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SURFACE WATER SUPPLY *of the* UNITED STATES

1929

PART IV

ST. LAWRENCE RIVER BASIN

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FIGURE 1. Typical river measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car. 3

SURFACE WATER SUPPLY OF ST. LAWRENCE RIVER BASIN, 1929

AUTHORIZATION AND SCOPE OF WORK

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

The data presented in these reports were collected by the United States Geological Survey under the following authority contained in the organic law (20 Stat. L., p. 394):

Provided, That this officer [the director] shall have the direction of the Geological Survey and the classification of public lands and examination of the geological structure, mineral resources, and products of the national domain.

The work was begun in 1888 in connection with special studies relating to irrigation. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

For gaging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and for the preparation of reports upon the best methods of utilizing the water resources.

Annual appropriations for the fiscal years ending June 30, 1895–1930

1895	$12,500.00	1919	$148,244.10
1896	24,500.00	1920	175,000.00
1897–1900	50,000.00	1921–1923	180,000.00
1901–1902	100,000.00	1924–1925	170,000.00
1903–1906	200,000.00	1926	165,000.00
1907	150,000.00	1927	151,000.00
1908–1910	100,000.00	1928	147,000.00
1911–1917	150,000.00	1929	270,500.00
1918	175,000.00	1930	275,000.00

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

Measurements of stream flow have been made at about 5,830 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1929, 2,240 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements were made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet, and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, run-off in inches, and acre-feet. They may be defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

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

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

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

The following terms not in common use are here defined:

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

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

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1928, and ending September 30, 1929. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as underground water and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general

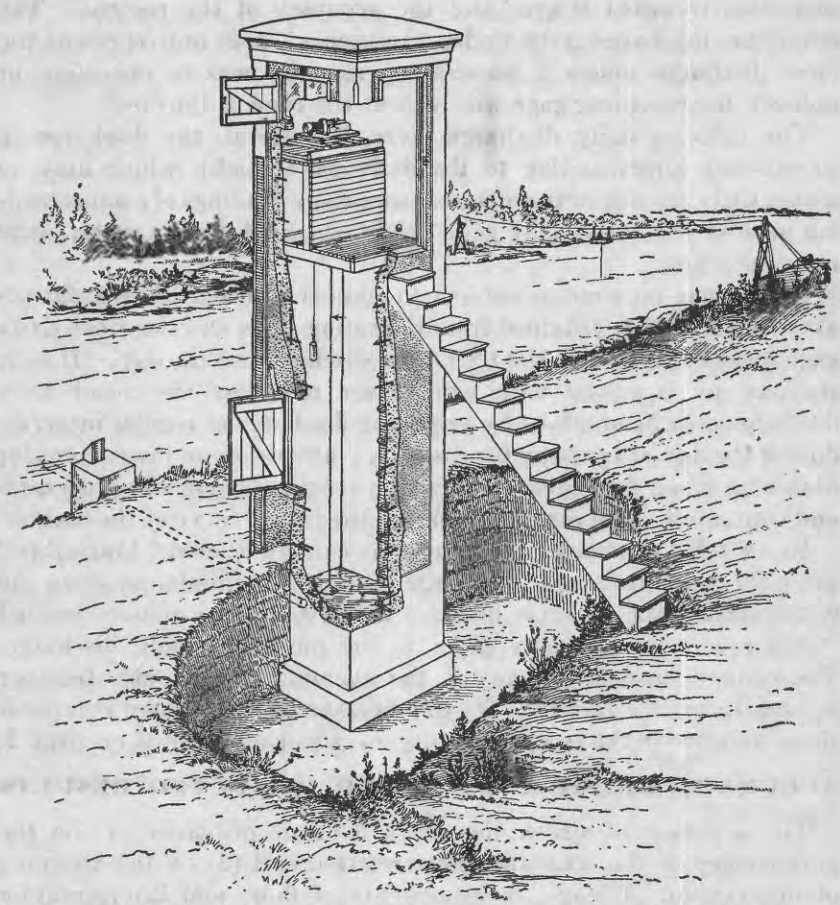

FIGURE 1.—Typical river measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

methods outlined in standard textbooks on the measurement of river discharge. A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

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

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records. The maximum discharge given under "Extremes" does not represent the crest discharge unless a water-stage recorder was in operation or unless a nonrecording gage was read at the time of the crest.

The table of daily discharge gives, in general, the discharge in second-feet corresponding to the daily gage height, which may be a once daily reading or the mean of twice daily readings of a nonrecording gage or the mean daily gage height obtained from a water-stage recorder graph.

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and run-off in inches may be subject to gross errors caused by the inclusion of large noncontribut-

ing districts in the measured drainage area, by lack of information concerning water diverted for irrigation or other use, or by inability to interpret the effect of artificial regulation of the flow of the river above the station. "Second-feet per square mile" and "run-off in inches" are therefore not computed if such errors appear probable. The computations are also omitted for stations on streams draining areas in which the annual rainfall is less than 20 inches.

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

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

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigations of such closely allied subjects as irrigation, water storage, water power, underground waters, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

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

Part I. North Atlantic slope basins (St. John River to York River).
II. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).
III. Ohio River Basin.
IV. St. Lawrence River Basin.
V. Upper Mississippi River Basins and Hudson Bay.
VI. Missouri River Basin.
VII. Lower Mississippi River Basin.
VIII. Western Gulf of Mexico Basins.
IX. Colorado River Basin.
X. The Great Basin.
XI. Pacific slope basins in California.
XII. North Pacific slope basins, in three parts:
A, Pacific slope basins in Washington and upper Columbia River Basin.
B, Snake River Basin.
C, Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

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

Augusta, Me., Statehouse.
Boston, Mass., 2500 Customhouse.
Hartford, Conn., 60 Washington Street.
Albany, N. Y., 506 Broadway-Arcade Building.
Trenton, N. J., 710 Trenton Trust Building.
Charlottesville, Va., Brooks Museum, University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Ashville, N. C., 210 Post Office Building.
Columbia, S. C., 801 National Loan & Exchange Bank Building.
Ocala, Fla., Post Office Building.
Tuscaloosa, Ala., Post Office Building.
Chattanooga, Tenn., 630 Power Building.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Indianapolis, Ind., 319 Federal Building.
Lansing, Mich., M9 State Office Building.
Chicago, Illinois, 1503 Consumers Building.
Madison, Wis., 337N State Capitol.
St. Paul, Minn., 202 Old State Capitol.
Topeka, Kans., 23 Federal Building.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Austin, Tex., State Capitol.
Tucson, Ariz., 210 Post Office Building.
Denver Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Helena, Mont., 416 Power Block.
Tacoma, Washington, 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 751 South Figueroa Street, room 510.
Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 5,830 points in the United States, and the data obtained have been published in the reports tabulated on page 7.

Stream-flow data in reports of the United States Geological Survey

[A=Annual Report; B=Bulletin; W=Water-Supply Paper]

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to Sept., 1890.
12th A, pt. 2	do	1884 to June 30, 1981.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage height (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River, and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907 and 1908.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919 and 1920.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.
W 621 to 634	do	1926.
W 641 to 654	do	1927.
W 661 to 674	do	1928.
W 681 to 694	do	1929.

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

Numbers of water-supply papers containing results of stream measurements, 1899-1929

[For basins included see p. 5]

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII-A	XII-B	XII-C
1899 [a]	35	[b] 35,36	36	36	36	[c] 36, 37	37	37	[d] 37, 38	38, [e] 39	38, [f] 39	38	38	38
1900 [g]	47, [h] 48	48	48, [i] 49	49	49	49, [j] 50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	[k] 65, 66, 75	66, 75	[k] 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	[b] 82,83	83	[l] 82, 83	[k] 83,85	84	[k] 83,84	84	85	85	85	85	85	85
1903	97	[b] 97,98	98	97	[k] 98, 99, [m] 100	99	[k] 98,99	99	100	100	100	100	100	100
1904	[n] 124, [o] 125 [p] 126	[p] 126,127	128	129	[k] 128,130	130, [q] 131	[k] 128, 131	132	133	133, [r] 134	134	135	135	135
1905	[n] 165, [o] 166 [p] 167	[p] 167,168	169	170	171	172	[k] 169, 173	174	175, [s] 177	176, [r] 177	177	178	178	[t] 177, 178
1906	[n] 201, [o] 202 [p] 203	[p] 203,204	205	206	207	208	[k] 205, 209	210	211, [s] 213	212, [r] 213	213	214	214	214
1907-8	241	242	243	244	245	246	247	248	249	250, [r] 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, [r] 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929	681	682	683	684	685	686	687	688	689	690	691	692	693	694

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part IV.
[b] James River only.
[c] Gallatin River.
[d] Green and Gunnison Rivers and Grand River above junction with Gunnison.
[e] Mohave River only.
[f] Kings and Kern Rivers and south Pacific slope basins.
[g] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Tables of monthly discharge for 1900 in Twenty-second Annual Report, Part IV.
[h] Wissahickon and Schuylkill Rivers to James River.
[i] Scioto River.
[j] Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with Platte.
[k] Tributaries of Mississippi from east.
[l] Lake Ontario and tributaries to St. Lawrence proper.
[m] Hudson Bay only.
[n] New England rivers only.
[o] Hudson River to Delaware River inclusive.
[p] Susquehanna River to Yadkin River, inclusive.
[q] Platte and Kansas Rivers.
[r] Great Basin in California, except Truckee and Carson River Basins.
[s] Below junction with Gila.
[t] Rogue, Umpqua, and Silets Rivers only.

The preceding table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1929. The data for any particular station will, as a rule, be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part III are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

COOPERATION

The work was done in cooperation with the several States as follows: In Wisconsin with the Railroad Commission of Wisconsin, C. B. Hayden, chief engineer; in Illinois with the Department of Purchases and Construction, division of waterways, William F. Mulvihill, supervisor; in Ohio with the Ohio Cooperative Topographic Survey, C. E. Sherman, inspector; in New York with the Department of Public Works, Frederick Stuart Greene, superintendent; and in Vermont with the Public Service Commission, H. B. Shaw, chairman.

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DIVISION OF WORK

Data for stations in the Lake Michigan drainage basin, except as indicated below, were collected and prepared for publication under the direction of S. B. Soulé, district engineer, assisted by A. H. Frazier and Jacob Schmidt.

Data for the station in Illinois and the Kalamazoo River near Allegan, Mich., were collected and prepared for publication by H. E. Grosbach, district engineer, assisted by E. F. Rutkowski.

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The manuscript was assembled and reviewed by Otto Lauterhahn.

GAGING-STATION RECORDS

STREAMS TRIBUTARY TO LAKE MICHIGAN

MENOMINEE RIVER AT TWIN FALLS, NEAR IRON MOUNTAIN, MICH.

LOCATION.—In sec. 12, T. 40 N., R. 31 W., at power plant of Wisconsin Michigan Power Co., 3½ miles north of Iron Mountain.

DRAINAGE AREA.—1,790 square miles.

RECORDS AVAILABLE.—January, 1914, to September, 1929.

EXTREMES.—Maximum mean daily discharge during year, 13,500 second-feet Apr. 9; minimum, 802 second-feet Aug. 25.

1914–1929: Maximum mean daily discharge, 16,700 second-feet Apr. 23 and 24, 1916; minimum, 154 second-feet Aug. 9, 1925.

REMARKS.—Records good. Discharge determined from power-plant records. Flow regulated by power plant at station and by plant on Brule River about 5 miles above station. Records of daily discharge furnished by Wisconsin Michigan Power Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,880	2,870	1,790	866	1,190	1,080	4,340	3,380	3,390	2,100	1.440	819
2	1,970	2,890	1,180	1,210	995	1,120	4,090	3,660	3,330	2,020	1.450	863
3	1,970	2,270	1,640	1,300	914	991	3,260	4,750	2,680	1,910	1.410	955
4	1,870	2,170	1,730	1,340	1,200	1,130	3,180	3,420	2,250	1,480	966	907
5	1,930	2,090	1,480	1,320	1,190	1,150	5,370	3,430	2,240	1,700	1.150	922
6	2,090	1,790	1,330	1,180	1,140	1,170	7,960	3,040	2,200	1,850	1.100	997
7	2,060	2,120	1,290	1,120	1,110	1,200	9,940	2,520	2,110	1,740	1.110	1,130
8	2,080	2,190	1,050	1,180	1,110	1,140	12,700	2,530	1,730	2,810	1.060	883
9	2,210	2,080	856	1,110	998	1,030	13,500	2,290	1,380	5,030	1.040	1,030
10	2,210	2,220	1,220	1,080	927	1,060	10,500	2,210	1,770	5,660	1.010	1,490
11	2,200	1,890	1,300	1,120	1,130	1,100	7,810	2,210	1,870	4,880	903	1,400
12	2,330	2,080	1,500	993	1,160	1,150	7,040	1,860	2,100	4,330	1.060	1,480
13	4,020	2,160	1,730	924	1,140	1,600	5,690	1,960	2,250	3,740	1.120	1,480
14	4,670	1,960	1,710	1,310	1,240	2,040	5,810	2,010	2,270	3,410	1.110	1,340
15	4,450	1,810	1,670	1,280	1,170	2,070	4,750	2,070	2,260	3,270	1.250	1,020
16	3,660	1,900	1,660	1,330	1,090	1,880	4,400	3,440	1,790	2,560	1.410	1,100
17	4,730	2,220	1,730	1,310	1,030	1,960	4,190	3,690	1,900	2,430	1.350	1,160
18	5,240	2,290	1,690	1,390	1,160	2,080	4,030	3,700	1,890	2,860	1.100	1,140
19	5,400	2,180	1,390	1,190	1,140	2,210	4,040	3,970	1,930	2,380	1.200	1,200
20	5,660	2,180	1,460	1,050	1,110	2,220	3,470	3,660	1,890	2,180	1.060	1,200
21	4,990	2,190	1,460	1,230	1,120	2,200	3,230	2,480	1,850	1,750	1.000	1,210
22	4,660	2,130	1,270	1,320	1,150	2,210	4,140	2,910	1,550	1,940	1.020	904
23	4,470	1,920	848	1,240	1,110	2,120	3,280	2,900	1,210	2,010	1.120	1,070
24	4,500	1,490	872	1,170	988	1,590	2,890	2,900	1,660	1,810	1.030	1,140
25	4,290	1,100	922	1,220	1,110	1,730	3,150	2,900	1,750	1,820	802	1,020
26	3,920	1,440	1,500	1,160	1,080	1,820	2,930	2,650	1,850	1,760	1.070	1,110
27	3,680	1,620	1,770	1,000	1,100	1,570	2,920	2,480	1,970	1,540	966	1,110
28	3,500	1,840	1,740	1,230	1,120	2,090	2,840	2,840	2,110	1,190	967	1,290
29	2,880	1,580	1,330	1,250	-------	2,240	2,720	3,460	2,120	1,510	959	1,240
30	2,880	1,610	1,060	1,240	-------	2,770	2,850	4,410	1,880	1,410	941	1,730
31	2,900	-------	1,170	1,210	-------	4,870	-------	3,790	-------	1,470	949	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,660	1,870	3,400	1.90	2.19
November	2,890	1,100	2,010	1.12	1.25
December	1,790	848	1,400	.782	.90
January	1,390	866	1,190	.665	.77
February	1,240	914	1,100	.615	.64
March	4,870	991	1,760	.983	1.13
April	13,500	2,720	5,230	2.92	3.26
May	4,750	1,860	3,020	1.69	1.95
June	3,390	1,210	2,040	1.14	1.27
July	5,660	1,190	2,470	1.38	1.59
August	1,450	802	1,100	.615	.71
September	1,730	819	1,140	.637	.71
The year	13,500	802	2,160	1.21	16.37

MENOMINEE RIVER BELOW KOSS, MICH.

LOCATION.—In sec. 9, T. 34 N., R. 27 W., at power plant of Menominee & Marinette Light & Traction Co., half a mile above Little Cedar River and 4 miles below Koss.

DRAINAGE AREA.—3,790 square miles.

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

EXTREMES.—Maximum daily discharge during year, 19,700 second-feet Apr. 11; minimum, 775 second-feet Sept. 3.

1913–1929: Maximum mean daily discharge, 23,200 second-feet Apr. 23 and 25, 1916; minimum, 706 second-feet Jan. 13, 1926.

REMARKS.—Records good. Discharge determined from power-plant records. Flow regulated at six dams above station. Records of daily discharge furnished by Wisconsin Public Service Corporation.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,970	5,310	3,170	1,790	2,370	1,810	9,250	4,310	5,760	3,850	2,410	1,410
2	3,430	5,270	3,470	2,010	2,420	1,890	9,030	5,140	5,940	4,120	2,210	1,390
3	3,390	5,240	3,030	2,360	4,390	1,740	8,690	6,260	5,530	3,530	2,120	775
4	4,120	4,760	2,900	2,510	2,320	1,620	8,910	7,080	5,090	3,470	1,880	984
5	3,160	4,390	2,560	2,000	2,140	1,810	8,660	7,330	3,700	3,150	1,930	1,640
6	3,480	3,850	1,880	2,260	2,140	1,900	9,290	6,020	3,940	2,680	2,020	1,370
7	3,530	3,890	2,000	2,160	2,400	1,770	12,700	5,760	4,000	2,930	1,670	1,380
8	3,350	3,820	2,360	1,990	2,400	1,810	15,300	4,440	3,880	3,280	1,700	1,610
9	4,460	4,280	2,290	2,130	2,450	1,860	14,800	4,160	3,320	3,460	1,970	1,420
10	3,640	4,000	2,930	2,100	2,500	1,680	19,500	4,030	2,620	4,690	1,820	1,380
11	4,710	4,800	2,460	2,130	2,500	1,700	19,700	3,810	2,350	5,970	1,910	1,930
12	4,460	3,840	2,590	1,980	2,360	1,810	18,800	4,810	3,230	5,820	1,750	2,040
13	4,630	4,020	2,810	2,140	2,350	2,290	16,200	3,430	3,630	5,200	1,560	2,890
14	6,270	3,650	2,920	1,940	2,400	1,840	14,000	3,280	3,470	4,690	1,740	2,150
15	8,060	3,890	3,390	2,000	2,350	2,050	10,600	3,150	3,530	3,740	1,720	1,980
16	7,440	3,870	3,980	1,940	2,300	3,460	9,270	3,730	3,430	3,390	1,740	1,960
17	6,780	3,330	5,890	2,450	2,250	3,070	6,910	5,130	3,530	3,230	1,520	2,140
18	7,510	4,320	2,920	2,420	2,200	3,590	6,660	6,500	3,170	3,800	1,860	1,970
19	8,950	4,200	3,080	2,450	2,150	3,790	6,390	6,480	3,440	3,940	1,810	1,990
20	8,400	4,020	2,960	2,440	2,200	3,580	6,520	6,310	2,480	3,890	1,960	1,810
21	8,850	3,420	2,550	2,740	1,170	4,280	7,280	6,180	2,970	3,670	1,970	1,830
22	11,100	3,920	2,470	2,040	2,070	5,890	7,170	5,060	2,470	2,740	1,600	1,860
23	9,030	3,700	3,720	2,300	1,720	6,300	6,100	4,630	2,380	2,280	1,790	1,630
24	8,880	4,060	2,930	2,270	1,880	6,330	6,180	4,240	2,490	3,010	1,800	1,760
25	8,840	3,020	3,110	2,150	1,610	6,390	6,190	4,110	2,540	3,160	1,640	1,830
26	8,190	2,430	2,680	1,850	1,700	5,870	6,500	3,660	2,870	2,960	1,720	1,640
27	7,740	2,210	2,530	2,280	1,960	5,180	6,680	3,850	3,070	2,340	1,520	1,810
28	6,560	3,310	2,590	1,850	1,940	6,400	4,880	3,670	3,280	2,360	1,630	1,680
29	7,070	3,460	2,220	2,160	-------	7,300	4,530	5,150	4,240	2,300	1,740	1,750
30	6,060	3,480	1,860	1,860	-------	7,060	4,220	5,340	4,000	2,280	1,450	2,070
31	5,460	-------	1,820	2,300	-------	7,810	-------	6,100	-------	2,380	1,620	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	11,100	3,160	6,180	1.63	1.88
November	5,310	2,210	3,930	1.04	1.16
December	5,890	1,820	2,840	.749	.86
January	2,740	1,790	2,160	.570	.66
February	4,390	1,170	2,240	.591	.62
March	7,810	1,620	3,670	.968	1.12
April	19,700	4,220	9,700	2.56	2.86
May	7,330	3,150	4,940	1.30	1.50
June	5,940	2,350	3,540	.934	1.04
July	5,970	2,280	3,490	.921	1.06
August	2,410	1,450	1,800	.475	.55
September	2,890	775	1,740	.459	.51
The year	19,700	775	3,860	1.02	13.82

PINE RIVER AT PINE RIVER POWER PLANT, NEAR FLORENCE, WIS.

LOCATION.—In sec. 28, T. 39 N., R. 18 E., at power plant of Wisconsin Michigan Power Co. 6½ miles south of Florence.

DRAINAGE AREA.—520 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929. January, 1914, to September, 1923, at station 4 miles upstream.

EXTREMES.—Maximum mean daily discharge during year, 4,380 second-feet Apr. 9; minimum, 59 second-feet Sept. 2.

1924–1929: Maximum mean daily discharge, that of Apr. 9, 1929; no flow Jan. 20, 1924, Feb. 28, 1926, and Sept. 4, 1927.

REMARKS.—Records good for medium and low stages; fair for high stages. Discharge determined from power-house records. Flow regulated by power plant at station, but pondage is small and monthly discharge is very nearly natural flow. Records of daily discharge furnished by Wisconsin Michigan Power Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	593	765	494	295	282	266	875	1,370	1,130	997	258	181
2	590	658	381	295	295	221	1,120	1,530	1,040	842	242	59
3	468	595	493	297	208	221	1,070	1,530	880	699	245	248
4	590	595	405	295	282	282	1,100	1,360	820	655	180	243
5	505	641	387	209	282	282	1,480	1,280	705	572	232	217
6	775	595	224	295	286	275	2,490	1,180	675	613	202	162
7	798	595	327	295	283	280	3,580	1,140	590	834	224	155
8	815	595	344	295	295	244	4,240	960	587	965	233	111
9	835	595	396	258	295	282	4,380	825	585	1,050	295	200
10	828	595	330	295	288	189	3,880	824	546	1,050	295	295
11	812	593	332	295	295	280	3,240	825	571	1,050	218	258
12	878	517	448	295	282	258	2,790	825	590	864	285	290
13	1,080	592	394	297	282	354	2,370	812	591	800	271	291
14	1,080	590	494	295	246	475	2,080	675	710	802	287	292
15	1,150	465	490	295	258	535	1,750	703	702	638	317	241
16	1,060	554	467	295	282	577	1,620	1,260	619	569	284	292
17	1,240	590	590	295	208	579	1,320	1,510	565	619	311	292
18	1,380	590	482	258	282	579	1,190	1,530	559	682	280	245
19	1,540	556	488	295	282	690	1,190	1,360	564	577	287	251
20	1,540	591	281	208	282	650	1,190	1,290	563	449	283	263
21	1,530	505	340	315	258	586	1,180	1,150	563	323	260	191
22	1,520	553	295	326	256	590	1,080	1,060	533	397	256	239
23	1,450	391	300	282	243	590	828	1,060	406	392	191	291
24	1,410	507	295	282	203	582	827	921	390	320	198	191
25	1,410	401	334	282	258	580	824	820	475	286	145	287
26	1,190	447	390	281	258	587	827	814	500	293	168	242
27	1,070	453	390	221	262	552	819	933	589	310	286	295
28	1,040	505	364	285	229	659	876	1,130	1,090	284	221	363
29	896	389	376	282	-------	870	945	1,270	1,170	328	236	425
30	701	394	295	255	-------	1,160	975	1,270	1,150	256	218	431
31	765	-------	295	282	-------	1,280	-------	1,270	-------	255	237	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,540	468	1,020	1.96	2.26
November	765	389	547	1.05	1.17
December	590	224	385	.740	.85
January	326	208	282	.542	.62
February	295	203	266	.512	.53
March	1,280	189	502	.965	1.11
April	4,380	819	1,740	3.35	3.74
May	1,530	675	1,110	2.13	2.46
June	1,170	390	682	1.31	1.46
July	1,050	255	606	1.17	1.35
August	317	145	247	.475	.55
September	431	59	254	.488	.54
The year	4,380	59	638	1.23	16.64

PIKE RIVER AT AMBERG, WIS.

LOCATION.—Chain gage in sec. 15, T. 35 N., R. 20 E., at Chicago, Milwaukee, St. Paul & Pacific Railway bridge half a mile south of Amberg.

DRAINAGE AREA.—240 square miles.

RECORDS AVAILABLE.—February, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,200 second-feet Apr. 8 (gage height, 4.70 feet); minimum, 56 second-feet Sept. 12 (gage height, 1.23 feet).

1914–1929: Maximum discharge, 2,730 second-feet Apr. 10, 1922 (gage height, 7.68 feet); minimum, 26 second-feet Dec. 27, 1925.

