. 7 W., half a mile upstream from Elliott Creek and 0.4 mile east of Wonder. Datum of gage is 1,035.1 feet above mean sea level (Bureau of Reclamation bench mark).

Drainage area.- 30.9 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. October 1943 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 3,590 second-feet Jan. 6 (gage height, 8.29 feet), by slope-area method; minimum, 1.5 second-feet Oct. 1, Sept. 10-13.
1943-48: Maximum gage height, 9.0 feet Dec. 28, 1945, from floodmark, former site and datum (discharge not determined); minimum discharge observed, 0.3 second-foot July 16, 17, 1944.

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

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	106	17	233	30	93	78	98	32	12	3.8	3.2
2	1.7	96	16	784	29	88	75	93	30	12	3.2	3.8
3	1.7	77	16	346	28	79	73	112	28	10	3.2	3.5
4	1.9	68	16	632	30	74	83	134	27	10	3.5	3.2
5	1.9	69	16	400	29	74	126	119	27	12	3.8	2.9
6	1.9	68	16	2,880	27	72	182	106	25	14	3.2	3.2
7	2.3	62	16	1,540	25	68	197	109	24	14	3.2	3.2
8	3.5	53	16	604	71	69	180	106	24	12	3.2	2.5
9	32	47	17	337	85	67	233	99	24	10	3.2	2.3
10	36	40	19	220	74	62	304	89	25	9.2	2.9	1.7
11	28	36	19	166	63	58	238	81	24	8.8	2.9	1.7
12	16	32	19	132	55	57	192	75	22	8.8	2.3	1.5
13	12	31	19	110	50	57	176	69	21	8.8	2.1	1.7
14	14	30	20	96	47	62	254	63	20	7.2	2.1	2.1
15	282	29	21	83	78	62	516	58	18	6.4	2.9	2.7
16	525	27	21	75	96	85	367	59	17	6.4	2.9	3.5
17	199	27	22	67	97	102	310	58	16	6.4	2.9	4.1
18	109	26	25	62	170	96	268	54	22	6.0	2.9	4.4
19	96	24	34	57	174	84	204	53	20	6.8	2.9	4.1
20	99	23	34	53	134	75	162	49	19	5.7	2.9	3.5
21	99	22	40	50	406	68	172	48	18	5.4	2.9	2.9
22	74	20	48	46	828	171	283	44	17	5.1	4.8	3.8
23	54	19	47	45	424	213	355	41	16	5.4	5.1	9.2
24	42	18	41	41	252	241	254	40	14	5.7	4.8	10
25	34	17	35	40	180	230	190	36	14	5.1	4.4	6.4
26	30	17	33	38	146	170	150	35	14	5.1	3.8	5.4
27	28	16	30	36	124	139	126	40	13	4.4	3.5	5.1
28	34	16	40	35	113	126	110	38	12	3.8	3.2	4.9
29	80	16	49	33	101	113	98	39	12	4.1	2.5	4.8
30	116	16	48	33	-	99	101	38	12	3.8	2.5	4.8
31	84	-	44	32	-	85	-	34	-	3.5	2.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	2,139.6	525	1.7	69.0	2.23	2.58	4,240
November	1,148	106	16	38.3	1.24	1.38	2,280
December	854	49	16	27.5	.890	1.03	1,690
Calendar year 1947	16,132.4	905	.8	44.2	1.43	19.40	31,990
January	9,306	2,880	32	300	9.71	11.20	18,460
February	3,966	828	25	137	4.43	4.77	7,870
March	3,139	241	57	101	3.27	3.78	6,230
April	6,057	516	73	202	6.54	7.29	12,010
May	2,117	134	34	68.3	2.21	2.55	4,200
June	607	32	12	20.2	.654	.73	1,200
July	237.9	14	3.5	7.67	.248	.29	472
August	100.0	5.1	2.1	3.23	.105	.12	198
September	116.0	10	1.5	3.87	.125	.14	230
Water year 1947-48	29,787.5	2,880	1.5	81.4	2.63	35.86	59,080

Peak discharge (base, 900 sec.-ft.).- Oct. 16 (12:30 a.m.) 1,150 sec.-ft.; Jan. 2 (12:30 a.m.) 1,090 sec.-ft.; Jan. 6 (10:30 a.m.) 3,590 sec.-ft.; Feb. 22 (2 a.m.) 1,080 sec.-ft.

Grave Creek at Pease Bridge, near Placer, Oreg.

Location.- Water-stage recorder, lat. 42°39', long. 123°12', in NW¼SW¼ sec. 5, T. 34 S., R. 4 W., at bridge 5½ miles northeast of Placer. Datum of gage is 2,384.1 feet above mean sea level, datum of 1929.

Drainage area.- 22 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. September 1940 to September 1941 in reports of State engineer; October 1941 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 2,400 second-feet Jan. 6 (gage height, 5.73 feet), by slope-area method; minimum, 2.1 second-feet Oct. 1.
1940-48: Maximum discharge, that of Jan. 6, 1948; minimum, 0.3 second-foot Sept. 13, 1944, Aug. 16-27, 1946.
Correction.- The date of the maximum discharge for the 1943 water year as published in the Water-Supply papers 1064 and 1094 is in error. The correct date is Dec. 30, 1942.

Remarks.- Records good except those above 500 second-feet, which are fair. Columbia upper ditch diverts water about 2 miles above station. No regulation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	110	42	116	15	75	110	77	27	10	4.3	2.9
2	2.2	110	44	610	14	69	115	69	25	9.6	3.8	2.9
3	2.4	101	55	320	13	61	101	93	22	9.2	3.6	2.9
4	2.4	94	61	485	14	56	88	122	21	8.7	3.8	2.9
5	2.4	88	56	350	13	56	78	106	20	10	4.5	2.9
6	2.4	90	48	1,810	13	59	69	103	20	11	4.3	3.1
7	2.5	96	46	891	14	59	64	95	17	11	4.3	2.9
8	2.7	103	42	376	14	62	66	86	16	10	4.0	2.9
9	14	114	44	252	17	73	77	82	20	9.2	3.8	2.7
10	12	92	42	195	14	77	84	75	26	8.7	4.0	2.9
11	14	92	41	145	14	69	84	66	22	8.3	3.8	2.4
12	8.9	97	42	112	14	68	86	64	20	8.3	3.8	2.4
13	7.0	116	53	92	13	64	88	59	18	7.8	3.4	2.7
14	5.8	121	112	77	14	62	124	51	17	7.4	3.4	2.7
15	200	110	114	64	48	59	220	47	16	6.8	3.1	3.1
16	477	101	92	56	66	64	207	48	15	6.8	3.1	3.1
17	171	90	88	48	78	68	189	48	14	6.8	3.1	3.1
18	97	81	90	43	145	66	168	46	20	6.8	3.1	3.1
19	64	71	92	36	132	62	142	50	18	6.8	2.9	3.1
20	121	61	81	32	93	59	134	50	26	6.5	2.9	2.9
21	101	53	74	30	248	59	140	48	29	6.5	2.9	2.9
22	72	47	71	25	414	97	159	46	27	6.2	3.4	3.1
23	55	41	63	23	238	115	159	43	22	6.2	4.3	3.8
24	41	35	53	22	168	110	145	40	18	5.4	4.0	4.3
25	30	32	48	20	132	95	134	39	17	4.0	3.8	4.5
26	23	28	44	18	124	86	117	36	16	4.5	3.4	3.8
27	20	24	40	17	115	88	101	39	14	5.4	3.4	3.4
28	33	22	42	16	97	112	92	35	13	5.7	3.4	2.9
29	69	20	42	16	84	132	78	35	12	5.1	3.1	2.9
30	96	20	37	16	-	132	77	32	11	4.8	2.9	2.9
31	69	-	37	14	-	117	-	29	-	4.5	2.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,819.9	477	2.2	58.7	3,610
November	2,260	121	20	75.3	4,480
December	1,836	114	37	59.2	3,640
Calendar year 1947	14,902.4	511	1.8	40.8	29,550
January	6,327	1,810	14	204	12,550
February	2,378	414	13	82.0	4,720
March	2,431	132	56	78.4	4,820
April	3,496	220	64	117	6,930
May	1,859	122	29	60.0	3,690
June	579	29	11	19.3	1,150
July	228.0	11	4.0	7.35	452
August	110.5	4.5	2.9	3.56	219
September	92.1	4.5	2.4	3.07	183
Water year 1947-48	23,416.5	1,810	2.2	64.0	46,440