REMARKS.—Records good except those for periods of ice effect, Dec. 17–26 and Jan. 3 to Mar. 19, and those for periods of estimated discharge, Mar. 22–24, Apr. 9–15, and Sept. 3–10, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	333	348	244	258	150	160	510	476	348	318	138	138
2	333	333	244	258	160	170	546	510	333	318	138	128
3	318	318	244	250	170	180	546	510	318	288	128	121
4	333	318	258	245	170	170	658	476	318	230	128	114
5	348	288	244	205	150	170	904	444	303	204	128	106
6	348	288	258	205	160	170	1,120	428	288	204	138	99
7	348	303	258	245	160	170	1,160	412	273	258	138	92
8	348	333	273	205	170	170	1,200	412	258	230	138	85
9	318	348	288	205	180	150	1,120	348	244	288	169	78
10	288	318	273	230	180	150	1,050	364	230	258	180	70
11	258	318	258	245	190	150	968	380	217	230	169	63
12	258	318	244	260	180	170	891	364	230	217	158	56
13	230	303	244	245	170	215	814	364	258	230	204	62
14	318	318	258	260	180	230	736	348	303	204	204	460
15	204	348	288	215	170	250	659	348	288	180	192	308
16	318	333	318	180	180	430	582	444	244	180	180	192
17	258	318	320	180	190	475	582	476	230	169	192	169
18	318	303	320	180	180	580	546	476	244	273	180	138
19	380	348	320	180	170	1,160	510	444	230	258	180	148
20	510	333	320	180	170	620	476	412	258	230	169	148
21	658	318	320	160	160	582	460	396	258	230	158	148
22	620	288	320	170	160	556	444	380	230	204	158	148
23	546	258	320	170	150	529	428	380	258	180	148	148
24	476	258	320	170	150	502	412	348	258	180	138	148
25	476	244	350	160	150	476	444	333	230	169	158	148
26	412	244	410	150	140	476	412	318	258	158	148	148
27	412	244	476	160	150	546	396	318	348	148	148	138
28	396	244	380	160	160	620	380	380	510	148	138	138
29	380	258	288	160	-------	778	380	380	546	138	138	128
30	364	244	258	170	-------	904	412	412	444	138	138	128
31	348	-------	258	160	-------	820	-------	380	-------	138	138	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	658	204	370	1.54	1.78
November	348	244	301	1.25	1.40
December	476	244	296	1.23	1.42
January	260	150	201	.838	.97
February	190	140	166	.692	.72
March	1,160	150	411	1.71	1.97
April	1,200	380	658	2.74	3.06
May	510	318	402	1.68	1.94
June	546	217	292	1.22	1.36
July	318	138	213	.888	1.02
August	204	128	157	.654	.75
September	460	56	140	.583	.65
The year	1,200	56	301	1.25	17.04

PESHTIGO RIVER AT HIGH FALLS, NEAR CRIVITZ, WIS.

LOCATION.—In sec. 1, T. 32 N., R. 18 E., at High Falls power house of Wisconsin Public Service Corporation, 1 mile above Thunder River and 10 miles west of Crivitz.

DRAINAGE AREA.—520 square miles.

RECORDS AVAILABLE.—August, 1912, to September, 1929.

EXTREMES.—Maximum mean daily discharge during year, 3,380 second-feet Apr. 9; minimum, 2 second-feet Jan. 27 and Mar. 10.

1912–1929: Maximum discharge, 3,860 second-feet Apr. 11, 1922 (gage height, 7.80 feet); minimum, no flow on several days during 1925 and 1928. Extreme flows due to regulation.

REMARKS.—Records fair. Discharge determined from records of power plant. Flow regulated by storage in service reservoir. Records of daily discharge furnished by Wisconsin Public Service Corporation.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	619	714	582	229	686	405	655	879	796	1,250	696	192
2	641	711	490	722	510	339	1,040	1,240	324	623	533	192
3	761	721	747	737	60	418	1,460	1,140	915	720	298	368
4	601	402	441	710	1,040	460	1,470	1,170	962	736	590	380
5	533	724	491	275	638	390	1,710	869	658	738	515	278
6	532	749	581	284	393	453	2,200	1,180	624	492	438	427
7	445	570	528	722	186	341	1,190	992	567	575	416	272
8	779	599	179	453	302	398	3,090	851	634	568	278	272
9	1,120	554	431	380	292	641	3,380	663	520	782	396	362
10	583	501	569	328	348	2	2,610	807	609	603	478	344
11	528	663	551	174	740	1,040	2,390	522	729	628	464	357
12	736	459	492	362	563	761	1,760	754	651	614	454	560
13	825	1,080	472	391	306	674	2,340	881	564	775	434	313
14	772	616	748	535	412	697	730	787	652	182	410	334
15	869	674	778	322	390	325	1,440	854	469	626	538	408
16	891	616	509	597	784	1,170	1,970	880	347	688	551	528
17	811	556	660	1,080	374	143	1,170	840	692	598	394	588
18	1,160	524	735	622	494	651	1,200	1,010	704	398	344	584
19	1,410	741	539	647	542	704	972	879	830	582	786	825
20	1,260	669	633	341	675	1,090	1,050	854	667	460	593	682
21	1,330	719	747	778	554	880	1,270	952	512	402	474	428
22	1,610	882	523	447	509	867	992	813	577	826	518	396
23	1,190	581	110	712	289	1,150	1,100	722	382	580	452	466
24	957	587	324	563	902	819	760	667	481	428	434	520
25	1,160	395	192	483	595	792	686	684	704	619	380	500
26	1,100	603	749	539	701	1,420	829	594	712	594	546	658
27	1,020	668	572	2	504	1,470	819	873	365	411	532	268
28	819	558	602	867	474	1,480	1,380	722	715	156	620	382
29	872	259	507	646	------	1,340	782	797	1,080	395	314	232
30	784	659	174	186	------	1,450	716	761	908	184	316	799
31	789	------	492	395	------	807	------	1,230	------	404	208	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,610	445	887	1.71	1.97
November	1,080	259	625	1.20	1.34
December	778	110	521	1.00	1.15
January	1,080	2	501	.963	1.11
February	1,040	60	509	.979	1.02
March	1,480	2	761	1.46	1.68
April	3,380	655	1,440	2.77	3.09
May	1,240	522	867	1.67	1.92
June	1,080	324	645	1.24	1.38
July	1,250	156	569	1.09	1.26
August	786	208	465	.894	1.03
September	825	192	430	.827	.92
The year	3,380	2	680	1.31	17.87

OCONTO RIVER NEAR GILLETT, WIS.

LOCATION.—Chain gage in sec. 34, T. 28 N., R. 18 E., at highway bridge 2½ miles southeast of Gillett.

DRAINAGE AREA.—678 square miles.

RECORDS AVAILABLE.—June, 1906, to March, 1909; January, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,424 second-feet Apr. 9 (gage height, 6.85 feet); minimum, 262 second-feet Sept. 8 (gage height, 0.80 foot).

1906–1929: Maximum discharge, 6,470 second-feet Apr. 11, 1922, caused by failure of a dam at Pulcifer, 4 miles upstream (gage height, 9.1 feet); minimum, 95 second-feet June 3 and 6, 1907 (gage height, 0.1 foot).

REMARKS.—Records good except those for period of ice effect, Dec. 5–13 and Dec. 18 to Mar. 23, which are fair. Discharge estimated Apr. 13.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	769	950	607	605	445	465	2,640	1,500	827	1,020	406	336
2	741	887	582	580	445	465	2,480	1,430	769	1,020	370	336
3	713	827	686	580	445	490	2,320	1,430	769	827	336	320
4	659	827	713	555	445	510	2,240	1,360	741	769	336	305
5	713	827	685	510	445	510	2,960	1,360	713	713	352	290
6	510	769	660	510	445	510	3,040	1,290	686	633	352	320
7	557	769	660	535	445	510	3,440	1,290	659	534	336	305
8	1,920	769	660	535	445	510	3,760	1,150	659	582	336	262
9	1,150	769	660	465	445	510	4,240	1,080	633	713	387	290
10	1,020	769	660	465	445	535	4,000	1,020	582	741	446	305
11	1,150	769	660	465	445	535	3,840	1,020	582	769	406	305
12	1,150	769	770	465	445	555	3,280	1,020	582	827	370	320
13	1,150	1,020	825	465	445	605	3,000	950	659	1,290	336	336
14	1,020	827	887	465	445	660	2,720	950	769	1,360	336	352
15	1,150	713	827	465	445	825	2,640	950	887	1,290	352	387
16	1,220	713	827	465	445	1,020	2,640	950	887	1,150	370	387
17	1,150	741	827	465	445	1,220	2,480	1,020	950	1,080	406	370
18	1,220	741	770	445	445	1,360	2,320	1,020	769	950	406	370
19	1,360	713	770	445	445	1,500	2,480	1,020	686	887	406	370
20	1,570	769	715	425	445	1,710	2,480	1,020	713	769	387	370
21	1,640	769	685	425	445	2,160	2,320	887	741	741	387	370
22	1,780	769	660	425	445	2,960	2,240	887	769	659	406	370
23	1,430	741	635	425	445	3,760	2,080	887	827	633	387	370
24	1,570	659	660	425	445	4,160	1,780	827	887	510	370	370
25	1,570	659	660	425	445	2,960	1,710	769	887	534	370	370
26	1,430	659	685	425	445	2,720	1,570	741	887	582	370	370
27	1,290	659	715	425	445	2,160	1,430	686	887	557	370	370
28	1,290	607	715	425	445	1,920	1,430	659	887	534	352	370
29	950	582	685	425	-------	1,850	1,500	741	950	534	352	370
30	1,020	607	660	425	-------	1,850	1,430	769	950	488	370	370
31	1,020	-------	635	425	-------	2,320	-------	827	-------	466	336	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,920	510	1,160	1.71	1.97
November	1,020	582	755	1.11	1.24
December	887	582	705	1.04	1.20
January	605	425	470	.693	.80
February	445	445	445	.656	.68
March	4,160	465	1,410	2.08	2.40
April	4,240	1,430	2,550	3.76	4.20
May	1,500	659	1,020	1.50	1.73
June	950	582	773	1.14	1.27
July	1,360	466	779	1.15	1.33
August	446	336	371	.547	.63
September	387	262	345	.509	.57
The year	4,240	262	900	1.33	18.02

FOX RIVER AT BERLIN, WIS.

LOCATION.—Staff gage in sec. 16, T. 17 N., R. 13 E., at Government lock and dam 2½ miles upstream from Berlin.

DRAINAGE AREA.—1,430 square miles.

RECORDS AVAILABLE.—January, 1898, to September, 1929.

EXTREMES.—Maximum mean daily discharge during year, 6,620 second-feet Mar. 21 and 23; minimum, 645 second-feet Sept. 4.

1898–1929: Maximum mean daily discharge, that of Mar. 21 and 23, 1929; minimum, 250 second-feet Feb. 1–4, 1900.

REMARKS.—Open-water records good; winter records probably only fair. Daily-discharge records furnished by United States Engineer Corps.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	975	1,460	1,360	1,280	730	905	4,230	3,170	1,180	1,140	1 570	765
2	865	1,360	1,360	1,150	730	915	4,020	3,080	1,100	1,060	1.520	765
3	865	1,320	1,420	965	725	920	3,820	3,000	1,020	1,060	1.460	675
4	830	1,270	1,460	935	760	965	4,340	2,910	1,060	1,060	1.360	645
5	830	1,270	1,320	910	760	955	4,670	2,830	1,060	1,020	1.320	800
6	865	1,220	1,460	900	795	985	4,790	2,750	1,020	1,020	1.270	800
7	940	1,220	1,370	805	795	1,020	4,910	2,600	1,020	1,140	1.220	765
8	940	1,220	1,280	790	795	960	4,790	2,520	940	1,140	1.220	735
9	940	1,220	1,170	780	795	950	4,450	2,380	940	1,420	1.270	765
10	940	1,220	1,120	805	795	990	4,230	2,310	940	1,460	1.270	800
11	940	1,180	1,040	820	760	965	4,230	2,310	940	1,460	1.270	905
12	940	1,180	990	795	765	1,080	4,450	2,310	1,060	1,460	1.220	940
13	975	1,140	1,040	785	770	1,520	4,230	2,240	1,100	1,460	1.220	940
14	1,020	1,140	1,260	775	770	2,780	4,120	2,170	1,180	1,420	1.180	1,020
15	1,020	1,140	1,680	775	765	3,800	3,920	2,170	1,220	1,360	1.180	1,020
16	1,060	1,180	1,740	745	815	3,700	3,820	2,100	1,220	1,320	1.180	1,020
17	1,180	1,180	1,800	745	815	3,900	3,620	2,040	1,270	1,270	1.180	1,020
18	1,320	1,420	1,680	745	820	4,400	3,530	1,980	1,320	1,180	1.180	975
19	1,460	1,570	1,370	745	820	6,000	3,350	1,850	1,360	1,140	1.140	975
20	1,520	1,620	1,430	745	840	6,500	3,170	1,800	1,420	1,100	1,100	975
21	1,570	1,680	1,350	775	840	6,620	3,080	1,740	1,360	1,060	1,700	940
22	1,620	1,740	1,400	770	840	6,470	3,000	1,620	1,320	1,060	1,060	940
23	1,740	1,740	1,500	765	810	6,620	2,830	1,570	1,270	1,020	1,020	940
24	1,800	1,740	1,560	765	810	6,330	2,670	1,520	1,220	1,020	905	905
25	1,850	1,680	1,620	760	810	6,330	2,830	1,420	1,220	1,180	905	865
26	1,800	1,620	1,620	755	850	6,050	3,080	1,320	1,180	1,270	905	830
27	1,800	1,520	1,730	755	890	5,790	3,080	1,320	1,180	1,420	830	830
28	1,740	1,460	1,620	750	900	5,390	3,080	1,270	1,220	1,520	865	830
29	1,680	1,460	1,560	745	-------	5,030	3,080	1,270	1,220	1,570	865	865
30	1,620	1,460	1,520	740	-------	4,790	3,080	1,270	1,180	1,620	765	865
31	1,520	-------	1,420	735	-------	4,340	-------	1,220	-------	1,620	735	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,850	830	1,260	0.881	1.02
November	1,740	1,140	1,390	.972	1.08
December	1,800	990	1,430	1.00	1.15
January	1,280	735	816	.571	.66
February	900	725	799	.559	.58
March	6,620	905	3,480	2.43	2.80
April	4,910	2,670	3,750	2.62	2.92
May	3.170	1,220	2,070	1.45	1.67
June	1,420	940	1,160	.811	.90
July	1,620	1,020	1,260	.881	1.02
August	1,570	735	1,140	.797	.92
September	1,020	645	870	.608	.68
The year	6,620	645	1,620	1.13	15.40

FOX RIVER AT RAPIDE CROCHE DAM, NEAR WRIGHTSTOWN, WIS.

LOCATION.—At Rapide Croche Dam, in sec. 4, T. 21 N., R. 19 E., 2 miles from Wrightstown.
DRAINAGE AREA.—6,150 square miles.
RECORDS AVAILABLE.—March, 1896, to September, 1929.
EXTREMES.—Maximum mean daily discharge during year, 20,600 second-feet Apr. 4; minimum, 2,590 second-feet Sept. 29.
1918–1929: Maximum mean daily discharge, 20,600 second-feet Apr. 4, 1929; minimum, 742 second-feet Aug. 15, 1921.
REMARKS.—Records good. Flow regulated by storage in Lake Winnebago. Daily discharge furnished by United States Engineer Corps.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,320	8,850	6,280	5,020	6,260	7,430	15,900	18,400	5,200	4,980	4,370	3,500
2	5,610	8,140	6,490	4,810	6,160	7,080	17,200	17,800	3,980	5,010	4,520	2,780
3	5,730	6,000	6,270	5,270	5,650	8,340	18,300	17,100	5,040	4,560	4,040	3,440
4	5,710	8,170	6,100	5,270	6,060	8,400	20,600	17,300	5,070	4,320	3,080	3,580
5	5,570	8,450	4,880	5,550	6,290	8,380	19,800	17,200	5,200	4,830	4,320	3,710
6	5,620	6,280	5,620	4,640	6,180	8,010	19,100	16,800	5,160	4,560	4,270	3,710
7	5,090	6,160	5,400	5,930	6,230	9,480	19,900	16,500	4,940	4,010	4,180	3,530
8	5,100	6,000	5,120	5,800	6,420	6,430	19,900	16,500	4,080	4,810	4,290	2,720
9	5,650	5,970	4,580	6,510	6,520	7,770	19,200	15,800	3,760	5,430	4,360	4,030
10	5,670	6,020	4,880	6,270	6,100	7,180	19,300	15,900	4,760	5,030	4,380	3,490
11	5,600	5,240	5,260	5,880	6,270	7,570	19,100	16,400	4,850	5,330	3,530	3,950
12	5,460	5,950	5,180	5,670	5,570	8,050	20,000	15,100	4,320	5,440	4,270	3,780
13	5,270	6,550	4,920	4,830	6,660	10,500	20,200	14,400	4,560	5,390	4,450	3,750
14	4,630	6,660	5,030	5,550	5,730	10,600	20,200	8,500	4,840	4,260	4,270	3,390
15	5,110	6,530	5,530	6,410	6,650	10,400	19,900	10,900	4,630	5,380	4,160	3,060
16	5,240	5,460	4,980	6,240	7,170	10,200	20,000	11,800	3,380	5,350	4,390	3,300
17	5,110	5,880	5,110	5,850	6,740	10,700	20,000	12,500	4,550	5,310	4,210	3,300
18	5,430	5,580	5,440	5,660	6,920	10,800	19,700	11,200	4,230	5,090	3,360	3,320
19	7,160	5,740	5,030	5,420	7,140	11,600	19,900	6,610	4,580	4,970	3,910	3,490
20	6,940	6,700	4,910	4,340	7,110	11,400	19,600	5,400	4,680	5,040	4,160	3,680
21	6,640	7,700	5,110	5,680	7,200	11,500	19,100	6,300	4,870	4,030	4,310	3,390
22	6,370	6,100	4,820	5,980	7,330	12,000	19,400	6,050	5,000	5,380	4,340	2,730
23	7,150	6,130	4,570	5,270	7,330	12,800	19,400	6,240	3,640	4,780	4,200	3,570
24	9,300	6,030	4,450	4,360	6,970	13,000	19,200	5,960	4,930	4,840	4,180	3,670
25	9,520	5,640	4,970	5,710	6,950	13,200	19,800	5,890	5,030	4,960	3,360	3,610
26	9,650	5,560	5,270	5,120	7,210	14,400	19,800	5,190	5,180	4,980	3,830	3,550
27	9,720	7,280	5,300	5,120	7,070	15,000	19,500	5,500	5,580	4,870	3,970	3,500
28	8,920	7,030	5,280	5,680	7,320	15,700	18,900	5,630	5,470	3,650	4,130	2,910
29	9,230	7,000	5,070	6,420	-------	16,100	18,700	5,620	5,150	4,330	4,020	2,590
30	8,880	5,870	4,810	6,460	-------	16,200	19,100	5,600	4,140	4,600	4,070	2,690
31	7,110	-------	5,190	6,370	-------	16,400	-------	5,570	-------	4,700	3,990	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	9,720	4,630	6,560	1.07	1.23
November	8,850	5,240	6,490	1.06	1.18
December	6,490	4,450	5,220	.849	.98
January	6,510	4,340	5,580	.907	1.05
February	7,330	5,650	6,690	1.09	1.14
March	16,400	6,430	10,900	1.77	2.04
April	20,600	15,900	19,400	3.15	3.51
May	18,400	5,190	11,200	1.82	2.10
June	5,580	3,380	4,690	.763	.85
July	5,440	3,650	4,880	.793	.91
August	4,520	3,080	4,090	.665	.77
September	4,030	2,590	3,390	.551	.61
The year	20,600	2,590	7,410	1.20	16.37

WOLF RIVER ABOVE WEST BRANCH OF WOLF RIVER, WIS.

LOCATION.—Staff gage in E. ½ sec. 3, T. 28 N., R. 15 E., half a mile above West Branch of Wolf River and 3 miles upstream from Keshena. Zero of gage is 856.57 feet above mean sea level.

DRAINAGE AREA.—633 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,580 second-feet Apr. 8 (gage height, 6.10 feet); minimum, 410 second-feet on several days in December, January, February, August, and September.

1928–1929: Maximum discharge, 2,580 second-feet Apr. 8, 1929 (gage height, 6.10 feet); minimum, 352 second-feet Aug. 16, 1928 (gage height, 1.85 feet).

REMARKS.—Records excellent except those for high stages and those for periods of ice effect, Dec. 7–12 and Dec. 21 to Mar. 28, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	920	1,020	676	410	476	550	1,350	1,130	1,020	920	476	410
2	870	970	676	410	476	550	1,350	1,130	920	870	476	410
3	818	920	632	442	476	590	1,350	1,130	870	818	476	410
4	818	920	632	476	476	590	1,460	1,130	818	769	476	410
5	920	920	632	476	476	590	1,570	1,130	818	722	442	410
6	920	870	476	476	476	632	1,790	1,080	769	722	442	410
7	920	870	476	590	476	550	2,270	1,020	722	818	476	410
8	920	870	512	550	476	550	2,580	1,020	722	722	476	410
9	1,020	870	550	590	512	550	2,520	1,020	676	769	476	410
10	1,020	818	590	632	476	550	2,270	920	632	769	512	476
11	970	818	632	632	476	550	2,030	1,020	870	722	476	476
12	920	818	676	632	476	590	1,910	1,020	920	722	476	476
13	1,080	818	722	632	476	722	1,850	1,020	920	920	476	442
14	1,130	769	722	632	476	818	1,790	920	1,020	970	512	476
15	1,130	769	818	590	476	920	1,740	920	1,020	970	550	476
16	1,020	769	818	550	476	1,020	1,680	1,020	920	818	512	476
17	1,130	769	818	550	442	1,020	1,620	1,130	818	818	476	746
18	1,400	818	818	512	410	1,130	1,570	1,080	818	722	476	476
19	1,460	818	632	512	442	1,130	1,460	1,020	722	722	476	476
20	1,460	769	476	476	442	1,180	1,400	1,020	722	722	476	442
21	1,460	722	512	476	442	1,240	1,350	1,020	676	676	476	442
22	1,460	722	550	476	410	1,350	1,290	970	722	632	476	442
23	1,460	722	476	512	442	1,130	1,240	970	769	590	476	442
24	1,350	550	512	476	442	1,130	1,180	920	722	590	442	410
25	1,240	722	512	476	476	1,180	1,240	920	676	722	442	410
26	1,240	630	476	476	476	1,240	1,180	920	676	722	442	442
27	1,180	676	410	442	476	1,240	1,130	870	722	632	442	442
28	1,130	818	476	460	550	1,240	1,130	920	1,020	632	410	512
29	1,130	769	476	477	------	1,290	1,080	920	1,020	550	410	550
30	1,070	722	476	494	------	1,400	1,080	1,020	970	550	410	550
31	1,020	------	410	512	------	1,400	------	1,020	------	512	410	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,460	818	1,120	1.77	2.04
November	1,020	550	801	1.27	1.42
December	818	410	589	.930	1.07
January	632	410	518	.818	.94
February	550	410	468	.739	.77
March	1,400	550	923	1.47	1.70
April	2,580	1,080	1,580	2.50	2.79
May	1,130	870	1,010	1.60	1.84
June	1,020	632	823	1.30	1.45
July	970	512	736	1.16	1.34
August	550	410	467	.738	.85
September	550	410	450	.711	.79
The year	2,580	410	792	1.25	17.00

WOLF RIVER AT KESHENA FALLS, WIS.

LOCATION.—Water-stage recorder in E. ½ sec. 22, T. 28 N., P. 15 E., 1½ miles northwest of Keshena.

DRAINAGE AREA.—812 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1929. May, 1907, to March, 1909, and February, 1911, to March, 1928, at station 1½ miles downstream (Wolf River at Keshena, Wis.).

EXTREMES.—Maximum discharge during year, 4,100 second-feet Apr. 8; minimum 544 second-feet Sept. 5, 7, and 8.

1928–29: Maximum discharge, that of Apr. 8, 1929; minimum, 515 second-feet Aug. 16, 1928.

REMARKS.—Records Oct. 1 to Nov. 4 and May 10 to Sept. 30, during which period water-stage recorder was working satisfactorily, excellent; Nov. 5 to May 6, fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,140	1,360	944	560	702	720	1,820	1,610	1,230	1,230	681	595
2	1,100	1,330	955	581	683	720	1,760	1,610	1,140	1,140	681	595
3	1,050	1,230	876	607	683	762	1,570	1,590	1,140	1,050	652	568
4	1,010	1,190	876	623	674	742	1,820	1,540	1,100	1,050	652	568
5	1,140	1,200	856	643	683	729	2,150	1,480	1,050	970	652	544
6	1,230	1,130	758	635	683	768	2,560	1,450	1,010	970	652	568
7	1,230	1,130	735	793	666	713	3,310	1,350	930	970	652	544
8	1,230	1,140	761	735	666	706	4,010	1,350	930	970	681	544
9	1,430	1,130	800	793	688	700	3,770	1,340	890	1,050	745	568
10	1,430	1,070	842	846	635	700	3,200	1,230	890	1,050	780	652
11	1,330	1,070	876	856	643	727	2,710	1,330	1,140	1,010	745	652
12	1,330	1,070	922	846	643	754	2,530	1,330	1,330	970	713	622
13	1,430	1,090	970	865	643	931	2,450	1,330	1,430	1,140	681	622
14	1,530	1,060	1,000	876	643	1,110	2,350	1,230	1,430	1,430	713	681
15	1,530	1,020	1,140	803	650	1,240	2,330	1,230	1,430	1,330	745	713
16	1,430	1,020	1,140	735	643	1,360	2,270	1,430	1,330	1,140	745	713
17	1,630	1,030	1,150	735	570	1,380	2,170	1,530	1,230	1,010	713	681
18	1,850	1,080	1,140	695	548	1,500	2,070	1,430	1,140	970	713	652
19	2,070	1,140	921	730	587	1,520	1,950	1,330	1,100	930	681	652
20	2,070	1,020	713	693	581	1,590	1,850	1,330	1,010	890	681	622
21	1,960	1,020	750	693	570	1,620	1,750	1,230	970	852	652	622
22	1,850	1,000	823	693	548	1,660	1,680	1,230	1,010	815	652	622
23	1,850	970	723	712	575	1,450	1,650	1,230	1,140	780	652	622
24	1,740	823	730	623	570	1,430	1,620	1,230	1,140	745	622	622
25	1,630	1,030	712	643	629	1,460	1,750	1,230	1,050	852	622	595
26	1,630	967	668	693	643	1,460	1,660	1,140	1,010	970	622	595
27	1,530	967	560	622	635	1,450	1,610	1,140	1,010	970	622	622
28	1,430	1,070	666	652	720	1,490	1,570	1,230	1,330	890	622	652
29	1,430	1,040	643	680	------	1,760	1,520	1,330	1,530	780	622	713
30	1,400	990	623	710	------	1,920	1,540	1,330	1,530	745	622	713
31	1,380	------	548	740	------	1,930	------	1,330	------	745	622	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,070	1,010	1,480	1.82	2.10
November	1,360	823	1,080	1.33	1.48
December	1,150	548	833	1.03	1.19
January	876	560	713	.878	1.01
February	720	548	636	.783	.82
March	1,930	700	1,190	1.47	1.70
April	4,010	1,520	2,170	2.67	2.98
May	1,610	1,140	1,350	1.66	1.91
June	1,530	890	1,150	1.42	1.58
July	1,430	745	981	1.21	1.40
August	780	622	674	.830	.96
September	713	544	624	.768	.86
The year	4,010	544	1,080	1.33	17.99

WOLF RIVER AT NEW LONDON, WIS.