Peak discharge (base, 300 sec.-ft.).- Oct. 16 (2 a.m.) 1,000 sec.-ft.; Jan. 2 (10:30 a.m.) 796 sec.-ft.; Jan. 6 (6 p.m.) 2,400 sec.-ft.; Feb. 22 (2:30 a.m.) 555 sec.-ft.

East Fork Illinois River near Takilma, Oreg.

Location.- Staff gage, lat. 42°01', long. 123°38', in SE¼ sec. 10, T. 41 S., R. 8 W., 500 feet upstream from county road bridge, a quarter of a mile upstream from Long Gulch, and 3 miles south of Takilma. Datum of gage is 1,746.6 feet above mean sea level (surveys by Bureau of Reclamation).

Drainage area.- 42.6 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. April 1926 to April 1932 in reports of State engineer. November 1940 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 4,270 second-feet Jan. 7 (gage height, 8.6 feet, from floodmark), from rating curve extended above 1,200 second-feet by logarithmic plotting; minimum observed, 9.7 second-feet Oct. 1-5.
1926-32, 1940-48: Maximum gage height, 9.4 feet Dec. 28, 1945, from floodmark, site and datum then in use (discharge not determined); minimum discharge observed, 5.2 second-feet Sept. 24-29, 1944.

Remarks.- Records fair except those for periods of rapidly changing stage or doubtful gage-height record, and those above 2,000 second-feet, which are poor. Staff gage read once daily. No regulation. Esterly Upper Canal and Osgood Canal diverted water above station in periods of heavy runoff prior to 1942.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.7	207	e65	200	57	d150	215	223	225	52	20	13
2	9.7	179	56	1,840	57	d140	215	d200	217	50	20	13
3	9.7	153	61	860	58	d130	213	d320	238	49	19	13
4	9.7	122	56	1,700	59	d125	194	529	209	45	18	13
5	9.7	108	50	1,260	55	165	207	d350	196	47	17	14
6	9.9	108	49	2,520	53	153	205	d400	188	47	16	13
7	9.9	100	47	3,190	d50	142	203	444	192	45	16	13
8	15	95	45	1,230	d130	140	196	395	271	45	16	13
9	122	96	43	651	d250	137	d200	326	177	41	16	13
10	73	94	42	375	d200	126	d250	271	170	39	16	13
11	22	89	61	263	d150	116	d260	286	162	39	16	11
12	21	87	76	245	d130	119	d240	321	143	37	16	12
13	22	82	94	211	d120	115	245	291	139	34	16	12
14	22	76	95	174	d115	112	572	312	134	34	16	13
15	518	96	99	165	223	116	1,760	362	118	34	16	14
16	970	108	83	153	276	122	1,020	382	103	33	16	15
17	299	99	107	134	249	137	d1,200	321	90	32	16	16
18	286	85	125	126	d350	132	655	294	83	30	16	15
19	326	76	136	124	307	122	549	256	91	29	16	15
20	356	67	140	116	d230	112	375	229	91	28	16	14
21	249	67	136	112	1,100	116	480	201	90	28	16	15
22	170	61	e140	103	1,520	165	690	205	80	26	15	22
23	100	49	105	87	680	184	549	266	70	26	15	27
24	83	47	89	76	d350	198	431	278	63	26	14	24
25	74	46	82	74	d290	196	d430	296	61	26	14	18
26	63	43	76	66	d240	199	382	302	61	26	14	17
27	59	41	65	66	d200	201	283	291	60	24	14	17
28	83	39	95	66	d180	205	225	231	57	24	14	17
29	273	38	e110	66	170	219	d200	221	53	23	14	15
30	207	37	102	61	-	215	223	201	53	22	14	15
31	198	-	104	57	-	213	-	221	-	20	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	4,679.3	970	9.7	151	3.54	4.09	9,280
November	2,595	207	37	86.5	2.03	2.27	5,150
December	2,634	140	42	85.0	2.00	2.30	5,220
Calendar year 1947	38,072.6	1,320	9.5	104	2.44	33.24	75,500
January	16,371	3,190	57	528	12.4	14.29	32,470
February	7,849	1,520	50	271	6.36	6.85	15,570
March	4,722	219	112	152	3.57	4.12	9,370
April	12,927	1,760	194	431	10.1	11.29	25,640
May	9,225	529	200	298	7.00	8.05	18,300
June	3,845	247	53	128	3.00	3.36	7,630
July	1,061	52	20	34.2	.803	.93	2,100
August	492	20	14	15.9	.373	.43	976
September	455	27	11	15.2	.357	.40	902
Water year 1947-48	66,855.3	3,190	9.7	183	4.30	58.38	132,600

d Doubtful gage-height record; discharge computed on basis of records for West Fork Illinois River near O'Brien and Althouse Creek near Holland.
e Gage height not representative of mean for day; discharge computed as explained in footnote d.

Illinois River at Kerby, Oreg.

Location.- Water-stage recorder, lat. 42°13', long. 123°39', in NW¼ sec. 4, T. 39 S., R. 8 W., 1 mile northwest of Kerby. Datum of gage is 1,215.24 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.
Drainage area.- 367 square miles.
Records available.- March 1926 to September 1948.
Average discharge.- 22 years, 1,081 second-feet.
Extremes.- Maximum discharge during year, 30,500 second-feet Jan. 6 (gage height, 21.2 feet), from rating curve extended above 13,000 second-feet by logarithmic plotting; minimum daily, 53 second-feet Sept. 11.
1926-48: Maximum discharge, 50,000 second-feet Feb. 20, 1927 (gage height, 19.6 feet, site and datum then in use), from rating curve extended above 26,000 second-feet; minimum, 13 second-feet Sept. 10-15, 1934.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6

-0.4	50	1.2	440	5.0	2,900
-.2	75	1.6	620	6.0	3,850
0.0	106	2.0	820	8.0	6,120
.2	143	2.5	1,100	11.0	10,400
.5	210	3.0	1,400	15.0	17,300
.8	294	4.0	2,050	19.0	25,400

Jan. 7 to Sept. 30

-0.1	52	1.0	325	4.0	1,980
.1	86	1.5	520	5.0	2,850
.3	127	2.0	745	6.0	3,850
.6	200	3.0	1,280		

Note.- Same as preceding table above 6.0 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	1,420	368	2,550	750	1,420	1,460	1,960	1,330	328	116	68
2	55	1,360	371	12,500	732	1,370	1,550	1,800	1,330	318	112	68
3	55	1,140	368	5,100	714	1,300	1,520	2,580	1,300	314	106	67
4	55	1,070	393	10,600	718	1,210	1,640	3,250	1,170	294	108	65
5	60	1,020	371	5,560	704	1,230	2,110	2,490	1,110	304	108	65
6	65	930	343	24,700	686	1,340	2,170	2,340	1,140	336	108	63
7	65	831	326	22,100	673	1,260	1,950	2,540	1,130	328	104	59
8	75	765	343	9,090	1,040	1,240	1,820	2,620	1,130	318	102	58
9	181	700	350	5,300	1,880	1,250	2,850	2,260	1,060	294	98	h57
10	615	620	364	3,870	1,580	1,190	3,180	1,980	1,060	284	98	57
11	725	570	364	3,080	1,280	1,130	2,560	1,800	1,040	245	98	53
12	400	530	378	2,530	1,130	1,080	2,190	1,760	915	224	96	56
13	288	520	375	2,160	1,020	1,070	2,070	1,910	845	209	94	56
14	233	520	566	1,880	967	1,160	3,650	1,760	785	195	92	64
15	2,780	630	625	1,680	2,330	1,200	7,120	1,600	727	192	90	66
16	8,090	795	538	1,540	2,780	1,500	5,050	1,690	678	182	89	77
17	2,860	685	585	1,400	2,630	1,670	5,990	1,910	646	178	88	77
18	1,730	615	735	1,320	3,130	1,460	4,630	1,790	682	178	88	72
19	1,210	561	1,050	1,230	2,740	1,300	3,200	1,590	660	172	84	70
20	2,570	512	875	1,160	2,040	1,210	2,500	1,440	650	168	84	h68
21	2,070	472	800	1,100	6,440	1,180	3,200	1,390	646	162	83	68
22	1,380	444	875	1,050	11,200	2,590	4,600	1,340	588	148	93	80
23	1,090	396	775	1,000	5,060	2,570	4,600	1,380	552	145	90	98
24	886	382	675	956	3,270	2,620	3,600	1,500	520	141	85	125
25	745	360	605	925	2,420	2,280	3,200	1,500	508	141	80	123
26	690	343	552	890	2,040	1,850	2,800	1,440	472	138	79	116
27	580	329	516	850	1,860	1,680	2,270	1,510	444	132	78	112
28	620	312	755	820	1,730	1,730	2,130	1,410	396	129	78	102
29	1,110	308	946	800	1,540	1,710	1,840	1,390	364	127	73	104
30	1,600	301	826	800	-	1,690	1,960	1,440	332	125	71	104
31	1,160	-	740	765	-	1,570	-	1,360	-	119	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	34,097	8,090	54	1,100	67,630
November	19,441	1,420	301	648	38,560
December	17,753	1,050	326	573	35,210
Calendar year 1947	278,285	11,000	54	762	552,000
January	129,306	24,700	765	4,171	256,500
February	65,084	11,200	673	2,244	129,100
March	47,060	2,620	1,070	1,518	93,340
April	89,410	7,120	1,460	2,980	177,300
May	56,730	3,250	1,340	1,830	112,500
June	24,210	1,330	332	807	48,020
July	6,568	336	119	212	13,030
August	2,842	116	69	91.7	5,640
September	2,318	125	53	77.3	4,600
Water year 1947-48	494,819	24,700	53	1,352	981,400

Peak discharge (base, 9,000 sec.-ft.).- Oct. 16 (4:30 a.m.) 13,300 sec.-ft.; Jan. 2 (9:30 a.m.) 14,800 sec.-ft.; Jan. 6 (3 p.m.) 30,500 sec.-ft.; Feb. 22 (5 a.m.) 15,000 sec.-ft.
h Computed from staff-gage reading.

Note.- No gage-height record Oct. 1-8, Apr. 19-26, Aug. 12 to Sept. 8, Sept. 10-19, 21, 22; discharge computed on basis of records for West Fork Illinois River near O'Brien and other upstream tributary stations.

Althouse Creek near Holland, Oreg.

Location.- Water-stage recorder, lat. 42°06', long. 123°32', in SE¼ sec. 9, T. 40 S., R. 7 W., half a mile upstream from Carter Gulch and 2 miles southeast of Holland.

Drainage area.- 23.8 square miles.

Records available.- October 1946 to September 1948. October 1945 to September 1946 at site 1½ miles upstream; records not equivalent. October 1943 to July 1944 at site a quarter of a mile downstream, and August 1944 to January 1945 at site 400 feet downstream in files of State engineer (fragmentary).

Extremes.- Maximum discharge during year, 1,520 second-feet Jan. 7 (gage height, 5.14 feet), by slope-area method; minimum, 3.5 second-feet Oct. 4-6 (gage height, 1.30 feet). 1945-48: Maximum discharge, that of Jan. 7, 1948; minimum, 3.2 second-feet Sept. 25, 1947.

Remarks.- Records good except those above 250 second-feet and those for periods of no gage-height record, which are poor. Slight regulation from mining operations above station. Water used for placer mining is returned to creek above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 16 to Dec. 21, Feb. 24 to Mar. 24)

Oct. 1 to Jan. 3

1.3	3.5	1.8	38	2.3	145
1.4	7.8	1.9	52	2.6	250
1.5	13	2.0	70	3.0	420
1.6	19	2.1	90	3.5	665
1.7	27	2.2	115	4.4	1,120

Jan. 9 to Sept. 30

1.9	3.5	2.3	38	2.9	187
2.0	10	2.4	55	3.1	263
2.1	17	2.5	75	3.3	350
2.2	25	2.7	126	3.6	500

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	42	18	100	34	73	82	118	116	30	16	10
2	4.4	36	15	505	32	67	92	110	121	29	16	10
3	4.4	31	17	240	30	63	82	146	116	29	16	9.4
4	3.9	35	17	a500	32	57	80	161	108	32	16	9.4
5	3.5	32	16	a290	30	59	78	154	105	34	16	8.7
6	3.5	30	15	a800	29	57	71	161	103	33	15	8.7
7	5.6	27	15	a1,100	28	53	69	170	95	29	15	8.0
8	5.6	26	15	a600	35	55	71	154	92	28	14	8.0
9	26	24	14	323	41	57	90	137	88	25	14	7.4
10	28	22	14	223	35	53	103	126	95	24	14	6.8
11	18	21	14	174	33	52	105	121	92	23	14	6.1
12	11	20	14	140	32	52	100	121	80	23	14	6.1
13	8.8	22	14	121	29	52	105	116	71	23	14	5.4
14	7.8	22	17	98	30	53	259	108	67	23	13	8.0
15	72	22	15	92	57	53	475	108	61	22	14	8.7
16	142	22	15	80	55	55	355	118	59	21	13	10
17	38	20	18	73	55	53	350	118	55	21	13	10
18	24	20	19	67	90	53	301	110	57	20	13	9.4
19	19	19	22	61	82	50	243	108	52	20	12	8.7
20	37	19	23	57	69	48	223	103	55	19	12	8.0
21	28	18	24	53	241	46	263	105	50	19	11	8.0
22	23	17	a25	48	475	71	355	108	46	19	12	14
23	20	17	a24	46	247	73	350	118	43	19	14	16
24	18	16	a22	45	167	82	263	134	41	19	13	13
25	16	16	a21	41	129	71	216	137	40	19	11	11
26	15	15	a20	40	113	69	180	137	37	19	11	10
27	15	15	a20	38	103	73	161	146	35	19	11	8.7
28	18	14	a25	35	92	82	140	132	34	18	11	8.7
29	31	13	a30	35	80	88	126	132	33	18	10	8.7
30	29	14	a27	35	-	88	123	123	32	17	10	8.0
31	23	-	a25	34	-	85	-	118	-	16	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff: Inches	Runoff: Acre-feet
October	702.4	142	3.5	22.7	0.954	1.10	1,390
November	667	42	13	22.2	.933	1.04	1,320
December	590	30	14	19.0	.798	.92	1,170
Calendar year 1947	14,014.5	454	3.5	38.4	1.61	21.87	27,780
January	6,094	1,100	34	197	8.28	9.52	12,090
February	2,505	475	28	86.4	3.63	3.91	4,970
March	1,943	88	46	62.7	2.63	3.04	3,850
April	5,511	475	69	184	7.73	8.61	10,930
May	3,953	170	103	128	5.38	6.18	7,850
June	2,079	121	32	69.3	2.91	3.25	4,120
July	710	34	16	22.9	.962	1.11	1,410
August	409	16	10	13.2	.555	.64	811
September	272.9	16	5.4	9.10	.382	.43	541
Water year 1947-48	25,441.3	1,100	3.5	69.5	2.92	39.75	50,450

Peak discharge (base, 500 sec.-ft.).- Jan. 2 (11 a.m.) 635 sec.-ft.; Jan. 7 (time unknown) 1,520 sec.-ft.; Feb. 22 (2:30 a.m.) 652 sec.-ft.; Apr. 15 (6 a.m.) 520 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Grayback Creek near Holland and Deer Creek near Dryden.