LOCATION.—Staff gage in sec. 12, T. 22 N., R. 14 E., at New London, three-fourths mile below Embarrass River.

DRAINAGE AREA.—2,240 square miles.

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

EXTREMES.—Maximum discharge during year, 11,300 second-feet Mar. 21 and 22 (gage height, 11.0 feet); minimum, 910 second-feet Sept. 9 (gage height, 1.4 feet).

1914–1929: Maximum discharge, 15,500 second-feet Apr. 13, 1922 (gage height, 11.4 feet); minimum, 550 second-feet Dec. 29, 1925.

Stage of 11.6 feet Apr. 16, 1888, reported by United States Engineer Corps.

REMARKS.—Records good except those for period of ice effect, Dec. 4–9 and Dec. 18 to Mar. 17, and for extremely high stages, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,290	4,170	2,260	1,480	1,160	1,320	5,940	4,900	2,360	2,210	1,320	1,050
2	3,080	3,990	2,110	1,400	1,160	1,320	5,600	5,150	2,310	2,200	1,240	1,050
3	2,960	3,820	2,010	1,360	1,160	1,320	5,600	5,290	2,260	2,260	1,200	980
4	2,900	3,660	1,910	1,240	1,160	1,400	5,770	5,290	2,210	2,210	1,160	980
5	2,780	3,500	1,810	1,200	1,160	1,400	6,290	5,150	2,210	2,160	1,120	1,050
6	2,660	3,430	1,760	1,120	1,160	1,440	7,060	4,900	2,160	2,110	1,050	1,020
7	2,600	3,290	1,710	1,080	1,160	1,480	7,480	4,790	2,160	2,160	1,080	980
8	2,540	3,220	1,710	1,020	1,200	1,530	8,150	4,570	1,960	2,160	1,200	945
9	2,720	3,080	1,660	1,020	1,240	1,530	8,880	4,370	1,860	2,480	1,280	910
10	2,840	3,020	1,660	1,020	1,240	1,580	9,400	4,080	1,810	2,720	1,360	980
11	2,960	2,900	1,710	1,020	1,240	1,530	9,400	3,990	1,760	2,840	1,480	1,020
12	3,080	2,840	1,710	1,050	1,240	1,620	9,400	3,900	1,860	2,780	1,480	1,080
13	3,220	2,780	1,810	1,050	1,240	1,860	8,880	3,820	1,910	2,720	1,440	1,120
14	3,430	2,660	1,960	1,050	1,240	2,540	8,630	3,740	2,010	2,600	1,440	1,080
15	3,580	2,660	2,060	1,080	1,240	3,150	8,150	3,660	2,160	2,420	1,360	1,050
16	3,660	2,540	2,360	1,050	1,200	3,660	7,700	3,500	2,160	2,360	1,360	1,050
17	3,740	2,480	2,160	1,080	1,200	4,470	7,270	3,430	2,260	2,260	1,320	1,050
18	3,900	2,540	1,760	1,080	1,200	7,480	6,860	3,360	2,360	2,210	1,320	1,080
19	4,080	2,600	1,710	1,080	1,200	9,140	6,470	3,290	2,480	2,110	1,320	1,050
20	4,270	2,660	1,710	1,080	1,200	9,930	6,110	3,220	2,420	1,960	1,280	1,020
21	4,470	2,720	1,660	1,080	1,240	11,300	5,940	3,080	2,360	1,810	1,240	1,050
22	4,570	2,780	1,710	1,080	1,240	11,300	5,600	3,020	2,260	1,660	1,240	1,050
23	4,790	2,720	1,660	1,080	1,200	10,700	5,150	2,900	2,110	1,480	1,200	1,050
24	5,020	2,720	1,580	1,080	1,200	9,930	4,900	2,840	2,010	1,440	1,120	980
25	5,150	2,540	1,530	1,080	1,200	9,140	4,790	2,780	2,110	1,440	1,080	980
26	5,150	2,310	1,480	1,080	1,200	8,390	4,900	2,720	2,210	1,480	1,050	980
27	5,020	2,160	1,480	1,080	1,240	7,700	4,900	2,600	2,260	1,530	1,020	945
28	4,900	2,160	1,580	1,080	1,280	7,060	5,020	2,540	2,260	1,620	1,020	945
29	4,790	2,210	1,480	1,050	-------	6,470	4,900	2,480	2,210	1,710	1,020	1,020
30	4,570	2,260	1,480	1,080	-------	6,110	4,790	2,420	2,110	1,660	1,020	1,120
31	4,370	-------	1,530	1,080	-------	5,940	-------	2,360	-------	1,480	1,050	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5,150	2,540	3,780	1.69	1.95
November	4,170	2,160	2,880	1.29	1.44
December	2,360	1,480	1,770	.79	.91
January	1,480	1,020	1,110	.496	.57
February	1,280	1,160	1,210	.540	.56
March	11,300	1,320	4,960	2.21	2.55
April	9,400	4,790	6,660	2.97	3.31
May	5,290	2,360	3,680	1.64	1.89
June	2,480	1,760	2,150	.960	1.07
July	2,840	1,440	2,070	.924	1.07
August	1,480	1,020	1,220	.545	.63
September	1,120	910	1,020	.455	.51
The year	11,300	910	2,720	1.21	16.46

WEST BRANCH OF WOLF RIVER NEAR KESHENA, WIS.

LOCATION.—Staff gage in SW. ¼ sec. 3, T. 28 N., R. 15 E., 1 mile above mouth and 4 miles northwest of Keshena. Zero of gage is 858.37 feet above mean sea level.

DRAINAGE AREA.—170 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,260 second-feet Apr. 8 (gage height, 8.60 feet); minimum, 92 second-feet Feb. 21.

1928–29: Maximum discharge, that of Apr. 8, 1929 (gage height, 8.60 feet); minimum, that of Feb. 21, 1929.

REMARKS.—Records excellent except those for period of ice effect, Dec. 8–12 and Dec. 21 to Mar. 29, and those for high stages, Apr. 5–16, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	206	216	227	126	196	139	390	414	272	342	146	153
2	196	206	238	146	178	139	330	414	260	295	153	120
3	206	206	206	139	178	139	153	390	216	260	139	126
4	196	216	206	120	169	120	284	342	206	238	146	126
5	306	227	187	139	178	108	486	295	187	216	153	126
6	306	207	249	132	178	103	660	306	169	216	153	146
7	284	206	227	169	161	132	898	272	196	227	132	139
8	295	216	216	153	161	126	1,260	272	187	206	169	132
9	366	206	216	169	146	120	1,090	260	153	260	206	153
10	366	206	216	178	132	120	790	260	153	272	238	169
11	342	206	206	187	139	146	560	284	227	227	196	187
12	306	206	206	178	139	132	510	318	438	196	178	206
13	342	216	206	196	139	169	486	342	438	284	153	187
14	366	227	238	206	139	238	462	272	366	306	169	178
15	366	206	272	178	146	272	486	295	390	284	178	153
16	318	206	272	153	139	284	486	342	318	227	146	187
17	414	216	284	153	103	296	462	366	272	153	146	153
18	462	216	272	153	114	306	414	342	227	169	139	146
19	462	272	249	187	120	318	414	272	249	169	178	132
20	438	206	206	187	114	342	366	295	227	153	132	132
21	366	249	206	187	103	306	318	227	196	153	132	132
22	390	238	238	187	114	238	318	272	272	146	132	139
23	366	206	216	169	108	260	342	238	342	139	132	161
24	342	238	187	120	103	238	366	249	295	114	126	139
25	306	260	169	139	126	216	414	249	260	196	169	132
26	295	295	161	187	139	161	414	227	249	260	161	132
27	260	249	126	153	132	146	414	216	238	206	153	139
28	260	206	161	164	139	187	366	272	366	178	139	139
29	249	227	139	174	-------	390	366	318	462	161	153	146
30	227	227	120	185	-------	438	390	342	390	178	126	153
31	206	-------	114	196	-------	450	-------	318	-------	161	132	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	462	196	316	1.86	2.14
November	295	206	223	1.31	1.46
December	284	114	208	1.22	1.41
January	206	120	165	.971	1.12
February	196	103	140	.824	.86
March	450	103	219	1.29	1.49
April	1,260	153	490	2.88	3.21
May	414	216	299	1.76	2.03
June	462	153	274	1.61	1.80
July	342	114	213	1.25	1.44
August	238	126	155	.912	1.05
September	206	120	149	.876	.98
The year	1,260	103	238	1.40	18.99

EMBARRASS RIVER NEAR EMBARRASS, WIS.

LOCATION.—Chain gage on line between T. 26 N., R. 14 E., and T. 26 N., R. 15 E., 4 miles upstream from Embarrass.
DRAINAGE AREA.—395 square miles.
RECORDS AVAILABLE.—June, 1919, to September, 1929.
EXTREMES.—Maximum discharge during year, 3,400 second-feet Apr. 8 (gage height, 8.35 feet); minimum, 59 second-feet Sept. 20 (gage height, 2.54 feet). 1919–1929: Maximum discharge, 6,760 second-feet Apr. 10, 1922 (gage height, 11.5 feet); minimum, 30 second-feet Feb. 2–3, 1926.
REMARKS.—Records excellent except those for periods of ice effect, Dec. 6–14 and Dec. 22 to Mar. 15, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	364	520	324	250	180	220	1,230	890	520	473	163	181
2	385	473	344	215	205	225	1,110	890	496	428	175	166
3	344	428	344	185	210	250	945	780	450	305	138	169
4	364	473	324	135	235	250	1,110	725	385	268	163	188
5	385	428	305	130	220	270	1,470	646	364	268	163	161
6	646	385	286	120	170	250	1,830	569	385	268	191	141
7	890	428	270	140	205	205	2,500	450	364	250	197	115
8	1,110	385	250	195	190	180	3,240	428	385	268	181	115
9	1,410	385	235	215	195	210	2,430	428	344	428	226	144
10	1,290	428	235	215	18	205	1,830	428	385	428	268	191
11	1,170	428	235	170	160	220	1,410	520	428	406	305	175
12	1,060	385	250	170	170	205	1,230	620	473	344	305	175
13	1,000	406	250	145	145	475	1,110	569	520	305	268	172
14	1,350	428	270	165	165	620	1,290	520	620	286	268	141
15	1,000	428	450	190	165	1,000	1,350	473	569	344	286	169
16	890	385	496	180	160	1,590	1,290	473	544	305	268	144
17	1,000	385	473	190	165	1,350	1,230	473	496	268	250	158
18	1,170	428	450	175	235	1,650	1,110	450	428	233	250	115
19	1,230	473	406	185	195	2,010	945	473	428	216	250	207
20	1,230	473	364	165	210	2,150	780	450	428	200	250	72
21	1,060	473	286	165	170	1,890	725	385	428	197	220	138
22	1,000	385	270	175	190	1,710	725	385	473	188	216	169
23	1,000	385	250	175	180	1,650	672	344	473	191	155	147
24	780	406	235	185	180	1,470	620	324	569	194	152	147
25	780	305	215	175	210	1,290	672	344	569	250	158	161
26	620	364	190	175	235	1,170	890	344	473	250	175	96
27	594	385	305	175	250	1,110	890	364	473	233	181	169
28	672	344	305	180	250	1,110	835	385	520	184	175	158
29	620	385	305	215	------	1,410	725	385	496	158	184	91
30	473	344	305	205	------	1,530	725	473	520	166	155	141
31	672	------	285	205	------	1,470	------	569	------	155	188	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,410	344	857	2.17	2.50
November	520	305	411	1.04	1.16
December	496	190	307	.777	.90
January	250	120	180	.456	.53
February	250	145	194	.491	.51
March	2,150	180	947	2.40	2.77
April	3,240	620	1,230	3.11	3.47
May	890	324	502	1.27	1.46
June	620	344	467	1.18	1.32
July	473	155	273	.691	.80
August	305	138	210	.532	.61
September	207	72	151	.382	.43
The year	3,240	72	479	1.21	16.46

LITTLE WOLF RIVER AT ROYALTON, WIS.

LOCATION.—Staff gage in sec. 1, T. 22 N., R. 13 E., at Royalton.
DRAINAGE AREA.—485 square miles.
RECORDS AVAILABLE.—January, 1914, to September, 1929.
EXTREMES.—Maximum discharge during year, 5,600 second-feet Mar. 18 (gage height, 6.85 feet); minimum (estimated), 195 second-feet Jan. 13 and 14. 1914–1929: Maximum discharge, 5,780 second-feet Apr. 10–11, 1922 (gage height, 6.92 feet); minimum, 120 second-feet Jan. 20 1922, and Jan. 28, 1926.
REMARKS.—Records good except those for period of ice effect, Jan. 1 to Mar. 16, and period of estimated record, Dec. 18–25, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	530	680	465	335	290	335	1,050	1,300	434	450	285	292
2	475	650	368	335	310	375	1,300	1,300	434	386	300	312
3	434	590	368	275	290	425	1,570	1,050	368	386	285	300
4	465	530	355	255	255	375	1,480	1,390	355	355	292	273
5	475	475	377	220	255	425	1,570	1,130	355	355	300	273
6	590	530	386	240	290	450	1,570	830	368	342	262	273
7	530	530	415	240	275	400	2,400	590	300	400	255	262
8	650	530	386	275	275	375	2,400	620	292	434	342	255
9	1,010	530	415	255	255	475	2,290	650	292	770	415	262
10	970	475	434	275	240	530	2,070	590	300	830	502	285
11	1,010	450	434	275	240	530	1,870	530	333	830	560	273
12	970	415	475	205	255	710	1,480	710	333	800	475	300
13	1,050	465	560	195	255	970	1,300	650	450	710	386	333
14	935	530	530	195	290	1,300	1,300	620	475	620	325	312
15	865	530	650	240	255	2,070	1,300	590	502	650	292	300
16	935	502	680	355	240	3,320	1,210	560	475	530	312	300
17	1,130	530	650	240	255	4,210	1,130	530	502	465	300	292
18	1,130	620	620	355	310	5,600	1,050	530	475	415	285	292
19	1,300	650	560	375	240	5,450	900	530	465	377	285	262
20	1,300	650	502	310	220	4,600	770	590	475	325	292	255
21	1,390	590	475	310	275	3,220	770	530	475	285	273	292
22	1,300	650	424	290	335	1,870	740	530	502	300	229	342
23	1,300	620	400	255	220	1,480	830	530	530	292	222	312
24	1,130	530	424	275	240	1,390	970	530	530	292	248	300
25	1,130	475	475	280	275	1,210	1,210	502	530	312	248	292
26	1,050	434	530	285	290	1,300	1,210	475	530	377	290	262
27	900	377	502	290	335	1,210	1,210	434	475	368	262	292
28	900	424	530	310	355	1,300	1,300	475	560	342	262	312
29	770	434	424	290	-------	1,210	1,210	465	530	333	312	325
30	740	475	424	275	-------	1,210	1,130	415	530	312	292	312
31	710	-------	400	240	-------	1,130	-------	450	-------	292	285	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,390	434	906	1.87	2.16
November	680	377	529	1.09	1.22
December	680	355	472	.973	1.12
January	375	195	276	.569	.66
February	355	220	272	.561	.58
March	5,600	335	1,590	3.28	3.78
April	2,400	740	1,350	2.78	3.10
May	1,390	415	665	1.37	1.58
June	560	292	439	.905	1.01
July	830	285	450	.928	1.07
August	560	222	312	.643	.74
September	342	255	292	.602	.67
The year	5,600	195	632	1.30	17.69

WAUPACA RIVER NEAR WAUPACA, WIS.

LOCATION.—Chain gage near north line of sec. 1, T. 21 N., R. 12 E., at Waupaca County highway bridge, 4 miles below Waupaca.

DRAINAGE AREA.—305 square miles.

RECORDS AVAILABLE.—October, 1917, to September, 1929. June, 1916, to October, 1917, at station near Weyauwega, 1 mile below present site.

EXTREMES.—Maximum discharge during year (estimated), 1,590 second-feet Mar. 16; minimum (estimated), 150 second-feet Mar. 7.

1918–1929: Maximum discharge, 2,600 second-feet Mar. 17, 1919 (gage height, 5.6 feet); minimum (estimated), 35 second-feet Jan. 22 and 23, 1926.

REMARKS.—Records fair except those for periods of ice effect, Dec. 4–13 and Dec. 18 to Mar. 16, which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	210	250	266	200	235	315	372	487	280	252	252	238
2	210	250	266	200	330	330	388	420	265	252	252	205
3	250	250	250	200	265	300	388	404	265	e 252	e 234	238
4	199	266	220	200	235	315	559	372	238	e 252	215	215
5	250	235	210	200	250	300	673	295	238	252	195	252
6	250	298	210	e 200	220	315	596	280	238	252	215	238
7	250	250	210	e 200	235	150	596	340	252	265	215	226
8	250	250	210	200	235	300	559	325	252	252	215	252
9	266	235	220	220	235	280	559	e 295	252	420	280	295
10	315	282	265	220	e 205	300	420	265	252	559	280	280
11	250	220	300	250	175	350	388	372	280	523	252	226
12	266	210	330	250	250	434	420	388	310	420	226	226
13	266	266	350	e 220	235	595	523	372	310	356	295	252
14	e 258	266	348	190	220	960	487	325	340	325	280	252
15	250	220	348	200	210	1,310	453	340	325	310	265	215
16	332	250	282	190	210	1,590	404	356	310	280	215	238
17	315	250	250	210	220	1,130	420	372	280	238	265	205
18	382	266	220	200	235	876	340	325	295	265	226	238
19	365	266	210	200	235	960	372	295	325	252	215	226
20	348	282	200	210	250	793	356	280	295	238	215	238
21	e 374	298	200	175	220	634	325	280	265	252	205	226
22	399	235	200	190	280	559	310	325	265	265	252	215
23	382	266	e 200	160	250	523	310	325	238	280	195	205
24	365	266	210	190	250	420	325	265	265	280	195	252
25	332	282	e 210	e 210	265	388	453	310	280	295	238	238
26	315	266	e 210	e 230	280	388	453	325	280	280	205	252
27	298	266	210	250	300	388	453	310	280	280	238	238
28	266	282	210	220	315	420	388	310	280	238	252	238
29	220	266	210	235	-------	372	256	e 302	265	226	252	238
30	235	266	210	220	-------	388	404	295	252	238	205	238
31	266	-------	200	250	-------	388	-------	280	-------	245	195	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	399	199	288	0.944	1.09
November	298	210	258	.846	.94
December	350	200	240	.787	.91
January	250	160	209	.685	.79
February	330	175	244	.800	.83
March	1,590	150	541	1.77	2.04
April	673	310	435	1.43	1.60
May	487	265	330	1.08	1.24
June	340	238	276	.905	1.01
July	559	226	293	.961	1.11
August	295	195	234	.767	.88
September	295	205	236	.774	.86
The year	1,590	150	299	.980	13.39

e Interpolated.

MILWAUKEE RIVER NEAR MILWAUKEE, WIS.

LOCATION.—Staff gage in sec. 5, T. 7 N., R. 22 E., near Milwaukee, half a mile below Port Washington concrete highway bridge used to Apr. 5; chain gage on highway bridge half a mile above staff gage used since Apr. 5.

DRAINAGE AREA.—661 square miles.

RECORDS AVAILABLE.—April, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 10,800 second-feet Mar. 15 (gage height, 7.00 feet); minimum, about 25 second-feet Jan. 16.

1914–1929: Maximum discharge, 15,100 second-feet Mar. 20, 1918 (gage height, 9.00 feet); minimum, that of Jan. 16, 1929.

REMARKS.—Records to Apr. 5, poor; thereafter, fair. Stage-discharge relation affected by ice Jan. 1 to Mar. 13.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	236	405	405	120	255	2,610	1,350	420	340	128	88
2	93	216	437	405	215	300	2,430	1,140	456	139	173	64
3	93	181	710	540	150	280	3,540	1,010	372	325	128	69
4	93	198	1290	710	150	375	4,540	888	296	227	173	98
5	93	216	665	920	135	865	2,610	772	267	139	128	102
6	106	216	620	665	200	980	3,560	651	227	124	128	102
7	93	255	810	760	200	1,360	4,600	510	2[illegible]	139	74	135
8	93	255	710	325	180	1,360	4,180	588	296	200	102	102
9	93	300	810	375	165	1,160	2,570	456	227	372	128	98
10	93	349	377	150	105	1,220	2,110	510	2[illegible]	404	98	102
11	106	300	278	300	95	1,290	2,290	715	227	340	102	78
12	93	278	665	150	70	2,000	2,380	945	2[illegible]	325	114	74
13	82	255	2,610	150	70	6,190	2,110	1,010	2[illegible]	340	98	102
14	118	216	3,350	105	215	8,720	1,660	888	227	340	98	102
15	118	198	2,970	60	200	10,800	1,350	1,070	3[illegible]	325	114	114
16	148	1,040	2,970	25	165	8,720	1,350	1,070	3[illegible]	325	114	234
17	164	1,910	1,740	165	165	6,620	945	1,280	2[illegible]	254	98	102
18	324	2,610	1,740	200	165	6,620	945	945	3[illegible]	110	102	114
19	540	3,160	920	200	165	4,940	715	945	2[illegible]	105	98	102
20	540	2,250	620	180	95	6,400	715	830	3[illegible]	227	114	114
21	405	1,430	540	165	165	4,540	672	945	227	227	98	98
22	405	1,040	255	70	165	4,340	651	510	178	168	98	102
23	437	810	469	180	165	4,140	715	510	227	110	102	98
24	469	620	405	180	165	4,340	694	772	189	110	98	98
25	469	349	540	180	180	4,140	1,420	651	227	146	98	88
26	469	469	1,040	180	215	4,340	1,660	715	340	168	88	102
27	437	405	540	180	235	2,610	2,200	549	325	168	88	129
28	377	469	469	180	255	3,350	2,290	510	2[illegible]	168	98	128
29	349	405	469	150	-------	2,610	1,750	456	227	200	102	102
30	255	437	540	180	-------	2,610	1,660	456	2[illegible]	110	98	88
31	255	-------	437	215	-------	2,430	-------	456	-------	146	98	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	540	82	242	0.366	0.42
November	3,160	181	702	1.06	1.18
December	3,350	255	981	1.48	1.71
January	920	25	279	.422	.49
February	255	70	163	.247	.26
March	10,800	255	3,550	5.37	6.19
April	4,600	651	2,030	3.07	3.42
May	1,350	456	778	1.18	1.36
June	456	168	282	.427	.48
July	404	105	220	.333	.38
August	173	74	109	.165	.19
September	234	64	104	.157	.18
The year	10,800	25	792	1.20	16.26

LITTLE CALUMET RIVER AT HARVEY, ILL.

LOCATION.—Staff gage in NW. ¼ sec. 9, T. 36 N., R. 14 E., at Illinois Central Railroad bridge at Harvey.

DRAINAGE AREA.—570 square miles.

RECORDS AVAILABLE.—October, 1916, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,750 second-feet Mar. 16 (gage height 8.9 feet); minimum, 17 second-feet Oct. 1–2 (gage height, 2.7 feet).

1916–1929: Maximum discharge, 3,750 second-feet Mar. 18, 1919 (gage height, 10.28 feet); minimum, 12 second-feet Sept. 26, 1928.

Maximum stage of 13.4 feet Mar. 6, 1908, reported by Sanitary District of Chicago.

REMARKS.—Records good except those for ice period, Jan. 8 to Feb. 24, which are poor, and for Dec. 12, Mar. 6, Apr. 1, 18, Sept. 27, 28, which are interpolated. Most of flow from upper 330 square miles of drainage area diverted to Lake Michigan above gage. Gage-height records furnished by Sanitary District of Chicago.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	32	127	109	105	770	818	225	51	374	21	33
2	17	44	123	101	105	690	1,230	342	36	238	33	27
3	18	65	101	109	84	730	690	770	33	145	94	23
4	20	94	94	105	84	730	575	540	33	105	62	27
5	19	92	80	150	84	540	540	374	33	186	45	33
6	38	71	76	472	84	410	472	296	33	199	33	40
7	31	58	73	422	84	281	342	238	31	199	31	36
8	21	62	73	311	84	266	690	186	27	174	27	27
9	27	56	69	225	84	199	770	150	31	132	33	27
10	31	58	65	252	74	174	770	132	32	101	33	27
11	22	53	62	225	65	150	1,380	109	45	94	33	31
12	22	53	336	174	65	150	1,440	127	575	326	27	33
13	32	48	610	174	65	199	850	109	810	238	31	33
14	28	45	730	174	65	439	610	150	770	150	27	33
15	23	44	690	150	66	770	472	225	472	109	27	27
16	23	71	472	150	84	2,750	406	225	374	105	27	27
17	31	505	1,130	150	105	1,920	311	186	266	69	27	33
18	74	1,130	940	225	127	1,080	268	138	174	62	19	33
19	99	850	575	575	179	810	225	123	132	62	19	33
20	82	540	422	540	231	650	850	101	105	51	21	33
21	51	390	374	472	283	575	1,280	88	84	40	21	31
22	33	311	281	690	335	1,130	690	74	69	40	21	27
23	65	252	212	1,080	387	1,380	472	74	56	36	27	27
24	53	212	174	810	439	940	374	88	56	33	27	27
25	53	186	138	439	770	770	472	80	56	40	27	27
26	46	150	127	374	1,620	610	610	65	48	84	27	33
27	45	127	138	281	1,440	505	439	62	48	80	33	58
28	39	120	150	199	850	439	326	56	80	48	33	84
29	33	114	148	174	------	422	266	48	62	31	33	109
30	33	116	105	150	------	358	225	48	74	27	33	48
31	31	------	105	127	------	406	------	48	------	23	33	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	99	17	37.3	May	770	48	177
November	1,130	32	198	June	810	27	157
December	1,130	62	284	July	374	23	116
January	1,080	101	309	August	94	19	31.8
February	1,620	65	287	September	109	27	36.2
March	2,750	150	685				
April	1,440	225	629	The year	2,750	17	245

ST. JOSEPH RIVER AT MOTTVILLE, MICH.

LOCATION.—Float gage in NE. ¼ sec. 6, T. 8 S., R. 12 W., at hydroelectric plant of Michigan Gas & Electric Co. at Mottville, 5 miles below mouth of Fawn River. Zero of gage is 759.5 feet above mean sea level.

RECORDS AVAILABLE.—December, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,310 second-feet May 5 (gage height, 3.4 feet); minimum, 30 second-feet Sept. 8 and 9 (gage height, −1.82 feet).

1924–1929: Maximum discharge, 8,250 second-feet Apr. 20, 1926 (gage height, 4.4 feet); minimum, 30 second-feet Aug. 4 and Sept. 13, 1927, Sept. 8 and 9, 1929.

REMARKS.—Records excellent. Gage-height record furnished by Michigan Gas & Electric Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	810	955	1,360	1,180	1,240	2,930	3,380	4,360	1,940	1,300	685	224
2	855	905	1,120	1,420	1,180	3,080	3,700	4,700	1,630	1,420	615	233
3	810	685	1,550	1,180	810	3,230	4,190	4,870	1,940	1,550	480	725
4	855	420	1,180	855	1,300	3,380	4,700	5,400	1,570	1,060	420	545
5	855	1,060	1,420	765	1,060	3,540	4,700	5,940	1,420	1,240	685	685
6	765	810	1,180	765	1,010	3,230	4,700	5,400	1,380	1,010	580	545
7	725	905	1,060	1,010	1,010	3,380	4,190	5,760	1,300	905	545	313
8	955	1,010	1,120	810	1,010	3,080	4,190	5,580	1,420	1,120	545	391
9	1,120	905	685	810	765	2,930	4,530	4,870	1,090	1,300	480	420
10	765	725	1,060	955	810	2,490	4,020	4,190	1,420	1,180	391	615
11	855	650	955	1,010	1,060	2,210	4,020	4,190	1,300	1,300	193	512
12	905	1,120	1,120	1,180	1,010	2,070	3,540	3,860	1,550	1,180	615	545
13	955	855	855	765	905	1,810	3,540	3,700	1,570	1,010	685	545
14	905	905	905	1,620	955	2,350	3,380	3,860	1,480	615	685	420
15	765	765	1,180	1,240	955	2,350	3,700	3,700	1,300	1,180	580	210
16	765	905	1,060	1,240	855	2,930	3,230	3,860	1,300	1,060	512	725
17	685	1,010	1,620	1,010	512	3,230	3,080	3,540	1,300	1,060	362	650
18	855	1,120	1,810	1,120	1,060	3,860	2,780	4,020	1,420	1,120	215	512
19	810	1,550	1,810	1,300	1,120	4,190	2,630	3,380	1,480	955	512	615
20	765	1,480	1,810	1,120	905	4,020	2,630	3,380	1,420	855	580	450
21	615	1,620	1,680	1,810	810	3,700	3,380	3,230	1,360	480	615	391
22	1,060	1,680	1,420	1,940	765	4,020	4,190	2,930	1,240	955	480	197
23	1,120	1,550	1,010	2,210	905	4,020	4,700	2,930	1,010	1,010	545	512
24	905	1,680	1,120	2,070	545	3,860	5,400	2,780	1,420	1,060	282	615
25	810	1,180	1,060	2,350	1,060	4,190	5,400	2,490	955	810	78	580
26	1,010	1,420	1,480	2,210	1,360	4,020	5,220	2,070	855	765	615	545
27	855	905	1,480	1,620	1,620	4,020	5,220	2,630	1,360	650	391	512
28	765	1,360	1,300	1,940	2,490	3,540	5,220	2,070	1,180	308	362	319
29	905	855	1,360	1,810	-------	3,080	4,870	2,070	725	765	391	224
30	1,120	1,420	955	1,620	-------	3,230	4,530	2,070	955	725	615	650
31	810	-------	1,240	1,420	-------	2,630	-------	1,940	-------	685	420	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	1,120	615	863	May	5,940	1,940	3,730
November	1,680	420	1,080	June	1,940	725	1,350
December	1,810	685	1,260	July	1,550	308	988
January	2,350	765	1,370	August	685	78	489
February	2,490	512	1,040	September	725	197	481
March	4,190	1,810	3,250				
April	5,400	2,630	4,100	The year	5,940	78	1,670

KALAMAZOO RIVER NEAR ALLEGAN, MICH.

LOCATION.—Water-stage recorder in sec. 15, T. 2 N., R. 14 W., at Calkins Bridge, 6 miles northwest of Allegan and 1 mile above Swan Creek. Gage heights are referred to mean sea level.

DRAINAGE AREA.—1,540 square miles.

RECORDS AVAILABLE.—April to September, 1929.

EXTREMES.—Maximum discharge during period, 3,520 second-feet May 4 (gage height, 603.69 feet); minimum, 183 second-feet Sept. 8 (gage height, 595.61 feet).

REMARKS.—Records good except those for estimated periods, Sept. 9–18 and 25–30, which are poor. Flow regulated by power plant in Allegan. Gage-height record furnished by city of Allegan and Fargo Engineering Co.

Daily and monthly discharge, in second-feet, 1929

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	-------	2,820	1,750	995	820	617	19	2,440	3,280	1,410	933	682	786
2	-------	2,820	1,650	1,410	666	264	20	2,500	3,220	1,230	945	792	668
3	-------	3,100	1,550	1,200	737	436							
4	-------	3,460	1,410	1,320	518	381	21	3,280	3,040	1,210	748	768	606
5	-------	3,400	1,360	1,180	788	312	22	3,280	2,990	1,320	632	628	740
							23	3,100	2,770	1,280	822	705	694
6	-------	3,280	1,340	1,090	778	312	24	3,100	2,720	917	881	699	654
7	-------	3,220	1,230	1,080	746	302	25	3,220	2,660	1,030	798	592	
8	-------	3,220	1,340	1,180	695	304							
9	-------	3,280	1,080	985	679		26	3,400	2,380	1,060	861	536	
10	-------	3,160	1,320	1,100	798		27	3,340	2,220	1,110	931	718	550
							28	3,220	2,110	1,140	863	739	
11	-------	3,040	1,180	1,140	637		29	2,990	2,000	1,230	826	620	
12	-------	3,280	1,130	1,140	1,160		30	2,820	1,950	1,310	798	545	
13	-------	3,340	1,290	985	1,070	600	31	-------	1,950	-------	780	738	-------
14	-------	3,100	1,650	1,230	1,040								
15	-------	3,220	1,460	1,100	1,350								
16	-------	3,340	1,550	945	869								
17	-------	3,400	1,460	985	766								
18	-------	3,340	1,410	865	552								

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
April 19–30	3,400	2,440	3,060	1.99	0.89
May	3,460	1,950	2,940	1.91	2.20
June	1,750	917	1,310	.851	.95
July	1,440	632	993	.645	.74
August	1,350	518	755	.490	.56
September	-------	-------	546	.355	.40

STREAM TRIBUTARY TO LAKE HURON

TITTABAWASSEE RIVER AT FREELAND, MICH.

LOCATION.—At highway bridge at Freeland, Saginaw County.
DRAINAGE AREA.—2,530 square miles.
RECORDS AVAILABLE.—August, 1903, to December, 1909; January, 1912, to September, 1929.
REMARKS.—Daily-discharge record furnished by G. S. Williams, consulting engineer, Ann Arbor, Mich.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	440	900	2,250	648	1,300	2,000	3,710	6,080	2,560	1,940	900	845
2	465	930	1,960	821	1,410	2,250	8,340	7,450	2,060	2,100	930	870
3	440	900	1,620	928	1,300	2,300	8,700	9,920	1,640	2,230	990	870
4	440	815	1,960	1,000	1,200	2,840	10,300	12,600	2,560	1,900	930	845
5	489	730	1,900	1,040	1,180	4,180	13,800	11,600	1,750	2,400	930	870
6	675	786	1,830	1,110	1,240	4,790	20,200	8,220	1,780	1,980	900	900
7	620	930	1,760	1,340	1,260	5,460	27,900	6,470	1,600	2,230	870	900
8	540	1,240	2,000	1,760	1,300	5,560	29,000	5,740	1,480	2,400	870	870
9	592	1,600	2,000	1,660	1,340	4,700	31,500	4,750	1,600	2,270	900	870
10	540	1,980	1,760	1,930	1,300	4,100	24,300	3,860	1,480	1,980	870	870
11	489	1,980	1,520	1,960	1,200	3,560	20,000	12,900	1,450	1,600	845	900
12	465	1,600	1,110	2,000	1,200	3,590	10,700	12,000	3,060	1,450	815	870
13	566	1,480	787	1,980	1,340	4,200	10,900	17,300	1,380	1,300	815	870
14	845	1,410	1,110	1,760	1,300	13,800	10,400	17,300	1,600	1,270	845	845
15	845	1,240	1,830	1,690	1,260	17,900	7,560	11,400	2,960	1,300	845	870
16	930	1,240	2,360	1,710	1,240	18,800	6,750	8,700	2,570	1,270	870	900
17	1,240	2,840	2,520	1,760	1,060	15,900	5,810	7,500	2,440	1,240	900	1,020
18	1,410	4,250	3,220	2,000	891	10,600	5,280	7,040	1,980	1,170	900	1,110
19	1,520	6,090	3,450	2,200	1,340	9,260	4,250	6,580	1,450	1,140	870	1,140
20	1,240	5,800	2,640	1,730	1,300	8,700	3,240	5,530	1,520	1,110	870	1,170
21	1,410	5,280	2,250	1,640	1,220	8,100	2,920	4,600	1,600	1,110	845	1,240
22	1,450	4,750	2,000	1,520	2,180	7,920	2,880	4,100	1,480	1,050	815	1,240
23	1,410	4,250	2,670	1,500	2,220	6,860	3,060	3,520	1,600	990	845	1,170
24	1,340	3,760	2,250	1,690	1,520	6,200	3,100	3,920	1,450	930	845	1,080
25	1,300	3,660	2,100	1,760	1,240	6,250	3,240	6,360	1,410	930	815	990
26	1,450	3,220	2,250	1,710	1,660	6,090	7,680	5,280	1,520	930	870	930
27	1,600	3,480	1,960	1,660	1,570	5,580	7,280	4,600	1,600	960	845	900
28	1,340	3,480	1,390	1,500	1,760	5,120	6,470	4,250	1,980	930	845	870
29	930	3,760	1,110	1,480	-------	4,750	5,860	3,760	3,100	960	815	870
30	930	4,250	821	1,390	-------	4,000	5,380	3,100	2,740	930	815	845
31	930	-------	648	1,300	-------	3,280	-------	2,830	-------	930	815	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,600	440	932	0.368	0.42
November	6,090	730	2,620	1.04	1.16
December	3,450	648	1,900	.751	.87
January	2,200	648	1,550	.613	.71
February	2,220	891	1,370	.542	.56
March	18,800	2,000	6,730	2.66	3.07
April	31,500	2,880	10,400	4.11	4.59
May	17,300	2,830	7,400	2.92	3.37
June	3,100	1,380	1,910	.755	.84
July	2,400	930	1,450	.573	.66
August	990	815	866	.342	.39
September	1,240	845	955	.377	.42
The year	31,500	440	3,180	1.26	17.06

STREAMS TRIBUTARY TO LAKE ERIE

HURON RIVER AT BARTON, MICH.

LOCATION.—At dam and power plant of Eastern Michigan Edison Co. at Barton, Washtenaw County, near Ann Arbor.
DRAINAGE AREA.—723 square miles.
RECORDS AVAILABLE.—January, 1914, to September, 1929.
REMARKS.—Flow computed from records of operation of power plant flow through undersluice during floods, and depth of flow over dam. Daily discharge record furnished by G. S. Williams, consulting engineer, Ann Arbor, Mich.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	171	296	250	364	1,500	1,240	1,230	469	388	136	89
2	103	165	245	219	238	1,320	1,440	1,410	555	355	111	101
3	140	192	300	297	255	1,280	1,290	1,830	327	349	138	101
4	162	165	294	153	270	1,480	1,280	1,670	362	315	85	88
5	118	218	262	331	291	1,470	1,290	1,600	399	311	131	98
6	119	197	250	243	235	1,360	1,240	1,460	362	322	117	114
7	144	205	241	215	221	1,170	1,180	1,280	298	309	115	104
8	141	195	204	297	229	1,100	1,100	1,340	333	349	127	111
9	146	187	256	298	273	980	1,030	1,310	291	287	106	115
10	137	189	233	293	260	927	1,010	1,220	299	298	126	96
11	132	189	225	235	205	925	975	1,200	188	308	119	106
12	149	194	219	214	251	929	955	1,150	244	296	106	115
13	163	177	233	232	210	931	931	1,120	351	296	126	142
14	110	162	246	262	232	989	870	1,150	330	297	119	88
15	117	183	300	214	246	1,220	840	1,240	465	328	98	131
16	160	193	300	236	250	1,320	772	1,170	408	335	106	123
17	158	255	303	292	228	1,320	718	1,070	421	300	104	112
18	153	264	409	600	228	1,260	618	1,050	402	331	167	113
19	163	298	354	1,050	203	1,150	619	1,000	390	302	55	125
20	171	297	312	714	225	1,170	810	926	291	225	58	111
21	174	303	229	647	238	1,160	1,660	911	378	265	80	77
22	199	297	334	560	238	1,120	1,440	908	317	231	107	107
23	182	305	269	564	256	1,190	1,250	881	295	236	144	100
24	181	298	299	578	252	1,180	1,010	905	295	254	105	112
25	181	315	279	430	298	1,100	1,110	828	216	221	97	44
26	181	294	296	475	1,100	1,040	1,290	753	212	234	66	120
27	188	247	249	477	1,930	944	1,280	635	245	162	107	169
28	186	271	297	338	1,420	914	1,180	723	396	249	101	118
29	170	247	300	375	------	814	1,280	536	210	179	97	115
30	180	300	269	347	------	807	1,230	587	345	149	90	113
31	166	------	274	322	------	836	------	558	------	158	98	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	199	103	156	0.216	0.25
November	315	162	232	.321	.36
December	409	204	277	.383	.44
January	1,050	153	379	.524	.60
February	1,930	203	380	.526	.55
March	1,500	807	1,130	1.56	1.80
April	1,660	618	1,100	1.52	1.70
May	1,830	536	1,090	1.51	1.74
June	555	188	338	.467	.52
July	388	149	279	.386	.44
August	167	55	108	.149	.17
September	169	44	109	.151	.17
The year	1,930	44	465	.643	8.74

ST. JOSEPH RIVER NEAR BLAKESLEE, OHIO

LOCATION.—Chain gage in SE. ¼ sec. 36, T. 7 N., R. 1 E., at highway bridge 1¾ miles east of Blakeslee and 1 mile above mouth of Bear Creek.

DRAINAGE AREA.—369 square miles.

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

EXTREMES.—Maximum discharge during year, 3,770 second-feet Apr. 22 (gage height, 13.0 feet); minimum, 22 second-feet Oct. 2, 3, and Sept. 3 (gage height, 1.32 feet).

1926–1929: Maximum discharge, 5,210 second-feet Dec. 1, 1927 (gage height 14.8 feet); minimum, 17 second-feet Sept. 6, 1928 (gage height, 1.20 feet).

REMARKS.—Records good except those for extremely high water and for periods of ice effect, Dec. 21–29, Jan. 3, 4, 8–16, 26–31, and Feb. 1–24, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	34	72	123		3,560	1,220	984	187	274	35	29
2	22	39	86	141		3,140	1,380	1,220	166	229	33	27
3	23	38	81	120		2,650	1,680	1,870	147	160	40	22
4	26	39	76	120		2,090	1,470	2,420	129	147	55	24
5	27	40	76	160		1,870	1,280	2,280	135	215	48	24
6	30	40	72	512	100	1,570	1,040	1,830	123	320	38	29
7	29	43	76	408		1,220	712	1,170	112	289	39	31
8	32	40	76			856	712	856	101	244	41	33
9	33	39	76			644	736	622	101	173	40	32
10	30	40	63			578	880	490	91	135	38	37
11	28	38	68			408	1,170	428	101	112	41	51
12	27	41	72			370	1,410	408	96	96	41	38
13	27	36	72	140		448	1,280	448	106	86	35	34
14	26	36	622			1,200	1,140	578	229	86	37	32
15	28	44	534			1,680	808	688	320	86	40	33
16	30	49	448		60	2,590	622	600	244	72	36	43
17	34	63	490	229		3,420	490	490	201	72	33	47
18	39	112	832	1,140		3,350	370	448	160	63	31	32
19	38	147	736	2,180		2,420	304	622	141	59	33	31
20	33	147	468	2,180		1,830	712	534	118	59	27	30
21	31	141		2,650		1,410	1,830	408	112	55	29	28
22	33	129		2,950	50	1,110	3,280	336	91	52	26	27
23	33	129		2,530		958	3,420	274	86	46	31	24
24	38	118		1,800		958	2,470	259	86	49	39	24
25	41	106	150	1,340	336	1,140	1,910	244	76	51	34	25
26	47	86			1,540	1,140	1,950	229	72	59	28	24
27	39	68			2,230	958	1,990	215	72	59	26	25
28	38	86		400	2,890	666	1,990	201	72	51	26	26
29	38	81			------	534	1,570	229	68	55	28	28
30	39	72	147		------	448	1,110	201	135	41	29	40
31	44	------	112		------	428	------	215	------	38	31	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	47	22	32.5	0.088	0.10
November	147	34	70.7	.192	.21
December	832	63	216	.585	.67
January	2,950	----------	718	1.95	2.25
February	2,890	----------	314	.851	.89
March	3,560	370	1,470	3.98	4.59
April	3,420	304	1,360	3.69	4.12
May	2,420	201	703	1.91	2.20
June	320	68	129	.350	.39
July	320	38	114	.309	.36
August	55	26	35.1	.095	.11
September	51	22	31	.084	.09
The year	3,560	22	435	1.18	15.98

MAUMEE RIVER AT ANTWERP, OHIO

LOCATION.—Water-stage recorder just below highway bridge 1 mile north of Antwerp, Paulding County, and 7 miles downstream from State boundary.
DRAINAGE AREA.—2,050 square miles.
RECORDS AVAILABLE.—September, 1921, to September, 1929.
EXTREMES.—Maximum discharge during year, 11,600 second-feet Apr. 2 (gage height 13.8 feet); minimum, 61 second-feet Sept. 1 (gage height, 0.62 foot). 1921–1929: Maximum discharge, 16,400 second-feet Feb. 1, 1927 (gage height, 18.1 feet); minimum, that of Sept. 1, 1929.
REMARKS.—Records good except those for periods when recorder was not operating, Dec. 6 to Jan. 9 and Jan. 12 to Feb. 5, and periods of ice effect, Jan. 10, 11, and Feb. 6–24, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	404	210			9,260	6,430	3,920	1,570	398	175	63
2	198	127	222			8,740	11,300	3,300	1,150	294	101	70
3	166	174	234	280	900	8,480	9,000	6,310	950	699	275	70
4	146	222	234			7,480	6,160	8,610	800	950	1,750	162
5	156	156	234			6,380	5,940	7,480	700	1,590	3,220	400
6	166	146				5,100	5,500	5,500	610	2,980	2,520	266
7	156	146				4,280	4,370	4,780	543	3,470	1,570	449
8	166	166	190	440	580	3,560	3,650	3,920	565	3,300	1,270	543
9	156	248				2,820	3,560	2,900	543	2,640	1,050	288
10	156	234				2,170	3,740	2,080	478	1,960	900	174
11	156	222				1,690	4,370	1,570	438	1,750	655	379
12	156	198				1,390	4,640	1,450	521	1,690	438	175
13	156	198	330	520	420	1,150	4,640	2,080	1,000	2,100	505	316
14	156	186				2,560	4,460	2,850	1,050	2,170	243	258
15	146	186				5,500	4,100	6,600	800	1,450	763	214
16	146	198				7,720	3,650	6,820	800	1,210	2,100	163
17	156	210				8,740	3,140	5,100	900	700	1,450	160
18	166	222	1,300	4,000	390	8,870	3,470	3,220	850	610	1,270	200
19	248	210				7,840	2,450	5,100	1,000	382	1,210	144
20	210	300				7,150	2,100	5,500	800	438	1,100	175
21	166	322				6,270	2,840	4,730	655	521	750	187
22	166	419				4,820	5,830	3,300	565	317	500	187
23	176	390	940	9,800	450	3,830	6,710	2,380	500	258	458	175
24	176	291				3,300	5,720	1,960	521	272	302	175
25	166	322			1,100	3,220	5,830	1,690	655	365	272	163
26	176	322			6,620	2,980	7,260	1,390	655	909	258	163
27	156	322			9,400	3,220	7,840	1,100	610	610	258	161
28	146	358			10,100	3,470	6,380	1,180	438	543	243	163
29	146	377	450	5,000	-------	2,900	4,820	3,900	419	400	258	175
30	156	291			-------	2,380	4,460	3,740	329	287	214	214
31	283	-------			-------	2,100	-------	2,310	-------	288	107	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	283	146	168	0.082	0.09
November	419	127	252	.123	.14
December	-------	-------	569	.278	.32
January	-------	-------	3,390	1.65	1.90
February	10,100	-------	1,450	.707	.74
March	9,260	1,150	4,820	2.35	2.71
April	11,300	2,100	5,150	2.51	2.80
May	8,610	1,100	3,760	1.83	2.11
June	1,570	329	714	.348	.39
July	3,470	258	1,150	.561	.65
August	3,220	101	845	.412	.47
September	543	63	214	.104	.12
The year	11,300	63	1,880	.917	12.44

MAUMEE RIVER NEAR DEFIANCE, OHIO

LOCATION.—Water-stage recorder in NW. ¼ sec. 22, T. 4 N., R. 5 E., at Independence Dam, 5 miles east of Defiance.

DRAINAGE AREA.—5,530 square miles.

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

EXTREMES.—Maximum combined daily discharge of river and canal during year, 46,200 second-feet Feb. 28; minimum, 217 second-feet Oct. 5.

1924–1929: Maximum combined daily discharge of river and canal, 64,600 second-feet Apr. 9, 1926; minimum, 157 second-feet Sept. 4, 1925.

REMARKS.—Records excellent except those for extremely low water, and for period Apr. 21–28, when recorder was not operating, which are fair. Water [illegible] rted by Miami & Erie Canal not included in table of daily discharge. (See record of Miami & Erie Canal near Defiance, p. 44.)