Sucker Creek near Holland, Oreg.

Location.- Staff gage, lat. 42°09', long. 123°28', in NE¼ sec. 25, T. 39 S., R. 7 W., 1 mile downstream from Grayback Creek and 4.3 miles northeast of Holland. Datum of gage is 1,777.84 feet above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Drainage area.- 76 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. April 1940 to August 1941 at site half a mile upstream, September 1941 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 5,090 second-feet Jan. 7 (gage height, 8.3 feet, from floodmark), by slope-area method; minimum observed, 20 second-feet Oct. 1.
1940-48: Maximum discharge, that of Jan. 7, 1948; minimum observed, 19 second-feet Sept. 27, 28, 1947.

Remarks.- Records good except those for period of no gage-height record and those for May 4 and June 2, which are fair. Gage read once daily, oftener during periods of high water. No regulation. Grayback Canal diverts water from Grayback Creek above station for domestic use and irrigation; most of return flow from this canal enters creek above station.

Rating tables, water year, 1947-48 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 14 to July 7)

Oct. 1 to Jan. 7						Jan. 8 to Sept. 30			
1.1	18	2.3	220	5.0	1,580	1.3	24	3.0	425
1.3	32	2.7	350	6.0	2,450	1.5	46	3.5	640
1.5	54	3.1	515	7.0	3,500	1.8	89	4.0	920
1.7	85	3.7	805			2.1	150	4.6	1,300
2.0	146	4.4	1,190			2.5	255		

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	185	78	254	115	222	243	354	a520	138	63	38
2	23	137	65	870	115	205	243	340	e540	134	60	38
3	23	124	82	446	111	195	243	568	461	129	59	38
4	23	146	68	905	115	185	243	e620	485	134	59	38
5	23	137	65	605	107	200	243	501	493	152	59	38
6	23	124	65	3,170	107	185	220	485	501	148	59	36
7	26	116	62	3,280	100	175	215	501	461	125	58	34
8	29	116	62	1,300	127	190	220	461	469	123	56	34
9	137	104	62	860	123	185	243	429	485	115	56	a34
10	146	100	62	778	115	180	273	405	437	111	54	34
11	52	96	65	545	107	175	273	397	405	107	56	33
12	36	85	62	441	100	180	267	405	378	103	54	33
13	32	112	62	350	96	175	267	389	336	100	55	33
14	26	89	82	315	103	185	485	368	297	98	54	38
15	195	104	71	297	107	175	830	382	285	94	51	36
16	497	93	68	267	160	185	718	485	267	93	50	44
17	124	89	78	255	a180	175	772	437	243	89	50	41
18	112	85	85	243	210	170	615	405	297	86	50	39
19	68	82	82	210	175	175	550	389	246	83	46	36
20	170	78	78	198	160	155	541	360	300	81	46	36
21	108	75	96	180	690	155	665	405	300	78	46	36
22	91	68	82	175	590	200	718	445	222	75	56	65
23	75	68	78	170	509	210	655	525	218	73	50	59
24	68	68	71	165	385	225	568	615	192	73	49	51
25	62	68	68	155	315	220	550	595	185	73	46	46
26	57	68	68	145	309	215	485	605	175	70	45	41
27	54	65	68	136	285	215	437	655	165	70	45	41
28	78	62	104	132	255	249	405	525	155	69	44	41
29	146	62	96	127	225	261	382	501	150	67	42	39
30	104	62	89	127	-	255	368	501	145	65	41	39
31	85	-	82	123	-	255	-	501	-	63	39	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,713	497	20	87.5	1.15	1.33	5,380
November	2,868	185	62	95.6	1.26	1.40	5,690
December	2,306	104	62	74.4	.979	1.13	4,570
Calendar year 1947	42,510	890	19	116	1.53	20.79	84,310
January	17,224	3,280	123	556	7.32	8.43	34,160
February	6,096	690	96	210	2.76	2.98	12,090
March	6,132	261	155	198	2.61	3.00	12,160
April	12,937	830	215	431	5.67	6.33	25,660
May	14,554	655	340	469	6.17	7.12	28,870
June	9,813	540	145	327	4.30	4.80	19,460
July	3,019	152	63	97.4	1.28	1.48	5,990
August	1,598	63	39	51.5	.678	.78	3,170
September	1,188	65	33	39.6	.521	.58	2,360
Water year 1947-48	80,448	3,280	20	220	2.89	39.36	159,600

a No gage-height record; discharge computed on basis of records for Grayback Creek near Holland, or interpolated.
e Gage height not representative of mean for day; discharge computed as explained in footnote a.

Grayback Creek near Holland, Oreg.

Location.- Water-stage recorder, lat. 42°08', long. 123°27', in NW¼ sec. 31, T. 39 S., R. 6 W., 600 feet upstream from mouth and 4½ miles northeast of Holland.

Drainage area.- 24.1 square miles.

Records available.- September 1946 to September 1948.

Extremes (not adjusted for diversion).- Maximum discharge during year, 1,500 second-feet Jan. 7 (gage height, 5.92 feet), by slope-area method; minimum, 6.2 second-feet Oct. 1. 1946-48: Maximum discharge, that of Jan. 7, 1948; minimum, 5.3 second-feet Sept. 23 1947.

Remarks.- Records good except those above 300 second-feet, which are poor. Water diverted above station by Grayback Canal for irrigation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.3	48	23	62	38	78	85	102	154	43	20	14
2	9.0	35	18	328	36	74	88	98	157	42	19	13
3	9.0	31	22	154	35	70	80	142	150	39	19	13
4	9.0	37	21	332	36	67	80	152	127	38	20	13
5	9.0	35	18	201	35	67	77	138	127	40	20	12
6	9.0	32	18	865	34	67	72	142	130	40	18	12
7	9.9	29	18	1,030	33	66	70	150	123	37	18	11
8	10	27	18	429	40	68	70	140	123	34	18	11
9	18	26	18	269	41	74	74	130	121	32	18	11
10	22	24	18	207	36	71	80	121	119	31	17	11
11	14	23	20	159	35	70	83	117	110	31	17	11
12	10	21	20	140	34	68	83	121	93	30	17	11
13	9.6	26	20	119	33	67	82	117	85	28	17	11
14	9.3	25	28	98	34	67	104	108	78	28	16	11
15	44	28	25	88	50	66	204	108	72	28	16	12
16	86	25	24	80	51	66	221	121	70	27	16	13
17	27	24	27	74	54	63	247	127	66	27	16	13
18	18	23	27	68	68	63	215	117	78	26	16	13
19	16	22	27	64	64	61	180	111	71	25	16	12
20	41	21	26	60	56	58	174	108	78	25	16	12
21	26	20	26	55	152	58	214	119	74	24	15	11
22	20	18	25	53	358	67	235	117	67	24	16	18
23	18	19	24	50	174	71	230	125	62	23	17	20
24	16	19	23	49	119	76	198	150	57	22	16	16
25	15	18	22	46	97	72	190	162	54	22	15	14
26	14	18	21	44	97	72	162	169	53	22	15	13
27	14	18	21	43	92	76	138	201	51	22	15	13
28	16	18	28	42	86	86	127	174	49	22	15	13
29	21	17	27	41	83	90	111	159	48	22	15	13
30	23	18	25	40	-	90	108	164	45	20	14	12
31	18	-	25	39	-	86	-	154	-	20	15	-

Month	Observed				Grayback Canal diversion (acre-feet)	Adjusted for diversion		
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet	Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	86	7.3	19.0	1,170	110	1,280	20.8	0.863	0.99
November	48	17	24.8	1,480	113	1,593	26.8	1.11	1.24
December	28	18	22.7	1,390	204	1,594	25.9	1.07	1.23
Calendar year 1947	253	5.8	33.7	24,376	2,385	26,761	37.0	1.54	20.79
January	1,030	39	172	10,570	119	10,689	174	7.22	8.32
February	358	33	72.4	4,170	135	4,305	74.8	3.10	3.34
March	90	58	70.8	4,350	106	4,456	72.5	3.01	3.47
April	247	70	136	8,100	168	8,268	139	5.77	6.44
May	201	98	134	8,260	176	8,436	137	5.68	6.55
June	157	45	89.7	5,340	139	5,479	92.1	3.82	4.26
July	43	20	28.8	1,770	205	1,975	32.1	1.33	1.53
August	20	14	16.7	1,030	126	1,156	18.8	.780	.90
September	20	11	12.8	760	199	959	16.1	.668	.75
Water year 1947-48	1,030	7.3	66.7	48,390	1,800	50,190	69.1	2.87	39.02

Peak discharge (base, 300 sec.-ft.).- Jan. 2 (11 a.m.) 421 sec.-ft.; Jan. 7 (7:30 a.m.) 1,500 sec.-ft.; Feb. 22 (3:30 a.m.) 559 sec.-ft.

West Fork Illinois River near O'Brien, Oreg.

Location.- Staff gage, lat. 42°04', long. 123°43', in NW¼ sec. 25, T. 40 S., R. 9 W., 800 feet upstream from bridge on U. S. Highway 199 and half a mile southwest of O'Brien. Datum of gage is 1,404.37 feet above mean sea level, datum of 1929.

Drainage area.- 46.6 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. February to November 1930 and February 1943 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 7,070 second-feet Jan. 6 (gage height, 9.9 feet, from floodmark), from rating curve extended above 2,900 second-feet; minimum observed, 7.2 second-feet Sept. 11-14.

1930, 1943-48: Maximum gage height, 12.63 feet, from floodmark, present site and datum, Dec. 28, 1945 (discharge not determined); minimum discharge, 2.1 second-feet Sept. 16, 17, 1945.

Remarks.- Records good. Staff gage read once daily Oct. 1-7, June 6 to Sept. 30; twice daily remainder of year. One small diversion above station.

Rating tables, water year 1947-48 (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Oct. 1-8)

Oct. 1 to Jan. 7

0.3	10	1.4	164	5.0	1,840
.4	15	1.7	240	6.0	2,690
.6	30	2.0	330	7.0	3,640
.8	53	2.5	505	8.0	4,700
1.0	84	3.0	720	9.0	5,900
1.2	121	4.0	1,210		

Jan. 8 to Sept. 30

0.4	6	0.8	41	1.4	154
.5	12	1.0	71	1.7	235
.6	20	1.2	108	2.1	360

Note.- Same as preceding table above 2.1 feet.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	357	102	388	69	232	265	339	119	32	15	9.6
2	10	276	82	2,870	65	232	277	307	106	32	14	9.6
3	10	212	79	1,110	63	220	280	465	100	32	14	9.6
4	10	187	78	2,420	66	198	298	541	91	34	14	8.4
5	12	182	71	1,060	61	220	388	406	89	32	14	8.4
6	12	160	70	5,450	58	289	406	336	89	39	12	8.4
7	12	140	68	3,690	55	250	353	374	82	37	12	7.8
8	14	125	81	1,300	268	232	332	458	75	32	12	8.4
9	93	110	82	765	541	232	603	384	75	28	12	7.8
10	86	98	88	553	384	212	778	322	78	28	12	7.8
11	157	88	95	434	268	187	585	277	75	22	12	7.2
12	84	82	93	356	203	172	458	259	71	22	12	7.2
13	59	84	89	295	169	159	426	277	65	22	12	7.2
14	44	81	187	253	149	206	666	268	61	22	12	7.2
15	1,140	125	157	220	706	226	1,510	241	58	25	12	9.6
16	1,610	160	129	198	616	388	945	247	55	24	12	10
17	537	132	178	176	473	416	1,310	295	55	22	12	12
18	312	115	210	162	770	328	1,000	295	55	22	12	11
19	218	100	270	144	521	298	675	265	55	22	12	11
20	930	91	215	130	367	277	521	229	52	20	12	9.6
21	444	82	202	119	1,960	244	626	201	49	18	12	9.6
22	279	76	210	108	2,690	662	1,160	174	47	18	12	11
23	218	70	176	106	1,000	598	1,180	156	44	18	12	24
24	169	66	149	100	598	573	720	142	44	18	12	24
25	138	62	132	95	434	501	590	128	41	18	12	17
26	117	58	115	89	370	420	440	119	41	17	12	15
27	98	54	102	84	313	367	374	108	39	17	11	14
28	102	53	194	78	289	364	336	112	37	17	11	12
29	294	50	237	75	259	350	292	140	34	17	9.6	11
30	348	50	192	75	-	339	310	142	34	17	9.6	9.6
31	234	-	166	71	-	298	-	130	-	15	9.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,801	1,610	10	252	15,470
November	3,526	357	50	118	6,990
December	4,299	270	68	139	8,530
Calendar year 1947	55,692	2,440	10	153	110,500
January	22,974	5,450	71	741	45,570
February	13,785	2,690	55	475	27,340
March	9,690	662	159	313	19,220
April	18,104	1,510	265	603	35,910
May	8,137	541	108	262	16,140
June	1,916	119	34	63.9	3,800
July	739	39	15	23.8	1,470
August	373.8	15	9.6	12.1	741
September	325.0	24	7.2	10.8	645
Water year 1947-48	91,669.8	5,450	7.2	250	181,800

Deer Creek near Dryden, Oreg.

Location.- Water-stage recorder, lat. 42°16', long. 123°27', near center of sec. 18, T. 38 S., R. 6 W., 500 feet downstream from confluence of North and South Forks and 5 miles east of Dryden. Datum of gage is 1,650.10 feet above mean sea level (surveys by Bureau of Reclamation.

Drainage area.- 23 square miles.

Records available.- October 1945 to September 1948 in reports of Geological Survey. November 1941 to September 1945 in files of State engineer.

Extremes.- Maximum discharge during year, 1,980 second-feet Jan. 6 (gage height, 7.22 feet), from rating curve extended above 850 second-feet by logarithmic plotting; minimum, 2.4 second-feet Oct. 1, 4-6, Sept. 12, 13.