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	69	248	594	2,920	35,000	17,700	7,790	3,290	1,920	868	306
2	281	234	164	532	1,850	24,500	30,500	6,770	2,230	3,290	640	178
3	75	102	206	479	1,160	19,700	25,300	12,500	1,610	3,680	702	178
4	41	41	282	370	1,180	15,900	17,400	18,100	1,410	3,680	1,240	150
5	27	112	178	360	1,280	13,800	15,200	17,400	1,070	4,490	4,610	164
6	44	102	122	577	1,020	12,500	12,500	13,200	935	10,000	4,700	545
7	38	55	112	615	980	10,000	9,450	10,000	804	10,000	3,290	418
8	52	48	206	804	1,000	7,790	7,270	7,270	681	10,000	2,070	488
9	38	41	93	564	845	6,040	6,770	5,580	582	8,330	1,556	784
10	30	93	220	742	845	4,080	8,880	4,080	742	6,040	1,330	660
11	34	131	234	935	742	3,290	11,900	3,290	742	4,280	1,000	338
12	41	178	220	1,020	845	2,740	14,500	2,570	804	2,920	958	469
13	41	131	248	837	824	2,570	13,200	3,650	1,350	2,280	845	354
14	66	131	1,090	640	784	6,280	10,600	6,300	2,540	2,740	890	418
15	102	93	1,410	564	526	13,200	8,880	15,900	1,910	3,100	798	450
16	84	141	935	450	469	22,100	7,270	19,700	1,330	2,280	2,320	338
17	64	131	1,720	686	450	23,700	5,580	14,500	1,480	1,610	2,400	370
18	64	112	4,080	5,500	488	20,500	3,880	10,000	1,200	1,070	1,640	262
19	55	566	4,920	16,800	812	17,400	3,100	9,450	1,300	958	1,560	276
20	84	426	5,140	35,000	640	14,500	3,100	13,200	1,280	784	1,470	234
21	131	248	3,220	33,200	640	12,500		11,900	1,480	742	1,330	370
22	112	290	2,070	24,500	702	10,000		8,880	1,180	958	1,070	322
23	52	290	1,450	21,300	763	8,330	15,000	6,040	736	890	845	354
24	44	370	1,170	24,500	728	7,790		4,280	858	1,280	660	370
25	44	248	905	22,100	1,220	7,790		3,290	890	1,100	507	262
26	41	338	1,050	22,900	13,100	7,790		2,230	980	1,250	507	220
27	44	338	1,050	19,700	35,500	11,900	17,000	2,570	935	1,330	450	220
28	52	967	868	13,800	46,000	11,900		2,230	763	1,840	370	206
29	55	466	912	8,330	-------	9,450	13,200	3,340	602	1,640	322	206
30	64	354	621	5,810	-------	6,770	10,000	5,580	1,200	1,850	338	290
31	48	-------	700	4,700	-------	5,360	-------	4,700	-------	1,220	306	-------

Month	River			Canal mean	Combined		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	281	27	63.9	188	484	217	252
November	967	41	228	187	1,180	218	415
December	5,140	93	1,160	185	5,340	263	1,340
January	35,000	360	8,670	199	35,200	535	8,870
February	46,000	450	4,230	208	46,200	647	4,440
March	35,000	2,570	12,100	191	35,200	2,760	12,300
April	30,500	3,100	12,700	190	30,700	3,290	12,900
May	19,700	2,230	8,270	194	19,800	2,420	8,460
June	3,290	583	1,230	179	3,490	769	1,410
July	10,000	742	3,140	106	10,200	880	3,260
August	4,700	306	1,340	0	----------	----------	1,340
September	784	150	340	0	----------	----------	340
The year	46,000	27	4,470	152	46,200	----------	4,620

NOTE.—Canal shut down after July 22.

MAUMEE RIVER AT WATERVILLE, OHIO

LOCATION.—Chain gage at highway bridge at Waterville, Lucas County, 3 miles below mouth of Tontogany Creek.

DRAINAGE AREA.—6,310 square miles.

RECORDS AVAILABLE.—November, 1898, to December, 1901, and August, 1921, to September, 1929.

EXTREMES.—Maximum combined daily discharge of river and canal, 53,700 second-feet Feb. 28; minimum, 169 second-feet Oct. 2.

1921–1929: Maximum combined daily discharge, 56,200 second-feet Apr. 9, 1926; minimum, that of Oct. 2, 1928.

REMARKS.—Records good except those for extremely high and low stages, periods of ice effect, Jan. 2–15 and Jan. 29 to Feb. 27, and periods of estimate, Nov. 1–5, 11–30, and Sept. 1–25, which are fair. Water diverted by Miami & Erie Canal not included in table of daily discharge. (See record of Miami & Erie Canal at Waterville, p. 45.)

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42		67	434		41,700	14,800	9,320	4,490	4,170	1,330	
2	37		67			28,200	31,100	6,730	2,680	4,830	908	
3	91	90	67	290	1,700	22,600	30,400	14,200	1,370	4,170	602	230
4	91		57			18,800	22,000	18,800	1,330	4,490	420	
5	123		78			15,900	20,000	18,200	849	11,200	2,320	
6	42	91	160			13,700	14,200	15,900	712	14,200	5,560	
7	49	67	160			11,200	12,200	11,700	446	18,800	4,830	
8	29	78	160	530	840	8,430	9,320	8,870	472	14,200	3,180	600
9	24	78	180			6,730	7,140	6,330	399	12,200	2,090	
10	24	78	160			5,190	7,990	4,830	255	9,320	1,630	
11	67		170			3,310	11,700	3,720	357	5,940	1,410	
12	91		106			3,580	18,800	2,800	472	4,490	840	
13	84	160	106	710	630	2,560	14,800	2,800	498	3,050	1,010	460
14	67		160			5,190	12,200	4,490	1,630	3,180	942	
15	26		180			12,700	9,780	17,600	2,920	3,440	776	
16	37		1,230	1,700		27,500	8,430	22,000	1,740	3,050	680	
17	91		906	2,560		27,500	6,330	16,400	908	2,800	2,920	
18	91	300	3,720	6,730	440	24,000	4,830	12,200	1,410	1,740	2,440	340
19	67		5,190	17,000		20,000	3,310	9,780	1,050	1,370	1,410	
20	57		5,940	40,200		16,400	3,180	14,800	976	1,240	1,630	
21	57		4,830	40,200		14,200	8,430	14,200	891	1,160	1,520	
22	42		3,870	31,800		12,200	15,300	10,700	1,370	908	1,120	
23	91	160	3,870	22,600	700	10,200	20,700	7,140	908	1,160	1,100	380
24	78		1,700	20,000		9,320	17,000	4,490	446	942	511	
25	106		2,330	25,400		8,430	27,500	3,310	1,630	2,200	550	
26	91		1,000	20,700	15,000	8,430	20,700	2,920	1,160	1,740	368	275
27	91		1,230	18,200	40,000	9,780	22,600	550	760	1,860	336	275
28	106	340	1,110	15,900	53,100	14,200	20,000	2,200	908	1,330	399	215
29	42		938			10,200	16,400	2,200	315	2,320	285	265
30	49		843	6,960		7,990	12,200	4,490	295	1,860	215	215
31	57		509			5,190		4,490		2,090	265	

Month	River			Canal Mean	Combined		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	123	24	65.8	189	351	169	255
November			188	277			465
December	5,940	57	1,330	458	6,440	483	1,790
January	40,200		9,410	483	40,700		9,890
February	53,100		4,630	446	53,700		5,080
March	41,700	2,560	13,700	456	42,100	3,000	14,200
April	31,100	3,180	14,800	515	31,600	3,700	15,300
May	22,000	550	8,970	531	22,600	1,050	9,500
June	4,490	255	1,120	509	4,660	757	1,630
July	18,800	908	4,690	0	18,800	908	4,690
August	5,560	215	1,410	0	5,560	215	1,410
September			376	0			376
The year	53,100		5,070	321	53,700		5,390

NOTE.—Canal shut down after June 30.

ST. MARYS RIVER NEAR WILLSHIRE, OHIO

LOCATION.—Chain gage in sec. 34, T. 3 S., R. 1 E., at highway bridge three-quarters mile above mouth of Black Creek and 3 miles southeast of Willshire.
DRAINAGE AREA.—355 square miles.
RECORDS AVAILABLE.—September, 1925, to September, 1929.
EXTREMES.—Maximum discharge during year, 2,740 second-feet Feb. 28 (gage height, 13.6 feet); minimum, 21 second-feet Nov. 14 (gage height, 1.34 feet).
1926–1929: Maximum discharge, 3,960 second-feet Mar. 22, 1927 (gage height, 16.1 feet); minimum, 14 second-feet Aug. 13, 1927; minimum gage height, 1.07 feet Oct. 16, 1925.
REMARKS.—Records good except those for periods of high water and periods of ice effect, Dec. 9–12, Jan. 3–19, and Feb. 5–24, which are fair. Some water flows from Lake St. Marys, at the head of this stream, into Wabash River Basin, and some is diverted by Miami & Erie Canal into Auglaize River. Flow regulated to some extent at Lake St. Marys.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	30	31	62	379	2,260	935	145	127	205	29	35
2	40	33	31	62	265	1,570	895	205	88	279	26	35
3	37	37	35		205	1,050	775	493	69	217	529	35
4	37	43	36		154	775	655	443	55	136	895	37
5	32	50	35			637	493	395	52	511	775	41
6	27	43	36			547	349	307	45	915	755	37
7	26	37	30		80	443	253	193	45	955	675	37
8	27	32	29			363	217	145	39	855	459	37
9	26	29				241	265	109	41	815	205	37
10	29	26		50		154	475	88	42	855	96	35
11	33	24	20			127	565	76	42	715	62	36
12	29	24				100	695	100	41	715	52	33
13	27	22	26			100	835	145	40	427	52	32
14	24	21	35			293	875	855	42	217	335	30
15	26	24	58			619	715	1,150	45	136	601	38
16	30	30	109			815	511	1,100	48	96	775	40
17	34	29	109		50	855	321	1,150	118	76	915	38
18	40	29	349	260		795	205	1,120	127	58	815	38
19	34	32	443	1,300		675	154	1,150	109	41	443	39
20	34	34	443	1,900		529	136	935	80	41	193	37
21	34	37	363	2,500		427	511	775	127	40	100	35
22	32	48	217	2,260		395	675	695	241	40	66	32
23	33	45	154	1,870		411	637	565	335	37	58	31
24	34	45	88	1,450		411	695	363	265	38	52	36
25	34	42	66	1,600	395	395	755	145	136	36	48	37
26	33	40	62	1,400	1,400	529	855	127	118	32	48	36
27	32	31	58	1,400	1,980	601	511	109	109	30	48	34
28	30	30	55	1,420	2,700	637	427	145	84	29	45	31
29	30	34	55	1,350	-------	459	321	193	84	29	40	34
30	29	34	58	975	-------	547	193	154	96	28	37	30
31	28	-------	55	655	-------	395	-------	154	-------	32	34	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	40	24	31.6	May	1,150	76	443
November	50	21	33.8	June	335	39	96.3
December	443	-------	101	July	955	28	279
January	2,500	-------	684	August	915	26	299
February	2,700	-------	309	September	41	30	35.4
March	2,260	100	586				
April	935	136	530	The year	2,700	21	287

TIFFIN RIVER NEAR BRUNERSBURG, OHIO

LOCATION.—Water-stage recorder near highway bridge between secs. 32 and 33, T. 5 N., R. 4 E., three-eighths mile below mouth of Mud Creek and 3 miles northwest of Brunersburg.

DRAINAGE AREA.—766 square miles.

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

EXTREMES.—Maximum discharge, 6,750 second-feet Feb. 27 (gage height 19.0 feet); minimum, 22 second-feet Oct. 13, 14, and Sept. 4, 5 (gage height 1.03 feet).

1928–29: Maximum discharge, that of Feb. 27, 1929; minimum, that of Oct. 13, 14, 1928, and Sept. 4, 5, 1929.

REMARKS.—Records good except those for low stages, for periods of ice effect, Jan. 1–5, 9–16, and Feb. 5–24, and for estimates, Jan. 6–8, 21–31, Feb. 1–4, and Aug. 1–16, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	35	64			4,740	3,210	1,870	278	482		24
2	25	35	60			4,080	4,250	1,650	218	726		24
3	26	36	60	100	340	3,550	3,080	3,220	176	478	40	24
4	26	39	60			3,130	2,640	2,860	156	263		22
5	25	39	64			2,640	2,680	2,420	131	204		22
6	24	42	60			1,990	2,220	2,300	119	334		28
7	25	39	60			1,520	1,690	2,140	113	514		45
8	24	42	60	160	210	1,110	1,270	1,580	113	460	50	48
9	24	39	48			770	1,050	1,000	108	390		39
10	26	39	56			550	1,390	660	102	263		35
11	26	42	60			478	1,550	514	102	163		52
12	24	39	56			407	2,340	478	108	125		72
13	22	39	64		160	437	2,070	550	113	97		56
14	22	39	147	200		1,700	1,620	884	144	97	40	42
15	24	39	357			2,860	1,240	1,490	248	102		39
16	27	39	424			4,030	858	1,330	357	108		33
17	30	45	532	162		4,140	638	1,000	325	87	36	31
18	33	60	831	1,730	150	3,760	496	726	233	72	35	30
19	35	82	973	5,010		3,500	407	1,220	176	64	31	28
20	42	108	858	4,800		2,950	414	1,190	150	56	28	26
21	42	108	638			2,420	2,670	836	125	48	27	24
22	39	102	496		160	1,850	3,600	594	102	42	29	23
23	39	108	496	3,800		1,390	3,760	442	82	42	29	24
24	39	102	373			1,270	4,080	357	77	48	28	24
25	39	87	309		247	1,190	3,500	309	72	68	29	24
26	39	82	278		3,760	1,270	4,520	278	68	52	30	24
27	39	68	233		6,470	1,270	4,420	263	72	52	29	24
28	39	60	204		5,400	1,110	3,600	248	72	48	28	24
29	36	60	176	1,900		792	3,220	373	64	45	26	28
30	36	64	156			616	2,500	407	92	39	26	39
31	36		156			572		325		35	24	

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	42	22	30.9	0.040	0.05
November	108	35	58.6	.076	.08
December	973	48	271	.354	.41
January	5,010		1,440	1.88	2.17
February	6,470		743	.970	1.01
March	4,740	407	2,000	2.61	3.01
April	4,520	407	2,360	3.08	3.44
May	3,220	248	1,080	1.41	1.63
June	357	64	143	.187	.21
July	726	35	181	.236	.27
August		24	36.3	.047	.05
September	72	22	32.6	.043	.05
The year	6,470	22	699	.913	12.38

AUGLAIZE RIVER NEAR FORT JENNINGS, OHIO

LOCATION.—Chain gage in SE. ¼ sec. 15, T. 1 S., R. 5 E., at highway bridge 3½ miles northeast of Fort Jennings and 6 miles above Ottawa River.

DRAINAGE AREA.—333 square miles.

RECORDS AVAILABLE.—August, 1921, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,560 second-feet Feb. 27 (gage height, 14.4 feet); minimum, 19 second-feet Sept. 25 (gage height, 1.06 feet).

1921–1929: Maximum discharge, 7,400 second-feet, Mar. 21, 1927 (gage height, 16.4 feet); minimum, 12 second-feet, Nov. 26, 1923, and Aug. 9, 11, 1924.

REMARKS.—Records good except those for periods of ice effect, Dec. 9–12, 22–28, Jan. 1–18, and Feb. 1–25, and estimates, Mar. 8–12, which are fair. Water diverted from Lake St. Marys by Miami & Erie Canal and discharge into this basin above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	40	36			1,080	1,560	153	58	80	137	55
2	24	49	55			780	1,380	153	76	188	115	24
3	33	61	43	80	150	720	690	362	49	630	153	29
4	32	64	46			600	410	810	68	246	410	38
5	33	46	36			690	410	460	64	540	690	36
6	38	46	40			630	338	246	55	840	386	49
7	38	55	38			600	236	170	58	720	216	49
8	27	36	40	50			179	137	58	600	137	43
9	33	55					386	130	55	485	115	31
10	38	49				250	410	115	46	280	85	38
11	36	58	40				1,630	108	55	226	80	36
12	40	26					990	108	68	170	55	40
13	43	49	55	40		102	630	102	68	130	58	38
14	40	55	64			460	460	600	64	102	61	36
15	26	43	68			1,490	338	2,050	64	85	460	36
16	36	43	108		40	1,080	236	1,380	64	179	257	26
17	46	46	153	130		1,110	246	630	188	122	162	46
18	38	55	900			660	145	362	145	85	115	43
19	33	38	720	3,770		386	122	810	122	85	72	38
20	40	55	386	5,470		314	115	1,240	226	64	68	46
21	40	46	170	2,660		540	600	630	170	76	61	36
22	32	53		720		410	1,740	338	108	96	52	38
23	43	55		1,560		540	990	226	85	76	55	26
24	46	58		1,140		460	435	170	80	64	52	38
25	43	61	110	1,910		338	338	137	80	61	52	19
26	43	43		2,940	2,320	570	840	145	61	49	36	49
27	49	52		1,630	5,560	1,320	660	96	122	58	46	36
28	46	64		720	4,480	750	410	85	90	55	40	43
29	33	38	96	338	------	338	257	102	80	460	46	46
30	33	36	108	460	------	257	188	96	122	362	49	26
31	33	------	80	338	------	314	------	68	------	198	36	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	49	24	36.7	May	2,050	68	394
November	64	26	49.3	June	226	46	88.3
December	900	------	135	July	840	49	239
January	5,470	------	803	August	690	36	141
February	5,560	------	497	September	55	19	37.8
March	1,490	------	574				
April	1,740	115	581	The year	5,560	19	297

AUGLAIZE RIVER NEAR DEFIANCE, OHIO

LOCATION.—Staff gage in NE. ¼ sec. 9, T. 3 N., R. 4 E., at dam and power plant of Toledo Edison Co., just below Beetree Creek and 3 miles south of Defiance.

DRAINAGE AREA.—2,330 square miles.

RECORDS AVAILABLE.—April, 1915, to September, 1929. May to October, 1903, 1¾ miles below present gage.

EXTREMES.—Maximum mean daily discharge during year, 19,600 second-feet Feb. 28; minimum, 30 second-feet Oct. 1, 3 and Sept. 25–29.

1915–1929: Maximum mean daily discharge, 36,100 second-feet Mar. 18, 1919; minimum, 6 second-feet Oct. 17, 1923.

REMARKS.—Records good except those for extremely low water, which are fair. Daily discharge ascertained from power-plant records. Leakage measured and included in records. Records of daily discharge, not including leakage, furnished by Toledo Edison Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	37	38	160	580	11,700	6,650	1,460	1,000	1,640	517	33
2	439	38	38	872	776	4,940	12,800	1,870	244	2,570	372	33
3	30	38	93	253	40	6,210	10,200	3,500	501	3,140	60	73
4	31	38	178	39	522	4,300	6,050	6,640	338	2,820	1,040	32
5	31	38	38	305	457	3,800	4,660	5,740	338	3,350	1,950	138
6	87	82	38	100	248	3,780	3,350	3,820	323	7,410	1,180	62
7	137	38	38	458	158	3,140	2,820	2,440	262	6,240	772	122
8	61	38	115	127	277	2,530	2,240	1,270	131	6,100	487	32
9	32	38	49	62	337	1,840	1,790	977	43	5,100	250	267
10	32	38	38	81	189	686	2,630	993	275	3,630	380	191
11	32	38	131	211	335	911	5,030	1,190	368	2,460	3	32
12	32	116	38	377	325	819	6,440	707	482	1,150	35	32
13	33	94	91	39	394	941	5,300	1,270	842	630	40	99
14	133	95	660	114	245	2,220	4,020	3,240	1,500	675	25	98
15	33	38	698	177	40	6,030	3,020	9,400	593	1,010	619	31
16	33	171	38	39	40	9,280	2,350	9,250	42	949	95	88
17	34	38	925	465	40	9,120	1,700	6,800	532	491	54	76
18	34	38	1,810	2,500	100	6,280	982	3,890	281	521	3	31
19	34	545	2,400	7,130	456	4,440	896	3,950	463	491	25	31
20	34	258	2,380	18,200	189	2,990	1,120	5,540	266	658	25	31
21	35	38	772	18,400	176	2,620	2,500	5,160	805	457	25	126
22	35	38	912	10,400	176	2,530	5,710	3,500	656	490	30	31
23	35	38	217	7,980	443	2,510	7,330	2,220	41	515	333	211
24	35	38	526	6,950	40	2,510	5,010	1,530	435	579	187	192
25	36	38	39	6,130	958	2,780	3,480	1,330	373	81	3	30
26	36	110	462	7,450	5,450	3,130	5,010	400	343	276	22	30
27	36	119	341	7,700	14,400	7,650	5,650	1,170	343	127	183	30
28	36	879	340	5,820	19,600	6,410	4,890	1,130	295	1,170	33	30
29	36	38	437	3,980	-------	4,610	3,650	1,100	248	867	33	30
30	37	38	39	2,660	-------	2,970	2,320	709	753	1,210	33	193
31	37	-------	432	2,100	-------	2,090	-------	1,310	-------	804	90	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	439	30	56.0	May	9,400	400	3,020
November	879	37	108	June	1,500	41	437
December	2,400	38	464	July	7,410	81	1,880
January	18,400	39	3,570	August	1,950	33	419
February	19,600	40	1,680	September	267	30	81.0
March	11,700	686	4,060				
April	12,800	896	4,320	The year	19,600	30	1,680

OTTAWA RIVER AT ALLENTOWN, OHIO

LOCATION.—Water-stage recorder in NW. ¼ sec. 29, T. 3 S., R. 6 E., at highway bridge at Allentown.

DRAINAGE AREA.—168 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, about 2,500 second-feet Jan. 19 (gage height, 8.0 feet); minimum, 8.0 second-feet Dec. 3 (gage height, 0.74 foot).

1923–1929: Maximum discharge, about 3,100 second-feet Mar. 20, 1927 (gage height, 9.0 feet); minimum, 6.5 second-feet June 2 1925 (gage height, 0.63 foot).

REMARKS.—Records good except those for extremely high water and periods of ice effect, Jan. 17, 18, 26–31, Feb. 1–4, 10–12, and 17–20, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	11	12	19	60	690	960	66	31	700	77	13
2	13	29	10	17		430	550	81	27	322	47	14
3	13	73	9.3	25		356	266	637	25	146	239	13
4	13	17	11	17		315	192	520	25	85	315	15
5	27	13	14	16	62	400	182	243	24	756	182	18
6	14	13	10	23	64	290	164	138	23	284	92	33
7	11	13	10	43	61	211	106	99	28	217	60	18
8	9.3	14	10	63	49	99	220	75	33	328	39	18
9	11	13	11	44	45	121	221	62	20	173	30	26
10	10	15	9.7	40	30	72	609	49	20	92	26	17
11	12	15	10	35		61	520	44	19	56	19	15
12	11	12	10	32		60	400	76	56	44	19	15
13	10	12	10	37	41	78	278	82	28	42	16	20
14	9	12	43	37	42	469	201	655	40	49	169	16
15	10	11	34	43	42	460	146	840	26	43	76	13
16	28	14	42	41	47	585	99	432	36	34	38	14
17	16	18	138	70	50	490	85	208	42	30	25	33
18	14	16	490	490		243	67	138	24	54	20	15
19	10	22	269	2,280		146	52	408	30	94	19	12
20	11	19	83	1,230		243	68	430	32	50	20	12
21	10	17	29	572	44	243	633	221	19	30	19	12
22	10	19	33	309	35	266	690	120	16	23	17	11
23	22	16	20	508	35	302	333	72	20	20	19	11
24	13	14	22	287	60	232	182	45	209	16	18	12
25	12	12	20	1,240	272	201	146	48	49	16	18	14
26	12	10	17	370	1,790	1,070	416	47	27	20	17	17
27	11	11	27	85	1,690	800	333	40	29	320	17	12
28	13	13	22	70	960	370	182	57	42	655	15	13
29	10	11	21		-------	201	129	42	29	460	16	15
30	11	12	19		-------	221	85	43	284	254	14	16
31	11	-------	19		-------	280	-------	34	-------	121	14	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	28	9.3	12.8	0.076	0.09
November	73	10	16.6	.099	.11
December	490	9.3	47.9	.285	.33
January	2,280	16	266	1.58	1.82
February	1,790	----------	210	1.25	1.30
March	1,070	60	323	1.92	2.21
April	960	52	284	1.69	1.89
May	840	34	195	1.16	1.34
June	284	16	43.8	.261	.29
July	756	16	179	1.07	1.23
August	315	14	55.2	.329	.38
September	33	11	16.1	.096	.11
The year	2,280	9.3	137	.815	11.10

BLANCHARD RIVER NEAR FINDLAY, OHIO

LOCATION.—Chain gage on east line of sec. 10, T. 1 N., R. 10 E., at highway bridge 2 miles northwest of Findlay.

DRAINAGE AREA.—343 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,000 second-feet Jan. 19 (gage height, 12.1 feet); minimum, 1.9 second-feet Oct. 4 and 8 (gage height, 0.76 foot).

1923–1929: Maximum discharge, 6,320 second-feet Dec. 1, 1927 (gage height, 14.5 feet); minimum, that of Oct. 4 and 8, 1928.

The flood of March, 1913, reached a stage of 18.5 feet on gage.

REMARKS.—Records good except those for period of ice effect, Jan. 7, 8, 14, and 15, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	9.0	21	56	75	1,830	1,780	164	66	2,060	46	11
2	4.5	17	18	31	66	579	1,470	460	55	1,600	31	8.9
3	4.0	12	28	28	74	539	619	1,340	49	579	79	8.3
4	2.5	16	24	36	65	539	499	579	45	209	72	6.7
5	7.7	46	21	37	54	383	421	440	40	3,300	75	6.4
6	4.0	29	15	36	56	383	258	310	32	2,850	50	5.3
7	4.0	19	10	20	50	383	185	173	43	1,700	43	6.0
8	2.8	17	11	20	49	310	209	139	55	1,240	41	5.7
9	7.2	15	13	72	41	258	440	118	38	741	38	4.6
10	6.3	12	11	63	33	225	1,120	89	31	402	34	3.5
11	6.3	13	12	48	28	164	1,200	79	22	275	26	2.9
12	8.3	13	16	37	25	136	782	91	19	258	22	2.4
13	5.9	12	15	30	32	147	619	200	16	292	20	3.5
14	4.0	9.0	36	25	31	402	539	480	25	275	42	7.1
15	4.0	9.6	292	25	30	741	460	499	49	209	60	9.5
16	11	10	328	21	30	1,520	364	402	77	136	55	8.3
17	26	21	383	63	32	1,030	241	310	79	85	50	4.9
18	7.7	40	741	741	34	700	167	364	65	95	49	3.9
19	7.7	9.6	948	4,620	30	275	131	700	52	85	45	3.3
20	7.2	13	480	4,400	31	328	460	864	45	49	40	3.1
21	5.9	17	145	1,520	31	346	1,200	579	40	40	33	2.9
22	9.0	41	118	539	30	164	1,880	292	33	37	24	6.0
23	13	43	93	197	36	121	1,420	225	40	32	30	4.2
24	12	36	65	1,290	52	91	948	173	45	29	32	3.1
25	13	25	55	3,050	579	104	659	123	40	26	32	5.7
26	9.6	23	45	2,400	3,960	383	948	95	42	24	31	12
27	11	17	37	1,740	4,780	659	741	95	33	139	29	20
28	8.3	20	46	864	4,400	480	539	164	18	275	24	18
29	6.8	11	65	292	------	421	402	136	16	182	20	16
30	9.0	22	49	209	------	440	241	113	364	118	16	18
31	13	------	42	176	------	383	------	89	------	75	13	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	26	2.5	7.88	0.022	0.03
November	46	9	19.9	.058	.06
December	948	10	135	.394	.45
January	4,620	----------	732	2.13	2.46
February	4,780	25	526	1.53	1.59
March	1,830	91	467	1.36	1.57
April	1,880	131	698	2.03	2.26
May	1,340	79	319	.930	1.07
June	364	16	52.5	.153	.17
July	3,300	24	562	1.64	1.89
August	79	13	38.8	.113	.13
September	20	2.4	7.37	.021	.02
The year	4,780	2.4	296	.863	11.70

BLANCHARD RIVER NEAR DUPONT, OHIO

LOCATION.—Water-stage recorder on east line of sec. 13, T. 1 N., R. 5 E., at highway bridge 500 feet above Ohio Electric Railway crossing and 4 miles east of Dupont.