1941-48: Maximum discharge, 2,750 second-feet Dec. 28, 1945 (gage height, 8.1 feet, present datum, from graph based on gage readings), from rating curve extended above 850 second-feet by logarithmic plotting; minimum observed, 1 second-foot Sept. 3-7, 22-27, Oct. 2-7, 9, 1942.

Remarks.- Records good. No regulation. One small diversion above station for irrigation.

Discharge, in second-feet, water year October 1947 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	104	22	253	21	77	95	99	88	15	6.7	3.6
2	2.5	88	18	824	20	72	100	96	84	15	6.4	3.4
3	2.5	70	20	359	20	67	93	162	76	14	6.0	3.3
4	2.4	69	21	706	20	61	86	209	66	14	5.7	3.3
5	2.4	68	20	392	19	60	81	170	61	15	5.7	3.1
6	2.4	65	19	1,550	18	60	76	170	58	16	5.7	2.9
7	2.5	58	18	1,100	17	58	73	150	52	15	5.7	2.9
8	3.3	52	18	504	35	59	74	119	48	14	5.7	2.9
9	9.8	46	17	292	47	59	98	100	44	13	5.7	2.9
10	17	41	17	202	35	56	120	90	43	12	5.7	2.9
11	12	36	19	148	28	53	112	86	40	12	5.7	2.5
12	6.7	34	20	114	27	51	112	93	36	11	5.4	2.5
13	5.4	35	21	95	24	51	117	102	34	11	5.1	2.5
14	4.8	32	43	81	25	51	182	90	31	10	4.8	3.4
15	150	34	38	71	65	50	354	86	28	10	4.8	3.3
16	288	36	34	64	96	56	316	92	27	9.8	4.8	3.4
17	96	34	34	57	100	60	383	95	24	9.8	4.4	3.4
18	58	32	44	51	146	59	313	86	30	9.4	4.4	3.4
19	42	30	52	46	126	57	230	79	26	9.4	4.4	3.3
20	170	27	45	42	95	53	207	78	28	9.0	4.4	3.3
21	111	25	45	39	283	50	211	95	29	8.6	4.1	3.3
22	71	23	45	36	555	84	260	100	26	8.2	4.4	5.1
23	55	21	43	33	281	102	239	108	23	8.2	4.8	6.6
24	44	20	36	32	184	109	186	111	21	7.8	4.4	7.0
25	35	19	32	29	136	100	170	102	20	7.8	4.4	5.1
26	30	18	29	28	126	92	144	95	19	7.4	4.1	4.4
27	27	17	27	26	111	100	120	100	18	7.4	3.8	3.8
28	29	16	38	24	96	119	106	91	17	7.4	3.6	3.8
29	43	16	38	24	84	117	95	95	16	7.4	3.4	3.8
30	51	16	35	23	-	109	95	114	16	7.0	3.4	3.6
31	42	-	36	21	-	99	-	99	-	7.0	3.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,418.1	288	2.4	45.7	1.99	2.29	2,810
November	1,182	104	16	39.4	1.71	1.91	2,340
December	944	52	17	30.5	1.33	1.53	1,870
Calendar year 1947	14,665.7	820	2.4	40.2	1.75	23.72	29,080
January	7,266	1,550	21	234	10.2	11.75	14,410
February	2,860	555	17	98.6	4.29	4.62	5,670
March	2,251	119	50	72.6	3.16	3.64	4,460
April	4,848	383	73	162	7.04	7.84	9,620
May	3,362	209	78	108	4.70	5.44	6,670
June	1,129	88	16	37.6	1.63	1.83	2,240
July	328.6	16	7.0	10.6	.461	.53	652
August	151.2	6.7	3.4	4.88	.212	.24	300
September	110.7	8.8	2.5	3.69	.160	.18	220
Water year 1947-48	25,850.6	1,550	2.4	70.6	3.07	41.80	51,260

Peak discharge (base, 500 sec.-ft.).- Oct. 16 (2 a.m.) 576 sec.-ft.; Jan. 2 (12:30 a.m.) 1,080 sec.-ft.; Jan. 6 (5 p.m.) 1,980 sec.-ft.; Feb. 22 (2:30 a.m.) 788 sec.-ft.

Springs in the Walla Walla River Basin, Oreg.-Wash.

Ground-water overflow through many springs on the alluvial fan of the Walla Walla River near Milton and Freewater, Oreg., amounts to about 50,000 acre-feet a year. During the irrigation season practically all the overflow is used to water crops on land not served by diversion from the river. A survey made in 1933 listed 57 springs or spring groups in the area, arranged in "inner," "intermediate," and "outer" zones concentric about the apex of the alluvial fan.[1]

The inner zone is 3 to 3½ miles downstream from Freewater and extends from the vicinity of Nicholas Spring, which is about half a mile east of the Walla Walla River at McCoy Bridge, to springs in the vicinity of Dugger Creek. Within this zone are fully three-fourths of the springs in the Walla Walla Basin. The intermediate and outer zones, each of which contains only a few springs, are about 2 miles and 4 miles, respectively, beyond the inner zone.

In order to bring about a more effective use of the available water supply through a better understanding of the relation between surface- and ground-water supplies in the basin, discharge measurements of each of the principal springs and measurements of ground-water levels in representative wells have been made and the results published periodically since 1932.

Discharge measurements, in second-feet, of springs in Walla Walla River Basin, Oreg.-Wash., during water year October 1947 to September 1948†

Springs of the inner zone

Date	Spring	Locality	Discharge (second-feet)
Oct. 17	Nicholas Spring, Oreg.	NE¼NE¼ sec. 24, T. 6 N., R. 35 E., 150 feet above confluence of spring channel and Walla Walla River.	0.55
Feb. 26	....do.....	....do.....	2.98
Oct. 17	Big Spring Branch (west prong), Oreg.	SE¼NW¼ sec. 24, T. 6 N., R. 35 E., at Ballou residence, 75 feet above bridge on county road.	4.86
Feb. 25	....do.....	....do.....	9.93
Oct. 17	Big Spring Branch (east prong), Oreg.	NE¼SW¼ sec. 24, T. 6 N., R. 35 E., above flow line of small reservoir supplying two diversion pumps.	1.72
Feb. 26	....do.....	....do.....	3.80
Oct. 23	Engle Spring, Oreg.....	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., total flow at diversion dam.	2.11
Feb. 26	....do.....	....do.....	3.12
Oct. 17	Downing Spring, Oreg.....	SE¼SW¼ sec. 23, T. 6 N., R. 35 E., at weir 200 feet below spring orifice.	1.07
Feb. 25	....do.....	....do.....	1.79
Oct. 17	Haun Spring, Oreg.....	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., at Haun farm, 200 feet above highway crossing.	1.26
Feb. 25	....do.....	....do.....	1.50