DRAINAGE AREA.—749 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 9,500 second-feet Feb. 28 (gage height, 20.3 feet); minimum, 11 second-feet Oct. 14 and 15 (gage height, 0.72 foot).

1928–29: Maximum and minimum discharges occurred during 1929.

REMARKS.—Records good except those for estimated periods, Jan. 4–8, 24–31, and Feb. 1–3, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	18	31	135	300	8,470	2,420	516	148	1,640	122	26
2	14	25	28	106	250	5,460	3,600	567	116	2,850	87	25
3	14	28	27	101	200	2,580	2,600	1,570	96	2,460	83	21
4	15	30	28		223	1,460	1,800	2,900	80	1,220	105	19
5	15	40	26		192	1,360	1,330	2,170	72	2,990	184	17
6	14	37	26	80	170	1,460	1,300	1,100	69	4,480	122	18
7	14	34	29		162	1,180	897	627	62	5,040	106	21
8	13	47	31		148	845	604	673	66	4,690	91	24
9	14	40	25	128	142	604	604	340	66	3,420	72	24
10	14	34	24	155	142	434	1,040	271	62	1,880	58	22
11	13	29	23	135	116	304	1,830	223	55	914	49	19
12	13	26	23	116	106	255	1,960	223	69	516	43	18
13	12	24	22	97	101	275	1,660	223	91	358	40	22
14	11	23	39	82	101	855	1,300	1,020	111	512	67	22
15	11	20	196	76	101	2,100	1,000	1,780	122	673	180	20
16	12	19	184	68	97	2,950	721	1,980	106	434	223	19
17	14	20	370	144	101	3,200	537	1,490	100	322	148	22
18	16	21	821	1,156	128	2,800	415	871	111	223	92	21
19	17	22	1,080	4,320	148	1,600	322	1,280	116	184	72	21
20	19	28	1,180	7,310	128	950	305	1,900	83	223	55	24
21	19	31	926	8,100	111	950	1,060	1,660	87	148	43	22
22	18	32	488	6,880	106	1,000	2,190	1,030	116	100	43	19
23	17	34	415	4,800	101	977	2,550	604	96	83	62	17
24	15	42	358	2,700	118	1,150	1,780	415	142	76	69	16
25	16	50	304	3,000	528	1,180	1,200	304	87	69	87	14
26	21	47	223	3,900	3,850	1,690	2,040	239	58	66	62	16
27	22	44	128	4,000	7,960	3,250	2,600	192	66	112	43	17
28	19	42	106	3,700	9,350	3,400	1,930	177	66	795	34	21
29	18	37	111	2,200	-------	2,130	1,050	177	58	306	31	26
30	18	32	128	1,100	-------	996	697	155	170	304	30	26
31	18	-------	142	600	-------	745	-------	155	-------	223	28	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	22	11	15.5	0.021	0.02
November	50	18	31.9	.043	.05
December	1,180	22	242	.323	.37
January	8,100	68	1,790	2.39	2.76
February	9,350	97	899	1.20	1.25
March	8,470	255	1,830	2.44	2.81
April	3,600	305	1,450	1.94	2.16
May	2,900	155	866	1.16	1.34
June	170	55	91.6	.122	.14
July	5,040	66	1,200	1.60	1.84
August	223	28	81.6	.109	.13
September	26	14	20.6	.028	.03
The year	9,350	11	711	.949	12.90

MIAMI & ERIE CANAL AT DELPHOS, OHIO

LOCATION.—Staff gage at old Lock 9, 70 feet below Third Street Bridge in Delphos.

RECORDS AVAILABLE.—March, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 112 second-feet May 3; no flow Feb. 4 to Mar. 12.

1928–29: Maximum discharge, 125 second-feet Mar. 30, 1928 (gage height, 4.4 feet); no flow when canal is shut down.

REMARKS.—Records fair. Water is diverted into canal by feeder from Lake St. Marys. Gage-height record furnished by State canal superintendent.

Daily and monthly discharge, in second-feet, 1929

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1		69	61	2	25	35	17
2		61	61	14	26	25	20
3		65	88	31	23	47	24
4		58	92	29	19	38	22
5		69	54	29	31	20	24
6		58	36	33	28	21	26
7		51	21	31	23	24	26
8		61	25	30	31	23	18
9		69	35	25	20	23	18
10		80	37	24	22	27	20
11		88	32	25	17	18	24
12	80	65	58	29	18	22	22
13	80	69	80	27	24	24	29
14	80	54	58	26	18	38	25
15	80	54	58	27	18	9	16
16	80	51	35	6	26	23	20
17	80	51	23	28	25	27	24
18	65	51	20	29	24	17	22
19	61	51	32	23	25	28	27
20	65	54	29	27	31	22	22
21	69	58	19	29	18	18	17
22	69	92	30	29	20	19	17
23	69	80	17	23	22	15	22
24	61	69	23	29	24	21	11
25	61	77	29	24	23	21	37
26	65	104	25	22	25	25	20
27	58	80	21	19	25	23	29
28	51	61	17	28	22	24	26
29	44	69	14	22	25	23	15
30	51	69	2	19	24	18	22
31	47	-------	1	-------	25	31	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
March 12-31	80	44	65.8	July	31	17	23.5
April	104	51	66.3	August	47	9	24.2
May	92	1	36.5	September	37	11	22.1
June	33	2	24.6				

NOTE.—No flow Feb. 4, to Mar. 11, when canal was being repaired. Record missing Oct. 1 to Feb. 3, during construction work on canal.

MIAMI & ERIE CANAL NEAR DEFIANCE, OHIO

LOCATION.—Water-stage recorder in NW. ¼ sec. 22, T. 4 N., R. 5 E., a quarter of a mile below head gate at Independence and 5 miles east of Defiance.

RECORDS AVAILABLE.—November, 1924, to July, 1929; canal abandoned.

EXTREMES.—Maximum discharge during period, 360 second-feet Feb. 26 (gage height, 3.58 feet); no flow July 22–31.

1924–1929: Maximum discharge, 367 second-feet Feb. 25, 1926; no flow July 22–31, 1929.

REMARKS.—Records fair. Discharge estimated Jan. 7, 8, 26–31, and Feb. 1–5. The canal diverts water from Maumee River at Independence, the water being used for power at Napoleon. Canal shut down after July 22.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	189	184	173	182		220	204	205	197	143
2	203	194	170	193		230	169	207	193	153
3	200	189	171	181	210	218	161	199	176	157
4	193	181	175	165		291	186	184	165	164
5	190	189	171	178		210	181	193	164	153
6	191	188	167	194	212	208	185	211	188	150
7	193	181	165	195	210	199	193	196	192	157
8	196	180	173	195	212	197	193	195	186	158
9	191	177	170	197	211	169	192	191	186	150
10	188	181	179	203	207	189	202	185	192	161
11	189	188	177	210	205	183	186	185	191	149
12	189	191	172	215	206	184	188	173	191	148
13	188	189	172	206	207	187	188	192	194	138
14	189	188	189	200	206	200	186	205	202	154
15	193	187	184	197	198	194	194	197	184	165
16	187	189	182	194	197	162	196	150	180	148
17	186	190	195	210	197	184	196	185	173	149
18	185	189	200	213	197	158	185	189	177	147
19	183	204	199	192	208	186	190	199	177	150
20	185	187	197	202	204	190	191	199	189	146
21	193	181	216	191	204	194	195	197	186	138
22	189	183	206	172	205	199	193	206	181	110
23	185	181	207	194	210	178	202	201	173	-------
24	182	182	196	140	209	179	192	203	167	-------
25	181	178	193	237	223	187	194	204	171	-------
26	180	182	201		291	192	202	199	171	-------
27	181	188	197		181	193	198	194	162	-------
28	183	210	183	220	184	192	194	193	159	-------
29	183	193	182		-------	170	185	190	149	-------
30	182	182	185		-------	174	190	201	144	-------
31	182	-------	184		-------	186	-------	198	-------	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	203	180	188	March	230	158	191
November	210	177	187	April	204	161	190
December	216	165	185	May	211	184	194
January	-------	140	199	June	202	144	179
February	291	181	208	July	165	110	106

MIAMI & ERIE CANAL AT WATERVILLE, OHIO

LOCATION.—Staff gage at highway bridge at Waterville, Lucas County, opposite gaging station on Maumee River at Waterville.

RECORDS AVAILABLE.—August, 1921, to June, 1929; canal abandoned.

EXTREMES.—Maximum discharge during period, 712 second-feet Feb. 26 (gage height, 7.50 feet); minimum, 132 second-feet Oct. 2 (gage height, 3.40 feet). 1921–1929: Maximum discharge, that of Feb. 26, 1929; no flow Mar. 15, 1923, Jan. 8–10, 12–16, Mar. 6–21, 1924, and after June 30, 1929.

REMARKS.—Records fair. Canal diverts water from Maumee River at Grand Rapids, 10 miles above Waterville. Water is used for power at Maumee and Toledo.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	140	187	479	497	497	392	553	534	167
2	132	177	461	515	497	572	497	534	534
3	140	197	443	553	497	572	497	572	515
4	207	197	426	534	479	316	461	553	515
5	228	197	443	534	479	392	534	534	497
6	228	197	426	461	479	409	497	534	497
7	217	197	409	376	479	479	497	515	497
8	217	197	392	360	479	479	479	497	497
9	217	197	392	479	479	515	534	515	497
10	217	197	376	443	392	443	534	515	497
11	187	197	360	443	392	461	553	497	497
12	187	207	360	316	392	461	515	553	534
13	187	207	376	553	392	443	515	534	515
14	177	207	392	534	392	479	497	572	534
15	187	228	330	534	392	479	497	572	534
16	187	228	479	572	392	409	479	572	534
17	187	228	497	592	392	276	479	534	534
18	187	251	497	553	392	461	515	515	534
19	187	239	497	426	392	461	515	553	534
20	187	276	497	497	392	461	515	534	534
21	177	360	461	497	392	515	553	534	515
22	177	345	553	497	392	461	515	534	534
23	187	392	553	479	392	461	515	515	534
24	187	392	553	461	392	461	515	515	515
25	207	409	534	534	534	443	534	497	534
26	197	409	534	534	652	443	572	497	534
27	187	392	553	497	479	461	497	497	534
28	187	426	479	497	572	497	534	497	534
29	187	461	461	376	-------	479	534	534	515
30	187	515	497	376	-------	497	515	534	515
31	187	-------	497	443	-------	461	-------	553	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	228	132	189	March	572	276	456
November	515	177	277	April	572	461	515
December	553	330	458	May	572	497	531
January	592	316	483	June	534	167	509
February	652	392	446				

NORTH BRANCH OF PORTAGE RIVER NEAR BOWLING GREEN, OHIO

LOCATION.—Chain gage in SE. ¼ sec. 14, T. 5 N., R. 11 E., at highway bridge half mile below mouth of Poe ditch and 5 miles northeast of Bowling Green.

DRAINAGE AREA.—54.0 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 708 second-feet Feb. 26 (gage height, 5.7 feet); minimum, 0.7 second-foot Oct. 7, 8, Nov. 12, and Sept. 8. 1923–1929: Maximum discharge, 756 second-feet Apr. 8, 1926; minimum 0.2 second-foot July 31, Aug. 8, 9, 1926.

REMARKS.—Records fair except those for periods of ice effect, Dec. 7–9, 20–23, Jan. 1–17, 29–31, and Feb. 1–25. Some water which otherwise might not reach this stream above gage is diverted into it by drainage ditches.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.8	3.0			178	148	74	58	80	1.2	1.1
2	2.2	1.4	4.1			118	136	191	48	112	1.2	1.1
3	.8	3.3	2.6	3	6	96	90	438	39	85	1.4	1.3
4	.8	1.4	1.0			96	74	312	32	80	1.1	1.3
5	1.4	1.0	.8			107	80	148	35	341	1.3	1.4
6	1.1	1.0	.8			85	67	96	32	256	1.1	1.9
7	.8	.9				66	42	72	30	204	1.2	1.9
8	.7	1.0	.8			52	55	51	35	136	1.1	.8
9	.9	1.0				32	96	39	25	112	1.0	1.0
10	1.0	1.5	.8			23	118	32	18	85	1.1	1.0
11	1.0	8.0	.8	4		19	136	25	14	57	1.1	1.3
12	.8	.8	1.0			17	166	35	20	41	1.0	1.3
13	1.0	.8	2.8			28	90	59	63	36	1.0	1.0
14	.9	.9	4.6			166	54	230	70	53	5.0	.8
15	.8	.8	18			230	47	403	61	25	3.0	1.1
16	2.2	.9	18	10	3	371	53	276	52	16	1.1	2.4
17	1.3	1.0	25	10		284	32	136	49	12	.8	2.6
18	1.4	1.0	60	230		166	25	96	34	9.5	.9	2.2
19	.9	3.3	40	456		107	18	217	30	6.3	1.2	1.4
20	1.0	1.4		326		96	44	204	26	3.3	1.4	1.4
21	1.0	1.4	15	154		80	204	130	19	1.1	2.6	3.3
22	1.1	1.5		102		73	166	90	13	.9	1.3	2.8
23	.9	1.1		107		85	96	74	14	1.4	3.5	1.9
24	1.3	1.0	8.0	102		90	71	70	13	3.5	2.8	1.1
25	.8	1.0	6.7	312		85	80	50	10	7.1	1.4	1.3
26	.9	.8	5.0	312	708	85	356	55	9.5	1.7	.9	2.6
27	.9	.9	7.6	256	554	112	298	56	14	4.1	1.0	2.2
28	1.2	.9	8.0	154	296	96	154	62	26	8.5	1.1	3.0
29	.8	.8	5.8		-------	72	154	66	29	5.0	.9	3.3
30	.8	1.4	4.1	40	-------	52	102	63	36	2.4	1.0	1.4
31	.8	-------	3.5		-------	35	-------	58	-------	1.4	1.2	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	2.2	0.7	1.04	May	438	25	126
November	8.0	.8	1.43	June	70	9.5	31.8
December	60	-------	9.50	July	341	.9	57.7
January	456	-------	87.3	August	5.0	.8	1.48
February	708	-------	58.9	September	3.3	.8	1.71
March	371	17	103				
April	356	18	108	The year	708	-------	49.1

SANDUSKY RIVER NEAR BUCYRUS, OHIO

LOCATION.—Chain gage in NE. ¼ sec. 10, T. 3 S., R. 16 E., at highway bridge 1½ miles west of Bucyrus.

DRAINAGE AREA.—89.8 square miles.

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

EXTREMES.—Maximum discharge during year, about 2,920 second-feet Feb. 26 (gage height, 8.6 feet); minimum, 2.7 second-feet Oct. 7 (gage height, 0.82 foot).

1925–1929: Maximum discharge, about 3,360 second-feet Dec. 14, 1927 (gage height, 9.2 feet); minimum, 0.9 second-foot Sept. 4, 1927 (gage height, 0.72 foot).

REMARKS.—Records good except those for extremely high water and for periods Jan. 6–17, Feb. 2–7, 12–17, which were estimated because of ice.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	4.4	34	18	32	220	655	64	14	40	14	4.8
2	3.4	13	35	14	10	210	242	76	12	24	11	4.8
3	4.0	14	24	14	10	142	134	765	11	14	21	4.5
4	4.0	16	19	12	10	200	231	253	10	9.3	18	4.3
5	4.4	11	18	15	10	322	490	490	9.7	1,230	14	4.3
6	3.4	9.7	14	10	10	151	180	322	9.0	550	10	4.5
7	2.9	7.7	15	10	10	126	103	126	9.0	765	9.3	7.4
8	3.1	8.7	13	10	17	58	76	82	9.0	1,320	8.0	4.8
9	3.6	6.4	10	10	16	51	82	58	8.4	275	7.4	5.3
10	4.0	7.0	10	10	16	32	298	43	8.0	134	7.0	4.8
11	3.8	6.4	9.0	10	17	24	58	35	8.0	76	6.0	4.3
12	3.6	6.0	4.2	10	10	32	231	38	8.0	47	5.7	4.1
13	4.4	5.7	8.4	10	10	37	170	49	7.0	37	5.8	5.0
14	5.1	5.1	124	10	10	110	180	242	10	51	20	4.3
15	5.4	3.1	215	10	10	210	103	620	8.0	31	15	4.3
16	6.0	5.1	102	10	10	275	103	298	6.7	21	11	4.3
17	6.7	4.0	247	10	10	231	82	89	7.4	16	8.0	6.7
18	8.4	6.7	510	540	21	118	58	64	6.7	14	6.7	3.9
19	7.0	10	186	2,260	18	82	45	200	20	10	6.2	4.5
20	6.4	49	93	450	21	490	53	180	11	9.0	5.7	4.3
21	5.7	41	53	215	18	180	1,000	253	16	8.0	5.3	3.9
22	5.1	32	46	124	16	550	490	220	8.7	7.4	6.5	3.6
23	9.7	43	30	395	15	286	180	89	6.7	6.7	58	3.6
24	7.7	34	25	132	17	253	103	58	6.7	6.2	53	3.6
25	7.0	22	22	1,450	18	180	70	45	64	23	17	9.7
26	5.4	13	18	395	2,260	1,360	690	36	43	210	11	12
27	5.7	12	21	167	845	430	231	29	18	322	8.0	7.4
28	5.4	12	21	90	373	170	118	28	20	110	6.7	7.4
29	6.0	10	21	87	------	103	210	22	18	70	5.5	6.5
30	5.1	14	17	51	------	89	89	19	18	38	5.5	5.0
31	4.7	------	15	35	------	76	------	17	------	21	5.3	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	9.7	2.9	5.18	0.057	0.07
November	49	3.1	14.4	.160	.18
December	510	4.2	63.9	.712	.82
January	2,260	----------	212	2.36	2.72
February	2,260	----------	137	1.53	1.59
March	1,360	24	219	2.44	2.81
April	1,000	45	225	2.51	2.80
May	765	17	158	1.76	2.03
June	64	6.7	13.7	.153	.17
July	1,320	6.2	177	1.97	2.27
August	58	5.3	12.6	.140	.16
September	12	3.6	5.26	.057	.07
The year	2,260	2.9	104	1.16	15.69

SANDUSKY RIVER NEAR UPPER SANDUSKY, OHIO

LOCATION.—Water-stage recorder in sec. 21, T. 2 S., R. 14 E., at highway bridge three-fourths mile above mouth of Rock Run and 2 miles northeast of Upper Sandusky.

DRAINAGE AREA.—299 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,640 second-feet Feb. 27 (gage height, 10.4 feet); minimum, 4.2 second-feet Oct. 1 (gage height, 1.02 feet). 1921–1929: Maximum discharge, 6,750 second-feet Dec. 15, 1927 (gage height, 10.5 feet); minimum, 3.2 second-feet Sept. 22, 1928.

REMARKS.—Records excellent except those for periods of ice effect, Dec. 21–27, 30, 31, Jan. 6–19, and Feb. 4–24, and periods when recorder was not operating Oct. 13–19, Jan. 26–31, Feb. 1–3, Mar. 13–15, and June 17 to July 2, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	20	37	57		980	1,330	257	45	80	65	11
2	5.8	24	64	48		725	1,260	205	41	80	45	10
3	6.3	38	79	55		539	629	1,110	37	63	48	9.0
4	5.8	55	64	52		495	431	1,260	34	43	54	8.4
5	10	64	55	43	90	825	1,100	675	33	606	48	9.0
6	26	52	37			561	925	825	33	1,810	38	11
7	17	40	43			390	431	431	33	925	33	13
8	11	32	45			257	275	293	29	1,680	27	12
9	7.4	28	45			219	240	222	25	1,330	22	13
10	7.9	26	34	60		132	429	163	28	474	20	13
11	7.9	25	30			135	775	132	28	275	18	12
12	9.3	22	27			116	629	122	32	172	17	11
13		20	26			120	561	122	28	124	15	10
14		19	64			290	629	326	21	160	33	9.7
15		17	480	40		460	431	1,310	20	116	56	8.4
16	15	18	431			629	331	804	21	81	38	10
17		22	394	80		825	275	370	20	58	29	12
18		27	1,410	1,320	80	561	222	240	20	46	22	14
19		32	970	4,200		331	169	410		38	16	19
20	28	62	390	4,520		512	151	675	30	33	12	13
21	21	124	220	1,060		825	969	410		28	10	11
22	18	111	190	561		903	2,160	539		23	10	11
23	24	97	160	875		1,040	932	331	25	20	85	10
24	28	90	100	675		775	474	208		21	146	8.4
25	40	86	60	2,370	223	675	370	157		21	104	8.4
26	27	53	60		3,960	2,220	1,000	126		61	48	20
27	25	40	70		6,120	720	1,180	104	80	873	31	33
28	26	50	71	500	2,130	583	517	102		675	21	28
29	24	40	64		-------	390	431	83		312	17	23
30	20	34	50		-------	331	390	58		172	14	25
31	20	-------	35		-------	331	-------	48	-------	106	12	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square miles	
October	40	5.3	17.0	0.057	0.07
November	124	17	45.6	.153	.17
December	1,410	26	187	.625	.72
January	4,520	----------	630	2.11	2.43
February	6,120	----------	516	1.73	1.80
March	2,220	----------	577	1.93	2.22
April	2,160	151	655	2.19	2.44
May	1,310	48	391	1.31	1.51
June	----------	----------	39.1	.131	.15
July	1,810	20	339	1.13	1.30
August	146	10	37.2	.124	.14
September	33	8.4	13.5	.045	.05
The year	6,120	5.3	286	.957	13.00

SANDUSKY RIVER NEAR MEXICO, OHIO

LOCATION.—Chain gage to Aug. 14 and water-stage recorder thereafter in sec. 13, T. 1 N., R. 14 E., at highway bridge 3 miles above Honey Creek and 4¼ miles north of Mexico.

DRAINAGE AREA.—776 square miles.

RECORDS AVAILABLE.—March, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 13,400 second-feet Feb. 28 (gage height, 19.5 feet); minimum, 8.0 second-feet Sept. 14 (gage height, 1.60 feet).

1923–1929: Maximum discharge, 13,900 second-feet Mar. 22, 1927 (gage height, 19.9 feet); minimum, 4 second-feet Aug. 25, 1928.

REMARKS.—Records good except those estimated because of ice, Jan. 6–16 and Jan. 30 to Feb. 25, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	181	40	101		7,100	2,040	595	181	42	148	25
2	14	216	52	98		4,200	3,160	424	159	29	128	23
3	16	98	75	91		1,630	2,220	1,730	119	159	101	22
4	16	87	94	98		1,280	965	1,930	94	363	98	20
5	16	81	75	101		1,730	1,180	1,780	98	456	96	19
6	14	69	66		200	1,380	1,780	965	101	2,220	81	22
7	14	61	69			1,140	1,040	845	84	2,700	78	22
8	14	55	61			735	735	595	69	2,280	62	22
9	16	55	63			456	393	424	63	2,520	55	25
10	16	47	61			393	630	278	69	1,430	52	26
11	14	35	55	100		334	1,480	265	61	665	49	27
12	14	29	61			278	2,040	252	63	456	46	25
13	16	24	58			252	1,680	228	58	306	41	9.2
14	17	29	101			665	1,330	525	61	490	58	8.6
15	20	35	700			1,880	1,040	2,400	63	391	76	9.8
16	16	27	700			1,980	735	2,460	63	292	82	10
17	19	22	665	560		1,930	630	1,680	69	204	69	11
18	16	35	2,580	965	150	1,380	560	595	66	159	61	12
19	20	55	2,580	7,400		1,040	334	1,180	61	114	50	13
20	24	84	1,530	8,600		925	363	1,680	58	98	41	13
21	40	119	630	9,910		1,480	2,220	925	63	85	34	13
22	47	181	490	4,360		1,830	3,720	770	61	72	31	14
23	52	170	334	2,040		2,220	2,400	630	55	65	46	15
24	35	159	252	2,400		2,160	1,480	393	47	59	138	13
25	31	159	181	4,040		3,370	805	334	52	65	170	14
26	27	138	138	5,160	6,310	4,120	2,880	252	42	128	110	17
27	20	115	101	4,040	10,200	2,950	2,640	204	35	595	72	19
28	192	69	84	2,880	13,400	3,370	1,430	181	31	760	47	26
29	181	58	75	665	-------	1,180	1,040	204	38	925	38	36
30	170	47	84	400	-------	845	925	228	69	456	30	34
31	181	-------	91		-------	805	-------	228	-------	192	27	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile.	
October	192	14	42.0	0.054	0.06
November	216	22	84.7	.109	.12
December	2,580	40	392	.505	.58
January	9,910	91	1,790	2.31	2.66
February	13,400	-------	1,220	1.57	1.64
March	7,100	252	1,780	2.29	2.64
April	3,720	334	1,460	1.88	2.10
May	2,460	181	812	1.05	1.21
June	181	31	71.8	.092	.10
July	2,700	29	606	.781	.90
August	170	27	71.7	.092	.11
September	36	8.6	18.9	.024	.03
The year	13,400	8.6	694	.894	12.15

SANDUSKY RIVER NEAR FREMONT, OHIO

LOCATION.—Chain gage in sec. 17, T. 4 N., R. 15 E., at highway bridge 2½ miles below mouth of Wolf Creek and 3½ miles southwest of Fremont.