Springs of the intermediate and outer zones

Oct. 23	McEvoy Spring, Wash.....	SE¼NW¼ sec. 10, T. 6 N., R. 35 E., at McEvoy farm 200 feet above Walla Walla Valley Railway.	3.88
Mar. 6	....do.....	....do.....	2.46
Oct. 17	Lewis Spring, Oreg.....	NW¼NW¼ sec. 23, T. 6 N., R. 35 E., below road crossing.	1.89
Feb. 25	....do.....	....do.....	1.83
Oct. 23	Unnamed spring, Wash.....	NW¼NE¼ sec. 16, T. 6 N., R. 35 E., at a small diversion structure.	3.04
Mar. 6	....do.....	....do.....	2.21
Oct. 18	East Mud Creek (west prong), Oreg.	SW¼SW¼ sec. 22, T. 6 N., R. 35 E., at two weirs.	2.27
Mar. 5	....do.....	....do.....	1.09
Oct. 18	East Mud Creek (east prong), Oreg.	SE¼SW¼ sec. 22, T. 6 N., R. 35 E., in diversion ditch, 150 feet below diversion dam.	.99
Mar. 5	....do.....	....do.....	.76
Oct. 23	East Mud Creek (branch of), Oreg..	SW¼SW¼ sec. 16, T. 6 N., R. 35 E., near Lockwood dwelling.	3.97
Mar. 6	....do.....	....do.....	2.50
Oct. 23	South Mud Creek, Oreg.....	SE¼NW¼ sec. 28, T. 6 N., R. 35 E., at Von Der Ahe farm.	3.49
Mar. 6	....do.....	....do.....	.83
Oct. 18	Johnson Creek, Oreg.....	SE¼NW¼ sec. 29, T. 6 N., R. 35 E., at two weirs.	3.52
Mar. 5	....do.....	....do.....	2.16
Oct. 22	Dugger Creek, Oreg.....	NW¼NW¼ sec. 32, T. 6 N., R. 35 E., at two weirs.	9.09
Mar. 5	....do.....	....do.....	4.02
Oct. 18	Schwartz Spring Branch (south prong), Oreg.	SW¼SE¼ sec. 23, T. 6 N., R. 34 E., at weirs.	3.02
Mar. 5	....do.....	....do.....	5.51
Oct. 18	Schwartz Spring Branch (north prong), Oreg.	NE¼SW¼ sec. 23, T. 6 N., R. 34 E. in ditch diverting from spring.	4.16
Mar. 5	....do.....	....do.....	2.72
Oct. 22	South Mud Creek, Oreg.....	SW¼SE¼ sec. 13, T. 6 N., R. 34 E., at Krumbaugh farm.	4.63
Mar. 5	....do.....	....do.....	4.50

† Measurements by Umatilla County deputy watermaster.

[1] Piper, A. M., Robinson, T. W., and Thomas, H. E., Ground Water in the Walla Walla Basin, Oreg.-Wash.: Supreme Court of the United States, October term 1935, State of Washington vs. State of Oregon, transcript of record, p. 132A, October 14, 1935.

Measurements of stream flow in the Pacific slope basins in Oregon and lower Columbia River Basin made at points other than gaging stations are given in the following table:

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1947 to September 1948

Walla Walla River Basin

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 10	Walla Walla River..	Columbia River....	Former station below Freewater, Oreg..	0
13	Touchet River.....	Walla Walla River.	On line between secs. 7 and 8, T. 9 N., R. 37 E., at road bridge 1/8 mile south of Bolles, Wash.	55.7
Nov. 23	....do.....	....do.....	....do.....	243
Jan. 19	....do.....	....do.....	....do.....	246
Mar. 2	....do.....	....do.....	....do.....	682
Apr. 23	....do.....	....do.....	....do.....	713
May 14	....do.....	....do.....	....do.....	1,300
June 18	....do.....	....do.....	....do.....	206
July 26	....do.....	....do.....	....do.....	59.5
Sept.15	....do.....	....do.....	....do.....	39.0
Oct. 13	Wolf Creek.....	East Fork Touchet River.	NW¼ sec. 26, T. 9 N., R. 39 E., just below Robinson Creek, 7 miles southeast of Dayton, Wash.	25.9
Nov. 24	....do.....	....do.....	....do.....	62.1
Jan. 20	....do.....	....do.....	....do.....	45.0
Mar. 2	....do.....	....do.....	....do.....	131
Apr. 23	....do.....	....do.....	....do.....	177
May 12	....do.....	....do.....	....do.....	201
June 16	....do.....	....do.....	....do.....	75.0
July 25	....do.....	....do.....	....do.....	29.3
Sept.15	....do.....	....do.....	....do.....	23.9
Mar. 2	South Fork Touchet River.	Touchet River.....	SE¼ sec. 5, T. 9 N., R. 39 E., at bridge, 2 miles southeast of Dayton, Wash.	116
Apr. 24	....do.....	....do.....	....do.....	152
May 14	....do.....	....do.....	....do.....	268
June 16	....do.....	....do.....	NE¼ sec. 5, T. 9 N., R. 39 E., ½ mile above mouth, near Dayton, Wash.	31.3
Oct. 13	....do.....	....do.....	Sec. 32, T. 10 N., R. 39 E., just above mouth, near Dayton, Wash.	7.96
Nov. 24	....do.....	....do.....	....do.....	40.9
Jan. 20	....do.....	....do.....	....do.....	35.7
July 25	....do.....	....do.....	....do.....	6.29
Sept.15	....do.....	....do.....	....do.....	2.81
Oct. 13	Patit Creek.....	....do.....	Sec. 30, T. 10 N., R. 39 E., just above mouth, at Dayton, Wash.	Trickle
Nov. 24	....do.....	....do.....	....do.....	13.7
Jan. 19	....do.....	....do.....	....do.....	30.0
Mar. 2	....do.....	....do.....	....do.....	102
Apr. 24	....do.....	....do.....	....do.....	63.6
May 15	....do.....	....do.....	....do.....	178
June 16	....do.....	....do.....	....do.....	15.9
July 25	....do.....	....do.....	....do.....	1.25
Sept.15	....do.....	....do.....	....do.....	.4

Umatilla River Basin, Oreg.

June 9	Unnamed tributary No. 1 of Butter Creek.	Butter Creek.....	NW¼NW¼ sec. 23, T. 2 N., R. 27 E., at highway crossing 2 miles northeast of Butter Creek bridge.	†5,260
9	Unnamed tributary No. 2 of Butter Creek.	....do.....	NW¼NW¼ sec. 23, T. 2 N., R. 27 E., 2.4 miles northeast of Butter Creek bridge.	†1,180

† Flow at crest stage; computed by slope-area method.

Willow Creek Basin, Oreg.

June 9	Black Horse Creek..	Willow Creek.....	3 miles southeast of Lexington.....	††1,130
9	....do.....	....do.....	At bridge half a mile east of Lexington.	‡900

‡ Flow at crest stage; computed as an average of 2 slope-area and 1 contracted-opening determinations.

†† Flow at crest stage; computed by slope-area method (supersedes figure published in Water-Supply Paper 1080, Floods of May-June 1948 in Columbia River Basin).

John Day River Basin, Oreg.

May	Canyon Creek.....	John Day River....	9 miles by highway south of John Day..	†600
May	South Fork John Day River.	....do.....	3 miles south of Dayville.....	†3,250
Feb. 14	Cottonwood Creek...	North Fork John Day River.	Mouth at Monument.....	25.0
June 10	Thirtymile Creek...	John Day River....	Highway crossing 6 miles south of Condon.	†4,520
June	Rock Creek.....	....do.....	Mouth near Rock Creek station.....	†763

† Flow at crest stage; computed by slope-area method.

Deschutes River Basin, Oreg.

Sept.29	Davis Creek.....	Daschutes River...	NW¼ sec. 8, T. 22 S., R. 8 E., above unnamed tributary.	207
July 2	Dry River.....	Crooked River.....	NW¼NW¼ sec. 11, T. 15 S., R. 14 E., just above unnamed tributary.	1.83
1	....do.....	....do.....	SW¼SE¼ sec. 27, T. 14 S., R. 14 E., below Wayne Ray diversion.	25.8
2	Unnamed stream.....	Dry River.....	SW¼SW¼ sec. 2, T. 15 S., R. 14 E., at mouth.	7.39

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1947 to September 1948--Continued

Deschutes River Basin, Oreg.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Mar. 6	Wilson Creek.....	Hay Creek.....	NE¼SW¼ sec. 5, T. 10 S., R. 15 E., below Lyle dam.	0.45
July 23	Badger Creek.....	White River.....	NE¼NE¼ sec. 6, T. 4 S., R. 13 E., at county road bridge.	9.57

Klickitat River Basin, Wash.