DRAINAGE AREA.—1,250 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 12,000 second-feet Feb. 28; maximum gage height, 14.0 feet Feb. 26 (backwater from ice jam); minimum discharge, 20 second-feet Oct. 12, 14 (gage height, 0.95 foot).

1923–1929: Maximum discharge, 13,500 second-feet Mar. 22, 1927 (gage height, 9.1 feet); minimum, 15 second-feet Sept. 1, 1925 (gage height, 0.90 foot).

REMARKS.—Records good except those for extremely low water and for periods of ice effect, Dec. 8–13, Jan. 1–7, 28–31, and Feb. 1–26, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	53	130			9,200	2,400	1,000	334	213	363	51
2	29	45	120			4,250	3,910	880	293	725	241	56
3	34	84	134			2,560	3,230	2,720	279	680	202	37
4	26	207	125			2,080	1,920	3,570	266	550	165	40
5	26	196	175			2,400	2,240	2,720	216	518	139	40
6	29	154	170			2,400	2,400	1,700	252	3,740	125	42
7	29	134	106			1,920	1,700	1,700	252	3,570	125	53
8	26	120				1,250	1,060	1,060	230	3,230	115	64
9	22	88		180		880	995	725	230	3,060	423	51
10	24	84	80			725	1,390	534	246	2,240	106	48
11	22	80				592	2,400	469	218	1,120	101	34
12	22	45				469	3,060	446	224	775	60	34
13	22	68			400	501	2,400	592	207	550	45	45
14	22	64	160			825	2,240	1,320	202	635	130	51
15	22	48	825			3,060	1,700	2,720	180	725	88	34
16	24	64	1,390			3,910	1,250	3,570	170	493	101	29
17	40	51	1,620	450		3,910	935	2,240	180	363	134	37
18	53	64	3,740	2,400		2,400	775	1,320	154	272	125	42
19	45	76	3,570	10,800		1,620	635	1,470	149	207	106	40
20	34	101	2,400	9,600		1,390	592	2,240	144	170	106	32
21	29	207	995	8,800		2,000	3,230	1,320	110	149	64	27
22	32	286	592	7,040		2,240	4,970	1,060	134	134	37	32
23	80	327	518	4,080		2,890	4,250	825	115	110	101	27
24	80	279	485	3,230		2,720	2,560	592	84	101	115	34
25	64	235	385	5,520		2,080	1,620	485	80	120	230	29
26	64	202	306	6,280	6,000	3,740	3,570	423	101	144	224	42
27	56	170	246	5,520	11,200	5,150	4,250	363	115	430	175	51
28	84	125	235		11,800	4,250	2,890	370	72	1,840	120	40
29	72	120	230	2,400		2,080	2,000	363	96	1,250	110	42
30	56	130	224			1,320	1,540	407	144	825	60	29
31	56		202			935		407		534	40	

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	84	22	40.2	0.032	0.04
November	327	45	130	.104	.12
December	3,740		631	.505	.58
January	10,800		2,460	1.97	2.27
February	11,800		1,390	1.11	1.16
March	9,200	469	2,440	1.95	2.25
April	4,970	592	2,270	1.82	2.03
May	3,570	363	1,280	1.02	1.18
June	334	72	183	.146	.16
July	3,740	101	951	.761	.88
August	423	37	138	.110	.13
September	64	27	40.4	.032	.04
The year	11,800	22	997	.798	10.84

EAST BRANCH OF HURON RIVER NEAR NORWALK, OHIO

LOCATION.—Chain gage at highway bridge 1¾ miles northwest of Norwalk, Huron County, and 1½ miles below mouth of Cole Creek.

DRAINAGE AREA.—84.9 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,810 second-feet Feb. 26 (gage height, 8.4 feet); minimum, 2.9 second-feet Sept. 4, 5 (gage height, 0.70 foot).

1923–1929: Maximum discharge, 3,810 second-feet Oct. 5, 1926, and Feb. 26, 1929; minimum, 2.5 second-feet Aug. 30, 31, 1925.

REMARKS.—Records good except those for periods of extremely low water and of ice effect, Dec. 21, 22, Jan. 3–16, and Feb. 1–25, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	8.8	17	19		171	350	58	13	21	10	3.4
2	4.3	9.5	17	20		137	176	153	12	17	7.5	3.4
3	4.3	32	16		20	105	64	780	11	13	9.2	3.4
4	4.9	17	16	12		153	87	226	9.6	10	8.3	3.2
5	8.0	14	16			226	209	103	9.6	600	7.5	2.9
6	8.4	12	16			112	94	67	8.8	277	6.2	4.4
7	6.1	11	16			89	51	56	8.8	295	5.8	5.2
8	6.1	10	13			33	49	45	8.8	260	5.2	4.4
9	6.7	10	15			30	77	34	7.9	114	4.9	4.4
10	6.7	11	15			28	260	29	7.9	69	4.9	4.4
11	6.7	11	13	20		22	194	25	7.1	38	4.6	4.2
12	6.7	11	13			24	260	40	7.9	23	4.2	3.9
13	6.4	10	12			30	116	45	7.5	21	3.9	4.4
14	8.0	10	30			96	82	226	10	28	8.3	4.4
15	9.5	10	70		15	203	59	350	9.2	22	6.2	4.4
16	15	11	46			313	101	116	11	15	5.2	3.9
17	13	11	52	107		166	65	61	8.3	11	4.9	4.9
18	12	15	260	600		103	43	43	6.7	14	4.4	4.9
19	11	20	105	1,790		72	31	242	185	33	4.4	4.9
20	9.9	44	43	369		151	84	176	242	32	3.9	4.9
21	8.8	29	40	137		137	930	197	78	15	3.9	4.9
22	8.0	27	30	87		242	332	174	29	11	4.2	4.4
23	12	25	27	150		242	128	75	17	8.8	4.4	4.4
24	9.9	20	21	150		120	70	47	13	9.2	4.2	4.4
25	8.8	18	17	1,130		139	428	40	36	37	3.9	4.6
26	9.2	19	20	295	3,650	980	830	32	21	18	3.9	18
27	9.2	16	17	169	555	242	209	28	18	153	3.9	8.8
28	8.8	15	16	74	260	101	142	64	31	58	3.9	7.5
29	8.8	12	15	50	-------	64	188	42	18	37	3.9	6.7
30	8.8	13	16	36	-------	47	89	24	22	17	4.2	6.7
31	8.8	-------	15	29	-------	43	-------	18	-------	13	3.9	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	15	4.0	8.35	0.098	0.11
November	44	8.8	16.1	.190	.21
December	260	12	33.4	.393	.45
January	1,790	----------	176	2.07	2.39
February	3,650	----------	174	2.05	2.13
March	980	22	149	1.76	2.03
April	930	31	193	2.27	2.53
May	780	18	117	1.38	1.59
June	242	6.7	29.2	.344	.38
July	600	8.8	73.9	.870	1.00
August	10	3.9	5.28	.062	.07
September	18	2.9	5.14	.061	.07
The year	3,650	2.9	81.2	.956	12.96

EAST BRANCH OF BLACK RIVER AT ELYRIA, OHIO

LOCATION.—Chain gage at Fuller Street Bridge, 1¼ miles southeast of center of Elyria, Lorain County, and 3 miles above junction with West Branch.

DRAINAGE AREA.—211 square miles.

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

EXTREMES.—Maximum discharge during year, 5,360 second-feet Feb. 27 (gage height, 7.2 feet); minimum, 0.1 second-foot Oct. 2–8.

1922–1929: Maximum discharge, that of Feb. 27, 1929; maximum gage height, 9.9 feet June 29, 1924 (backwater caused by tornado); minimum discharge, that of Oct. 2–8, 1928.

REMARKS.—Records good except those for extremely high and low stages, for periods of ice effect, Jan. 1–18, 27–31, Feb. 1–23, and for estimates, Dec. 23–25, May 19, 20, 30, 31, July 9–13, 31, Aug. 4–6, 28–30.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	6.4	9.4			1,280	580	97	9.4	61	2.6	3.5
2	.1	5.4	9.4			580	420	88	9.4	64	2.6	3.5
3	.1	6.4	9.4		200	545	286	2,120	9.4	86	2.6	3.5
4	.1	5.4	7.9			330	142	1,730	7.9	249		3.5
5	.1	3.5	6.4			205	296	1,820	7.9	980	2.6	3.5
6	.1	2.6	9.4			188	322	720	6.4	020		4.5
7	.1	4.5	9.4			222	196	205	6.4	100	2.6	4.0
8	.1	8.7	7.9			258	258	92	6.4	1,100	2.6	3.5
9	.6	9.4	7.9		150	188	268	92	6.4		3.0	4.0
10	1.0	7.9	7.9	20		97	291	74	6.4		3.0	4.5
11	1.6	9.4	8.7			52	374	114	5.4	500	3.5	3.5
12	1.6	9.4	9.4			22	580	101	4.5		3.5	3.5
13	1.6	9.4	15			22	720	88	3.5		2.6	3.5
14	1.6	6.4	17		50	205	580	117	1.6	390	3.0	3.5
15	2.6	7.9	22			335	580	158	1.6	335	6.4	3.5
16	2.6	9.4	27			268	291	103	1.6	286	9.4	3.5
17	2.6	9.4	38			234	200	105	2.1	480	9.4	2.6
18	2.1	9.4	240	510		200	200	151	2.6	286	7.9	2.6
19	1.3	9.4	390	4,110		26	196	152	2.6	240	6.4	3.0
20	2.6	20	291	3,450	25	114	900	154	3.0	205	4.5	3.5
21	1.6	30	128	1,640		209	2,720	155	4.0	196	2.6	2.6
22	3.5	52	97	240		420	2,620	151	2.6	158	2.6	2.6
23	9.4	52	89	200		281	1,020	100	3.5	55	4.0	2.6
24	11	45	82	177	100	825	580	63	5.9	24	6.4	2.6
25	11	42	74	2,720	263	940	450	14	10	6.4	4.5	2.6
26	14	30	66	1,100	3,560	1,020	390	70	14	7.2	2.6	3.5
27	11	24	55		5,120	980	151	64	59	2.6	2.6	3.5
28	7.9	21	30		4,000	860	222	57	64	42	2.8	3.5
29	7.9	13	20	600		650	214	6.4	63	38	3.0	3.5
30	7.9	9.4	16			615	145	7.4	64	9.4	3.3	3.5
31	7.9		16			545		8.4		6.0	3.5	

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	14	0.1	3.75	0.018	0.02
November	52	6.4	16.0	.076	.08
December	390	2.6	58.6	.278	.32
January	4,110		564	2.67	3.08
February	5,120		548	2.60	2.71
March	1,280	22	410	1.94	2.24
April	2,720	142	536	2.54	2.83
May	2,120	6.4	290	1.37	1.58
June	64	1.6	13.2	.063	.07
July	1,100	2.6	320	1.52	1.75
August	9.4	2.6	3.91	.019	.02
September	4.5	2.6	3.37	.016	.02
The year	5,120	.1	229	1.09	14.72

ROCKY RIVER NEAR BEREA, OHIO

LOCATION.—Chain gage at highway bridge just below junction of East and West Branches, 3 miles northwest of Berea, Cuyahoga County. Staff gage used after Aug. 31. Zero of each gage is 650.52 feet above mean sea level.

DRAINAGE AREA.—269 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 13,300 second-feet Jan. 19 (gage height, 10.5 feet); minimum, 2.1 second-feet Sept. 4.

1923–1929: Maximum discharge, 13,700 second-feet Dec. 14, 1927 (gage height, 10.6 feet); maximum gage height, 18.6 feet June 29, 1924 (backwater caused by tornado); minimum discharge, 2.1 second-feet Sept. 4, 1929.

Maximum known stage, 20.9 feet in March, 1913.

REMARKS.—Records fair, except those for periods of ice effect, Dec. 23-29, Jan. 1–16, 28–31, Feb. 1, 2, which are poor. Discharge interpolated Sept. 18–23.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	18	148		150	680	1,950	160	80	54	20	4.5
2	9.3	18	113		150	600	720	297	63	50	19	5.0
3	9.9	45	78	150	144	530	297	1,510	65	42	22	2.8
4	9.3	36	60		128	530	205	760	33	36	20	2.8
5	18	29	78		115	1,020	6,160	930	24	2,190	15	4.0
6	11	25	67		107	439	930	530	20	1,060	13	3.2
7	10	22	67		112	140	446	324	16	975	12	7.8
8	10	25	45	150	112	137	314	205	14	2,190	11	6.2
9	13	22	39		112	121	390	140	12	360	12	18
10	11	28	33		112	96	1,160	104	8.7	354	9.6	9.6
11	10	25	28		112	72	760	85	8.7	209	6.9	5.0
12	9.9	30	25		112	80	2,810	342	11	101	5.5	9.6
13	10	28	28	150	98	107	885	460	7.8	72	6.2	7.8
14	9.3	20	40		98	800	384	840	14	54	16	6.2
15	9.9	25	250		96	975	297	1,310	19	46	6.2	6.2
16	14	26	174	150	88	1,020	600	404	12	41	4.0	7.8
17	19	27	314	245	82	930	397	185	25	39	5.0	6.9
18	31	26	1,260	1,860	85	432	250	118	12	38	15	6.6
19	24	48	418	12,100	90	286	160	760	68	439	12	6.4
20	35	88	178	1,730	88	2,190	314	1,160	397	93	9.6	6.1
21	28	138	48	530	90	270	4,340	1,260	107	54	8.7	5.8
22	19	159	43	297	90	2,190	1,260	495	38	39	12	5.5
23	29	132		308	88	930	460	270	30	31	18	5.3
24	20	105	35	411	90	495	286	168	80	27	12	5.0
25	18	94		3,330	98	319	342	137	1,210	50	9.6	5.0
26	18	69		1,620	8,540	2,940	1,620	96	112	115	8.7	12.1
27	20	62		439	4,040	1,020	840	75	280	110	6.2	35
28	21	55	35		975	460	530	52	265	70	5.0	28
29	22	42		200	-------	270	495	250	128	44	4.0	17
30	21	53	33		-------	185	378	168	150	34	4.0	18
31	18	-------	30		-------	160	-------	121	-------	25	4.5	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	35	9.3	16.7	0.062	0.07
November	159	18	50.7	.188	.21
December	1,260	25	124	.461	.53
January	12,100	-------	841	3.13	3.61
February	8,540	82	579	2.15	2.24
March	2,940	72	659	2.45	2.82
April	6,160	160	999	3.71	4.14
May	1,510	52	442	1.64	1.89
June	1,210	7.8	110	.409	.46
July	2,190	25	292	1.09	1.26
August	22	4.0	10.7	.040	.05
September	35	2.8	8.97	.033	.04
The year	12,100	2.8	343	1.28	17.32

CUYAHOGA RIVER NEAR HIRAM, OHIO

LOCATION.—Water-stage recorder 600 feet above highway bridge on Hiram-Mantua Corners road, 2¾ miles west of Hiram, Portage County.

DRAINAGE AREA.—152 square miles.

RECORDS AVAILABLE.—August, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,260 second-feet Jan. 20 (gage height, 8.23 feet); minimum, 20 second-feet Sept. 3, 4 (gage height, 0.74 foot.)

1927–1929: Maximum discharge, that of Jan. 20, 1929; minimum, 18 second-feet Sept. 28, 1927 (gage height, 0.67 foot).

REMARKS.—Records fair except those for periods of ice effect, Jan. 7–17 and Feb. 7–25, and estimated periods, Nov. 13 to Jan. 6, Jan. 22–25, and Jan. 27 to Feb. 6.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	49				1,480	452	426	84	60	99	23
2	25	46				1,120	506	400	72	50	62	22
3	24	51	300	120	120	824	478	478	63	42	44	22
4	24	75				674	478	590	55	37	40	21
5	25	80				590	803	794	52	152	38	22
6	25	73				478	854	854	51	234	35	23
7	25	62				452	982	794	50	204	32	24
8	25	56	160	130		374	824	646	48	186	28	24
9	24	58				349	646	506	45	168	26	25
10	22	63				288	534	374	44	144	25	54
11	23	64				214	478	277	44	113	25	73
12	24	64				177	618	234	43	92	25	62
13	23		100	140		204	704	224	42	81	23	48
14	22	90				266	704	312	43	128	24	45
15	25				60	349	618	478	46	177	24	49
16	28			60		426	506	506	47	195	26	44
17	30			60		452	400	478	50	186	28	41
18	43	120	240	552		426	312	426	63	168	27	51
19	49			1,560		374	244	426	71	128	26	53
20	52			2,210		426	224	452	86	80	24	45
21	44			2,000		534	534	478	92	50	22	36
22	36					734	886	506	72	38	22	30
23	36	190	200	1,000		854	982	452	59	30	31	26
24	36					886	794	400	76	27	37	25
25	50					824	618	324	113	38	40	25
26	71			704	509	824	562	255	128	61	34	25
27	79				1,340	794	590	204	106	78	28	25
28	79	180	100		1,750	704	590	152	85	74	24	25
29	76			350	------	590	562	128	80	106	24	25
30	67				------	452	478	113	71	120	24	25
31	56	------			------	374	------	99	------	120	24	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	79	22	38.5	0.253	0.29
November	----------	46	115	.757	.84
December	----------	----------	181	1.19	1.37
January	2,210	----------	479	3.15	3.63
February	1,750	----------	193	1.27	1.32
March	1,480	177	565	3.72	4.29
April	982	224	599	3.94	4.40
May	854	99	412	2.71	3.12
June	128	42	66	.434	.48
July	234	27	109	.717	.83
August	99	22	32	.211	.24
September	73	21	34.6	.228	.25
The year	2,210	21	236	1.55	21.06

CUYAHOGA RIVER AT KENT, OHIO

LOCATION.—Water-stage recorder 0.4 mile below Wheeling & Lake Erie Railroad crossing, 1 mile southwest of Kent, Portage County, and 1¼ miles above mouth of Fish Creek.

DRAINAGE AREA.—302 square miles.

RECORDS AVAILABLE.—July, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,880 second-feet Jan. 21 (gage height, 8.85 feet); minimum, 12 second-feet Aug. 22 (gage height, 0.18 foot).

1927–1929: Maximum discharge, that of Jan. 21, 1929; minimum, 9.8 second-feet Oct. 29, 1927.

REMARKS.—Records fair. Water is diverted by city of Akron for municipal supply at reservoir above Kent.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	76	650	235	258	2,480	910	610	125	124	138	17
2	70	129	610	235	258	1,990	955	570	112	84	118	21
3	76	150	570	192	210	1,400	775	1,000	112	46	106	18
4	62	160	535	160	190	1,140	730	1,000	82	53	91	14
5	40	148	467	170	190	1,040	1,680	1,180	38	422	59	16
6	23	94	376	205	154	775	1,810	1,360	59	570	64	16
7	22	87	322	235	154	690	1,680	1,270	100	419	82	17
8	24	80	275	254	138	490	1,540	1,090	86	402	30	20
9	27	73	254	254	154	454	1,220	820	131	317	73	30
10	84	70	220	235	171	349	955	570	104	272	82	40
11	137	93	205	235	190	285	775	402	32	210	125	26
12	141	150	235	220	171	233	1,000	384	48	171	106	16
13	113	180	235	235	154	233	1,040	419	27	258	69	21
14	138	133	254	235	154	349	1,000	454	47	258	48	50
15	160	109	254	220	122	490	1,000	820	132	272	36	138
16	160	101	220	220	46	730	865	775	138	317	27	154
17	110	121	254	235	73	910	650	730	96	317	27	118
18	76	105	405	508	82	775	490	730	78	233	34	100
19	121	180	467	2,100	53	690	384	910	92	171	62	62
20	121	235	500	2,630	40	690	317	910	210	132	48	48
21	170	235	435	2,730	30	690	820	865	200	125	36	38
22	160	275	405	2,330	38	820	1,090	910	138	116	13	46
23	235	322	376	1,760	59	1,040	1,270	775	118	36	16	100
24	109	348	322	1,320	82	1,140	1,360	650	146	24	40	154
25	87	405	297	1,500	114	1,180	1,090	530	118	27	67	171
26	87	376	254	1,500	1,110	1,500	955	402	171	27	100	100
27	113	322	235	1,040	2,280	1,400	820	317	138	30	62	91
28	166	322	235	1,000	2,580	1,180	820	210	90	56	48	100
29	160	348	235	865	------	1,000	955	222	138	100	46	154
30	137	435	235	610	------	775	730	200	110	112	36	190
31	113	------	235	384	------	610	------	154	------	138	18	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	235	22	107	May	1,360	154	685
November	435	70	195	June	210	27	107
December	650	205	341	July	570	24	188
January	2,730	160	776	August	138	13	61.5
February	2,580	30	331	September	190	14	69.5
March	2,480	233	888				
April	1,810	317	990	The year	2,730	13	396

CUYAHOGA RIVER AT OLD PORTAGE, OHIO

LOCATION.—Water-stage recorder at highway bridge at Old Portage, Summit County, 4 miles northwest of Akron and 1¼ miles below mouth of Little Cuyahoga River

DRAINAGE AREA.—405 square miles.

RECORDS AVAILABLE.—September, 1921, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,820 second-feet Apr. 5 (gage height, 10.1 feet); minimum, 60 second-feet Sept. 2 (gage height, 1.18 feet). 1921–1929: Maximum discharge, that of Apr. 5, 1929; minimum, 40 second-feet June 13, 1926 (gage height, 0.94 foot).

REMARKS.—Records good except those for extremely high water, which are fair. Municipal water supply for Akron diverted from headwaters, but return water enters above this station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	134	192	806	246	478	3,040	1,400	1,010	375	252	200	73
2	175	174	710	282	400	2,500	1,400	1,010	309	268	192	76
3	152	186	678	240	348	1,820	1,110	1,380	306	204	168	96
4	117	128	636	193	384	1,440	1,110	1,420	356	144	150	111
5	155	192	605	181	312	1,400	3,130	1,590	267	662	174	90
6	172	216	524	201	325	1,190	2,570	1,680	240	934	163	99
7	94	186	451	212	386	1,030	2,420	1,590	269	898	108	83
8	130	194	355	256	348	845	1,860	1,420	196	785	188	92
9	132	179	302	280	334	786	1,590	1,170	165	626	106	97
10	128	181	287	274	328	656	1,420	970	290	562	101	99
11	130	119	232	248	346	646	1,380	790	267	483	92	109
12	146	176	216	232	334	582	1,590	790	178	402	152	120
13	162	156	238	207	362	573	1,460	790	154	512	149	126
14	115	195	299	268	338	742	1,340	862	362	596	163	106
15	184	184	306	246	355	909	1,340	1,210	162	504	152	80
16	187	194	200	234	283	1,120	1,250	1,250	150	520	154	118
17	208	164	327	366	154	1,230	1,090	1,130	202	549	105	185
18	302	158	538	1,260	274	1,190	934	1,090	203	498	88	148
19	195	304	590	3,040	260	1,080	790	1,340	501	404	118	136
20	181	294	572	3,160	228	1,090	756	1,340	416	288	142	136
21	124	382	520	3,210	236	1,110	1,300	1,420	394	215	130	124
22	205	452	431	2,770	220	1,190	1,550	1,380	310	229	156	92
23	227	458	400	2,600	195	1,360	1,510	1,170	194	256	120	141
24	210	464	394	1,580	156	1,400	1,590	1,050	234	176	82	130
25	194	463	320	2,240	323	1,440	1,510	970	298	192	92	94
26	208	513	296	1,870	2,470	2,120	1,460	826	312	373	124	448
27	179	472	262	1,270	3,320	2,020	1,250	740	278	272	166	156
28	132	430	258	1,190	3,040	1,490	1,170	717	302	112	150	144
29	198	416	248	1,035	-------	1,310	1,250	562	238	312	92	76
30	202	588	228	828	-------	1,160	1,170	472	199	228	103	165
31	201	-------	236	632	-------	960	-------	442	-------	185	110	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	302	94	170	May	1,620	442	1,080
November	588	119	280	June	501	150	271
December	506	200	402	July	934	112	408
January	3,210	181	995	August	270	82	135
February	3,320	154	591	September	448	73	125
March	3,040	573	1,270				
April	3,130	756	1,460	The year	3,320	73	600

CUYAHOGA RIVER AT INDEPENDENCE, OHIO

LOCATION.—Water-stage recorder in T. 6 N., R. 12 W., at highway bridge 1 mile northeast of Independence.

DRAINAGE AREA.—709 square miles.

RECORDS AVAILABLE.—September, 1903, to July, 1906; September, 1921, to May, 1923; September, 1927, to September, 1929.

EXTREMES.—Maximum combined daily discharge of river and canal during year, about 8,960 second-feet Jan. 19; minimum, about 121 second-feet Sept. 2. 1927–1929: Maximum discharge, that of Jan. 19, 1929; minimum, 108 second-feet Sept. 17, 1928.