June 15	Hell Roaring Irrigation Co. canal	Hell Roaring Creek.	NW¼ sec. 33, T. 8 N., R. 12 E., 10 miles northwest of Glenwood.	1.06
July 20	....do.....	....do.....	....do.....	22.4
Aug. 25	....do.....	....do.....	....do.....	73.2

Little White Salmon River Basin, Wash.

Nov. 2	Broughton Lumber Co. diversion.	Little White Salmon River.	SW¼ sec. 36, T. 4 N., R. 9 E., at Willard.	19.4
Dec. 14	....do.....	....do.....	....do.....	20.9
Jan. 21	....do.....	....do.....	....do.....	21.8
Feb. 19	....do.....	....do.....	....do.....	25.0
Apr. 6	....do.....	....do.....	....do.....	21.2
May 17	....do.....	....do.....	....do.....	20.7
June 19	....do.....	....do.....	....do.....	21.4
July 26	....do.....	....do.....	....do.....	21.0
Aug. 28	... do.....	....do.....	....do.....	21.1

Willamette River Basin, Oreg.*

1948				
July 20	Leakage through tunnel from Waldo Lake.	Black Creek.....	Outlet of unused tunnel from Klovdahl Bay.	5.34
1947				
Oct. 28	McKenzie River....	Willamette River...	N½ sec. 20, T. 14 S., R. 7 E., 500 feet below Middle Falls.	716
Nov. 7	....do.....	....do.....	....do.....	569
1948				
Jan. 1	....do.....	....do.....	....do.....	567
20	....do.....	....do.....	....do.....	749
Feb. 16	....do.....	....do.....	....do.....	521
Mar. 25	....do.....	....do.....	....do.....	527
May 19	....do.....	....do.....	....do.....	869
July 16	....do.....	....do.....	....do.....	616
Sept. 22	....do.....	....do.....	....do.....	436
30	....do.....	....do.....	....do.....	469
1947				
Oct. 28	....do.....	....do.....	NW¼ sec. 20, T. 14 S., R. 7 E., a third of a mile below Middle Falls.	677
Nov. 7	....do.....	....do.....	....do.....	585
1948				
Jan. 1	....do.....	....do.....	....do.....	615
20	....do.....	....do.....	....do.....	759
Feb. 16	....do.....	....do.....	....do.....	493
Mar. 25	....do.....	....do.....	....do.....	523
May 19	....do.....	....do.....	....do.....	860
July 16	....do.....	....do.....	....do.....	614
Sept. 30	....do.....	....do.....	....do.....	484
1947				
Oct. 28	....do.....	....do.....	NE¼ sec. 1, T. 15 S., R. 6 E., 0.3 mile upstream from Kink Creek and a mile below Lower Falls.	900
Nov. 7	....do.....	....do.....	....do.....	809
1948				
Jan. 2	....do.....	....do.....	....do.....	924
Feb. 16	....do.....	....do.....	....do.....	707
Mar. 25	....do.....	....do.....	....do.....	802
May 19	....do.....	....do.....	....do.....	1,140
July 16	....do.....	....do.....	....do.....	916
Sept. 30	....do.....	....do.....	....do.....	690
1946				
Oct. 1	Anderson Creek....	McKenzie River.....	Mouth, 5 miles north of Balknap Springs.	a24.2
Dec. 16	....do.....	....do.....	....do.....	a61
Apr. 25	....do.....	....do.....	....do.....	a26.7
1947				
June 18	....do.....	....do.....	....do.....	a28
Oct. 29	....do.....	....do.....	....do.....	27.2
Dec. 31	....do.....	....do.....	....do.....	24.2
1948				
May 19	....do.....	....do.....	....do.....	33.1
Sept. 22	....do.....	....do.....	....do.....	28.4
1947				
Oct. 29	Olallie Creek.....	....do.....	....do.....	149
Dec. 31	....do.....	....do.....	....do.....	162
1948				
May 19	....do.....	....do.....	....do.....	161
Sept. 22	....do.....	....do.....	....do.....	166
1947				
Nov. 6	Gate Creek.....	....do..	Mouth, at Vida.....	358
Dec. 29	....do.....	....do.....	....do.....	252

* Includes discharge measurements made in the water year 1946-47.
a Furnished by Eugene Water & Electric Board.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1947 to September 1948--Continued

Willamette River Basin, Oreg.*--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
1948				
Jan. 7	Gate Creek.....	McKenzie River....	Mouth, at Vida.....	2,740
8	....do.....	....do.....	....do.....	1,490
Feb. 3	....do.....	....do.....	....do.....	94.4
Mar. 18	....do.....	....do.....	....do.....	273
May 11	....do.....	....do.....	....do.....	238
July 16	....do.....	....do.....	....do.....	47.1
July 23	Calapooya River..	Willamette River..	Mouth, below power plant at Albany.....	247
1947				
Oct. 20	Little Luckiamute River.	Luckiamute River..	Bridge, 0.5 mile above mouth, near Suver.	b2,040
Nov. 5	....do.....	....do.....	....do.....	491
1948				
Apr. 19	....do.....	....do.....	....do.....	462
June 1	....do.....	....do.....	....do.....	152
July 19	....do.....	....do.....	....do.....	35.5
Sept. 17	....do.....	....do.....	....do.....	17.5
1947				
Oct. 21	Turner Creek.....	North Yamhill River.	Mouth, 4 miles northwest of Yamhill....	60.6
Nov. 21	....do.....	....do.....	....do.....	42.2
Dec. 15	....do.....	....do.....	....do.....	72.4
1948				
Feb. 20	....do.....	....do.....	....do.....	88.0
Apr. 5	....do.....	....do.....	....do.....	57.0
June 24	....do.....	....do.....	....do.....	9.08
Sept. 7	....do.....	....do.....	....do.....	3.48
23	....do.....	....do.....	....do.....	10.9
1947				
Oct. 2	Mill Creek.....	Pudding River.....	Mouth, at Aurora.....	7.96
1948				
July 20	....do.....	....do.....	....do.....	9.26
Sept. 22	....do.....	....do.....	....do.....	10.5

* Includes discharge measurements made in the water year 1946-47.
b Furnished by Corps of Engineers.

Lewis River Basin, Wash.

Nov. 5	Basket Creek.....	East Fork Lewis River.	N½ sec. 17, T. 4 N., R. 3 E., opposite East Fork gage, 1½ miles northeast of Heisson.	3.49

Umpqua River Basin, Oreg.

Sept. 15	North Umpqua River.	Umpqua River.....	Sec. 21, T. 26 S., R. 3 E., just above mouth of Slide Creek.	885
15	Slide Creek.....	North Umpqua River	Mouth, sec. 21, T. 26 S., R. 3 E.	c5
14	Fish Creek.....	....do.....	NW¼ sec. 19, T. 27 S., R. 4 E., just below Rough Creek.	64.6
14	Rough Creek.....	Fish Creek.....	Mouth, NW¼ sec. 19, T. 27 S., R. 4 E...	c15

c Estimated.

Rogue River Basin, Oreg.

Mar. 31	Jack Creek.....	Jump-off Joe Creek	Sec. 32, T. 34 S., R. 5 W., near mouth.	23.2
Feb. 23	Burgess Gulch....	Shanks Creek.....	SW¼ sec. 7, T. 34 S., R. 5 W., near mouth.	22.6
Mar. 4	....do.....	....do.....	....do.....	1.92
25	....do.....	....do.....	....do.....	9.78

INDEX