REMARKS.—Records good except those for high water, which are fair. Water is diverted into Ohio Canal at Brecksville, 6 miles upstream, and carried past station. (For a record of this diversion see p. 60.) A small amount of water is diverted into this drainage basin from Tuscarawas River by Ohio Canal. Daily discharge table does not include canal.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	178	1,390	301		4,250	2,890	1,460	628	382	256	128
2	118	177	1,240	326		3,450	2,560	1,410	540	412	256	89
3	152	230	991	320		2,620	1,960	2,960	399	363	257	90
4	126	229	891	248	650	2,180	1,680	2,730	509	314	232	122
5	99	129	858	218		2,460	7,480	3,430	444	4,110	204	124
6	138	227	746	486		1,960	6,200	2,730	382	2,020	222	104
7	168	178	616	370	415	1,680		2,400	368	1,740	204	120
8	70	132	540	388	414	1,360	3,200	2,020	358	1,630	195	90
9	106	194	412	466	385	1,160		1,630	341	1,100	192	112
10	104	180	370	400	372	1,020		1,310	312	994	153	154
11	98	198	352	360	348	898		1,120	390	768	134	128
12	102	110	300	333	338	884		1,070	333	602	131	131
13	124	202	317	294	349	925	2,500	1,360	319	575	182	180
14	146	190	404	344	344	1,800		2,160	368	790	223	168
15	90	209	680	945	348	1,960		2,730	312	615	206	126
16	176	198	528	1,060	325	2,070		2,180	244	633	197	94
17	196	208	657	1,100	274	2,240		1,680	290	636	210	178
18	308	198	1,850	3,430	226	1,850	1,700	1,410	296	615	146	194
19	266	268	1,190	8,890	298	1,580		2,710	749	570	99	180
20	200	524	960	6,120	250	2,930		2,460	1,780	438	146	167
21	189	502	770	4,250	270	2,070	4,860	2,990	729	389	166	171
22	108	576	600	3,570	236	3,080	3,150	2,510	498	272	165	144
23	204	723	562	2,730	230	2,510	2,400	1,900	790	337	230	107
24	220	676	519	2,180	208	2,290	2,180	1,520	1,900	329	182	170
25	208	703	476	4,170	219	2,070	2,180	1,310	1,500	314	116	160
26	228	659	400		5,240	4,350	2,970	1,110	857	298	110	400
27	212	646	388		7,770	3,540	2,180	957	621	504	170	302
28	208	618	372	2,000	5,230	2,460	1,740	894	660	222	190	192
29	124	637	349		-------	1,900	2,020	1,020	510	303	176	167
30	202	908	322		-------	1,630	1,800	836	474	314	124	98
31	178	-------	273		-------	1,410	-------	684	-------	248	126	-------

Month	River			Canal mean	Combined		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	308	70	159	50.0	-------	-------	209
November	968	110	366	57.7	1,030	167	424
December	1,850	273	656	63.0	1,920	337	719
January	8,890	218	1,780	54.2	8,960	282	1,830
February	7,770	208	1,000	51.6	7,830	262	1,050
March	4,350	884	2,150	63.2	4,410	952	2,210
April	7,480	-------	2,740	37.2	7,530	-------	2,780
May	3,430	684	1,830	47.2	3,480	730	1,880
June	1,900	244	597	42.2	1,920	294	639
July	4,110	222	737	47.6	4,160	276	785
August	257	99	181	39.5	-------	-------	220
September	400	89	153	40.6	445	121	194
The year	8,890	70	1,030	49.5	8,960	121	1,080

CONGRESS LAKE OUTLET NEAR KENT, OHIO

LOCATION.—Water-stage recorder at highway bridge on Kent-Ravenna highway, 2 miles east of Kent, Portage County, and 1 mile below mouth of Muddy Lake outlet.

DRAINAGE AREA.—76.9 square miles.

RECORDS AVAILABLE.—July, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,060 second-feet Feb. 28 (gage height, 9.5 feet); minimum, 9.6 second-feet Oct. 7 (gage height, 1.88 feet).

1927–1929: Maximum discharge, that of Feb. 28, 1927; minimum, 8.8 second-feet Sept. 11, 1928 (gage height, 1.84 feet).

REMARKS.—Records good except those for periods of no gage-height record, Jan. 25 to Feb. 7, Mar. 9–11, and Aug. 21–23, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	20	135	38		498	173	126	56	28	33	14
2	24	20	144	35		319	205	102	49	28	28	13
3	22	28	144	40	50	216	205	205	46	26	28	13
4	20	32	126	35		205	183	228	43	26	26	14
5	20	32	90	30		183	291	305	40	169	21	14
6	16	28	66	56		173	477	305	38	200	20	14
7	10	24	49	62	40	183	477	240	32	165	20	15
8	11	25	43	70	40	153	305	194	30	176	19	15
9	12	26	38	59	40	110	216	144	30	144	18	15
10	17	24	30	38	40	110	173	94	28	124	17	16
11	24	26	30	32	40	110	163	80	26	90	17	16
12	24	27	30	30	40	84	228	99	28	83	16	16
13	24	35	35	24	35	90	216	94	28	188	17	18
14	24	35	43	22	32	126	194	126	30	176	18	17
15	24	38	56	23	29	163	173	216	30	212	18	18
16	27	35	70	22	28	240	144	216	28	251	18	17
17	30	32	80	34	28	305	126	228	26	200	17	18
18	43	29	118	163	29	305	118	228	26	78	17	17
19	52	46	126	394	30	252	87	228	28	40	16	17
20	52	76	126	477	32	205	87	228	90	36	13	16
21	43	87	87	426	30	163	183	252	153	26	14	16
22	35	102	70	291	28	173	228	291	81	23	14	15
23	35	110	43	216	29	183	252	252	35	22	14	14
24	35	94	38	205	26	183	252	228	29	21	15	15
25	38	87	35	235	35	173	194	173	32	21	14	15
26	40	76	35		382	252	173	110	32	22	14	17
27	40	70	35		870	265	163	90	30	24	14	20
28	40	62	38	100	955	278	194	76	30	21	15	23
29	38	70	38		-------	240	194	73	32	28	15	19
30	38	94	35		-------	163	144	70	30	38	15	16
31	27	-------	32		-------	118	-------	62	-------	46	15	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	52	10	29.3	0.381	0.44
November	110	20	49.7	.646	.72
December	144	30	66.6	.866	1.00
January	477	22	118	1.53	1.76
February	955	26	112	1.46	1.52
March	498	84	201	2.61	3.01
April	477	87	207	2.69	3.00
May	305	62	173	2.25	2.59
June	153	26	40.6	.528	.59
July	251	21	88.1	1.15	1.33
August	33	13	17.9	.233	.27
September	23	13	16.1	.209	.23
The year	955	10	93.2	1.21	16.46

LITTLE CUYAHOGA RIVER AT AKRON, OHIO

LOCATION.—Water-stage recorder at foot of Seiberling Street in Akron, Summit County, and half a mile below mouth of Springfield Lake outlet.
DRAINAGE AREA.—42.0 square miles.
RECORDS AVAILABLE.—July, 1920, to September, 1929.
EXTREMES.—Maximum discharge during year, 938 second-feet Feb. 2[illegible] (gage height, 3.75 feet); minimum, 10.1 second-feet Oct. 27 (gage height, 0.23 foot). 1920–1929: Maximum discharge not known; no flow June 24 and July 14, 1923, on account of regulation above station.
REMARKS.—Records excellent except those for Feb. 26–28 and Apr. 5–7, when recorder was not operating, which are fair. Flow regulated to some extent at reservoir. Gage-height record furnished by Goodyear Tire & Rubber Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18.6	21	79	21	34	79	113	58	40	30	27	11.6
2	21	24	56	30	29	72	96	79	36	29	2[illegible]	12.4
3	21	30	36	32	28	57	64	181	42	27	2[illegible]	22
4	23	23	28	30	32	79	58	113	41	21	19.6	23
5	29	22	26	29	30	106		140	41	88	27	22
6	24	19.6	22	47	33	76	420	106	38	64	2[illegible]	21
7	16.7	21	21	33	36	67		86	36	57	27	15.8
8	17.6	23	25	37	36	46	82	68	40	76	2[illegible]	14.0
9	17.6	23	22	32	33	41	88	57	29	46	2[illegible]	24
10	19.6	22	25	30	29	37	104	51	34	41	15.8	23
11	19.6	18.6	25	28	28	44	93	50	34	33	15.8	21
12	19.6	23	24	26	28	50	203	67	36	35	2[illegible]	21
13	18.6	30	25	27	29	57	113	72	36	192	2[illegible]	26
14	14.9	26	35	30	28	88	82	113	40	131	27	19.6
15	21	23	44	30	29	91	96	60	33	60	2[illegible]	14.0
16	22	24	37	30	34	150	88	99	29	34	2[illegible]	21
17	24	22	47	52	30	127	68	67	34	32	15.8	24
18	41	22	64	209	33	73	58	60	33	32	14.9	22
19	29	46	49	448	30	53	53	160	44	32	2[illegible]	21
20	19.6	64	34	171	30	72	79	135	41	23	2[illegible]	22
21	17.6	49	27	72	33	60	170	150	35	21	23	22
22	22	41	30	44	28	84	150	140	30	25	2[illegible]	14.9
23	30	44	18.6	56	28	82	96	88	27	25	2[illegible]	21
24	28	35	19.6	41	30	67	72	74	33	28	18.6	23
25	27	36	23	113	56	57	79	68	35	30	14.0	23
26	2[illegible]	30	32	162		170	131	60	34	35	22	47
27	18.6	28	34	96	350	122	96	56	30	26	22	28
28	21	29	35	57		72	79	51	34	19.6	22	18.6
29	23	38	33	33	------	54	89	50	30	50	22	14.0
30	21	61	21	35	------	54	67	45	26	46	22	21
31	22	------	19.6	35	------	53	------	42	------	28	19.6	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	41	14.9	22.4	May	181	42	88.6
November	64	18.6	30.6	June	44	26	35.0
December	79	18.6	32.8	July	192	19.6	45.7
January	448	21	68.3	August	27	14.0	22.4
February	------	28	65.9	September	47	11.6	21.1
March	170	37	75.5				
April	------	53	128	The year	------	11.6	52.9

OHIO CANAL AT INDEPENDENCE, OHIO

LOCATION.—Water-stage recorder at highway bridge 1 mile northeast of Independence, opposite gaging station on Cuyahoga River at Independence.

RECORDS AVAILABLE.—September, 1921, to May, 1923; August, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 99 second-feet Apr. 5 (gage height, 5.09 feet); minimum discharge not determined; minimum gage height, 0.80 foot June 21.

1927–1929: Maximum discharge, that of Apr. 5, 1929; minimum not determined.

REMARKS.—Records fair. Discharge estimated Oct. 1 to Nov. 6, Jan. 27 to Feb. 5, Apr. 6–10, June 21, and July 29 to Aug. 29. Water diverted into canal from Cuyahoga River by feeder at dam at Brecksville, 6 miles above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			60	68		54	64	43	50	50		32
2			57	68		57	60	46	50	45		32
3			60	68	50	54	60	46	46	45		32
4		50	60	68		57	60	46	46	45		31
5			60	64		64	50	46	46	45		32
6			60	60	50	60		46	50	43		40
7		60	60	60	46	60		46	50	45		38
8		60	60	57	50	64	5	46	50	45		38
9		60	60	60	50	68		46	46	46		38
10		57	60	64	60	64		46	46	50		38
11		50	60	64	50	68	12	46	46	50		40
12		57	60	64	50	68	24	50	50	50		40
13		60	60	64	50	68	31	50	50	50		43
14		60	68	57	50	71	40	50	54	50		43
15		60	64	60	50	71	43	50	50	50	40	43
16	50	60	60	60	50	64	45	50	50	50		43
17		57	64	64	50	64	43	50	50	50		43
18		50	68	68	50	68	43	50	50	50		43
19		60	68	75	54	68	43	50	50	50		43
20		64	68	32	54	68	43	50	13	20		43
21		64	68	34	54	68	38	50	7	26		45
22		64	68	42	54	68	43	46	12	42		45
23		64	68	40	54	64	42	46	40	57		45
24		64	64	40	54	64	43	46	18	57		45
25		57	64	42	54	64	42	46	19	54		46
26		64	64	36	57	60	43	46	45	54		45
27		60	64		57	57	43	46	43	54		43
28		60	64		57	54	46	46	50	54		43
29		60	64	40	-------	60	46	46	45			43
30		60	64		-------	60	43	46	45	50	32	43
31		-------	64		-------	60	-------	46	-------		31	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	-------	-------	50.0	May	50	43	47.2
November	64	-------	57.7	June	54	7	42.2
December	68	57	63.0	July	57	20	47.6
January	75	-------	54.2	August	-------	-------	39.5
February	57	-------	51.6	September	46	31	40.6
March	71	54	63.2				
April	64	-------	37.2	The year	75	-------	49.5

CHAGRIN RIVER AT WILLOUGHBY, OHIO

LOCATION.—Staff gage at dam 0.9 mile southeast of Willoughby, Lake County, one-sixth mile below East Branch, and 5 miles above mouth.

DRAINAGE AREA.—251 square miles.

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

EXTREMES.—Maximum discharge during year, about 19,000 second-feet Jan. 19 (gage height, 9.4 feet); minimum, 21 second-feet Sept. 2 (gage height, 0.26 foot).

1925–1929: Maximum discharge, that of Jan. 19, 1929; minimum, 21 second-feet July 26, 1926, Sept. 6, 7, 1927, and Sept. 2, 1929 (gage height, 0.26 foot).

REMARKS.—Records good except those for periods of ice effect, Jan. 1–5, 8–17, 23–31, and Feb. 1–25, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	74	1,060			630	1,500	298	107	103	54	33
2	40	46	434			544	730	380	77	68	44	23
3	35	196	304	80		372	434	2,240	84	71	46	25
4	33	132	218			490	286	1,120	80	54	54	25
5	54	95	323			890	3,990	1,500	71	1,060	46	28
6	54	60	224	1,240		402	1,240	680	68	580	40	28
7	42	54	169	257		358	526	535	54	835	44	33
8	40	68	127			224	499	380	51	580	40	30
9	35	99	107			230	450	263	54	202	37	28
10	35	71	103			155	1,710	191	46	274	42	110
11	35	84	118			180	730	175	46	141	35	49
12	37	84	74			207	1,780	155	42	91	28	33
13	42	150	107	100	100	196	630	292	51	77	30	57
14	40	150	150			890	482	630	77	571	74	71
15	57	91	372			730	388	1,060	68	224	46	46
16	63	127	263			730	402	499	68	107	46	46
17	60	118	342			580	335	263	77	91	46	44
18	71	107	1,500	3,610		372	263	202	77	74	37	54
19	68	155	517	11,800		292	186	1,570	44	99	33	42
20	77	580	311	1,440		1,930	342	680	263	68	37	37
21	60	442	180	680		945	3,610	1,060	118	68	33	54
22	46	508	180	450		2,560	1,180	580	57	51	28	33
23	60	526	180			1,120	562	317	51	49	33	30
24	66	311	175			1,370	395	263	562	40	132	30
25	107	350	155			945	388	213	630	180	51	26
26	99	280	150	120	7,240	1,930	2,080	155	1,300	103	28	42
27	110	218	155		2,900	780	680	146	155	68	33	42
28	107	257	191		1,060	442	418	207	304	54	28	40
29	74	350	169		-------	323	730	230	155	77	28	37
30	71	580	110		-------	274	434	146	99	88	28	30
31	77	-------	84		-------	207	-------	123	-------	57	33	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	110	28	58.8	0.234	0.27
November	580	46	212	.845	.94
December	1,500	74	276	1.10	1.27
January	11,800	----------	708	2.82	3.25
February	7,240	----------	489	1.95	2.03
March	2,560	155	687	2.74	3.16
April	3,990	186	913	3.64	4.06
May	2,240	123	534	2.13	2.46
June	1,300	42	165	.657	.73
July	1,060	40	200	.797	.92
August	132	28	42.4	.169	.19
September	110	23	40.2	.160	.18
The year	11,800	23	360	1.43	19.46

GRAND RIVER NEAR MADISON, OHIO

LOCATION.—Chain gage at highway bridge 2 miles south of Madison, Lake County, and half a mile above Griswold Creek. Zero of gage is 674.47 feet above mean sea level.

DRAINAGE AREA.—587 square miles.

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

EXTREMES.—Maximum discharge during year, about 16,400 second-feet Jan. 19 (gage height, 12.0 feet); minimum, 4.8 second-feet Oct. 10 (gage height, 0.90 foot).

1922–1929: Maximum discharge, that of Jan. 19, 1929; minimum, 1.5 second-feet Aug. 27, 1923.

REMARKS.—Records good except those for periods of ice effect, Dec. 28–31, Jan. 1–5, 12–17, 25–31, and Feb. 1–25, and for periods of extremely high water, which are fair.

Daily and monthly discharge, in second-feet, 1922–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	54	2,740			4,840	850	970	217	55	111	8.8
2	11	64	1,620			4,070	1,620	1,620	131	68	39	9.3
3	10	63	1,110	180	400	2,220	1,710	5,450	111	51	20	9.0
4	12	66	910			2,000	1,710	5,240	99	41	36	7.8
5	14	92	910			2,460	5,240	3,040	81	164	28	7.6
6	12	74	626	2,000		2,000	6,520	3,040	104	279	23	7.1
7	10	63	368	2,740		1,540	4,640	2,000	73	426	20	8.3
8	8.8	62	262	850	400	910	3,530	1,320	43	1,040	16	7.3
9	9.0	66	190	678		910	2,000	850	38	790	13	9.0
10	5.0	52	164	576		488	2,000	553	33	313	12	10
11	7.6	50	113	446		387	2,220	368	40	177	13	78
12	8.8	60	142			330	2,740	279	38	142	10	11
13	13	74	104		300	349	2,460	296	38	106	9.9	51
14	11	576	203			1,250	1,620	509	48	73	11	28
15	11	349	678	300		2,740	1,180	3,040	45	48	10	20
16	17	203	576			2,220	1,180	2,460	38	74	9.9	17
17	14	81	850			2,600	910	2,220	35	103	10	20
18	23	44	3,040	5,240	200	1,900	601	1,460	35	74	8.3	20
19	18	203	2,220	16,400		1,460	446	1,460	32	52	8.5	23
20	26	1,620	1,320	10,500		3,200	426	2,000	24	39	8.3	20
21	39	1,460	970	6,520		3,360	7,460	1,900	19	30	8.3	20
22	26	1,460	467	5,450		4,070	4,840	2,460	24	26	8.5	20
23	29	1,620	368	2,110	150	4,070	2,340	1,620	27	23	20	18
24	46	1,250	330	1,180		2,740	1,710	1,110	40	21	15	14
25	52	1,180	231			2,340	1,180	652	67	21	23	12
26	74	910	164		1,620	2,740	2,000	368	42	18	18	13
27	74	1,460	203		7,960	2,740	2,110	246	93	16	14	12
28	87	1,040		600	5,240	2,000	1,390	217	142	20	12	10
29	87	790	180		-------	1,620	1,460	2,740	111	59	11	11
30	87	1,040			-------	1,040	1,460	678	67	30	9.6	12
31	71	-------			-------	678	-------	330	-------	67	8.8	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	87	5.0	29.7	0.051	0.06
November	1,620	44	538	.917	1.02
December	3,040	104	697	1.19	1.37
January	16,400	----------	1,990	3.39	3.91
February	7,960	----------	788	1.34	1.40
March	4,840	330	2,110	3.59	4.14
April	7,460	426	2,320	3.95	4.41
May	5,450	217	1,630	2.78	3.20
June	217	19	64.5	.110	.12
July	1,040	16	143	.244	.28
August	111	8.3	18.2	.031	.04
September	78	7.1	17.1	.029	.03
The year	16,400	5.0	863	1.47	19.98

CONNEAUT CREEK AT AMBOY, OHIO

LOCATION.—Water-stage recorder at highway bridge half a mile east of Amboy, Ashtabula County, 3 miles southwest of Conneaut, and 6 miles above mouth.
DRAINAGE AREA.—178 square miles.
RECORDS AVAILABLE.—July, 1922, to September, 1929.
EXTREMES.—Maximum discharge during year, 6,160 second-feet Jan. 19 (gage height, 8.2 feet); minimum, 3.1 second-feet Sept. 2–5 (gage height, 1.21 feet).

1922–1929: Maximum discharge, 6,160 second-feet Dec. 1, 1927, and Jan. 19, 1929 (gage height, 8.2 feet); minimum, 1.6 second-feet Oct. 20, 1923 (gage height, 1.06 feet).

REMARKS.—Records good except those for periods of ice effect, Jan. 2–6, 8–18, 25–31, and Feb. 1–26, and of extremely high water, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	58	1,170	108		655	200	283	86	39	23	3.3
2	16	49	850			552	610	283	64	28	14	3.3
3	13	54	334	60		405	314	1,990	46	24	11	3.1
4	5.5	84	190			482	274	2,250	45	22	10	5.1
5	7.8	112	158			880	1,170	922	44	38	8.2	3.1
6	18	84	158	370		626	1,860	655	38	61	7.2	3.8
7	17	62	152	965		405	611	378	38	102	7.2	4.4
8	7.4	57	108			239	308	305	38	90	6.3	4.1
9	14	56	104			220	232	193	30	234	5.9	4.1
10	12	71	82			163	702	144	34	116	5.9	4.6
11	9.2	59	82			152	920	127	27	72	5.9	5.6
12	11	58	88	180		144	655	111	25	48	5.9	3.8
13	14	115	76		60	189	690	122	24	45	5.4	9.1
14	16	298	73			450	405	172	36	82	6.3	10
15	6.3	155	100			880	269	1,030	28	224	5.1	7.2
16	12	106	133			762	288	905	28	96	5.1	6.3
17	19	112	170			920	293	460	30	56	5.1	8.6
18	42	161	749	1,700		465	196	236	28	34	5.1	10
19	82	196	830	5,250		274	147	265	30	21	5.1	12
20	88	1,020	329	2,310		983	507	585	24	16	5.4	16
21	52	941	158	482		1,290	2,120	324	17	12	4.6	10
22	37	655	110	228		1,180	1,550	220	23	10	4.4	7.2
23	37	762	131	200		1,370	469	169	23	8.6	4.6	6.3
24	34	558	116	164		725	245	125	15	9.1	4.9	5.9
25	65	378	116			585	232	107	28	10	4.1	5.9
26	126	319	104		680	679	865	100	35	10	3.6	6.3
27	116	176	108	80	3,240	905	848	84	45	9.1	3.3	6.8
28	89	137	150		1,410	378	345	73	38	13	3.6	6.8
29	84	140	204		-------	232	418	119	39	32	4.6	6.3
30	93	379	155		-------	169	552	404	42	21	3.8	6.8
31	79	-------	108		-------	147	-------	134	-------	46	3.6	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	126	5.5	39.7	0.223	0.26
November	1,020	49	247	1.39	1.55
December	1,170	73	239	1.34	1.54
January	5,250	----------	464	2.61	3.01
February	3,240	----------	244	1.37	1.43
March	1,370	144	565	3.17	3.66
April	2,120	147	610	3.43	3.83
May	2,250	73	428	2.40	2.77
June	86	15	34.9	.196	.22
July	234	8.6	52.5	.295	.34
August	23	3.3	6.39	.036	.04
September	16	3.1	6.59	.036	.04
The year	5,250	3.1	245	1.38	18.69

STREAMS TRIBUTARY TO LAKE ONTARIO

LITTLE TONAWANDA CREEK AT LINDEN, N. Y.

LOCATION.—Staff gage above timber weir at highway bridge in Linden, Genesee County.

DRAINAGE AREA.—22 square miles.

RECORDS AVAILABLE.—July, 1912, to September, 1929.

EXTREMES.—Maximum discharge during year, 930 second-feet Jan. 18 (gage height, 7.6 feet); minimum, 0.8 second-foot Aug. 10 (gage height, 0.28 foot).

1912–1929: Maximum discharge, about 2,400 second-feet Apr. 22, 1916 (gage height, 14.6 feet); minimum, 0.4 second-foot several times in September and October, 1921 (gage height, 0.18 foot).

REMARKS.—Records generally good, but fair for very low stages and during period July 17 to Sept. 30, when leakage through weir was variable.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	2.9	188	19	17	69	73	49	9.2	2.4	1.2	1.
2	1.4	2.9	65	21	17	73	46	39	8.4	2.4	1.1	1.2
3	1.4	5.6	53	16	16	74	41	46	8.4	2.4	1.1	1.
4	1.3	7.8	61	15	16	135	41	46	7.5	2.2	1.2	1.1
5	2.4	6.1	65	13	14	116	106	46	7.5	2.3	1.0	1.1
6	2.1	5.2	49	49	14	73	226	36	7.5	2.1	1.0	1.2
7	1.6	4.5	33	31	17	69	77	73	6.7	2.2	.9	1.3
8	1.5	6.7	27	28	15	57	53	41	6.1	2.2	.9	1.5
9	1.4	12	25	24	15	57	49	33	5.9	2.0	.9	3.1
10	1.2	8.0	21	34	15	31	41	28	5.6	2.1	.8	2.7
11	1.2	7.8	21	42	14	42	42	25	5.2	1.8	1.0	1.9
12	1.1	12	23	34	14	94	73	34	4.5	2.1	.9	1.7
13	2.0	24	26	28	13	168	53	42	5.2	1.8	1.0	1.7
14	1.7	14	33	23	13	285	41	38	4.8	1.7	1.0	2.0
15	1.5	10	29	21	12	222	36	102	4.1	1.5	1.0	2.0
16	1.6	8.4	31	20	12	223	73	81	3.6	1.4	1.0	1.8
17	2.1	10	38	30	12	81	89	49	3.1	1.3	.9	2.7
18	12	11	106	718	12	57	81	35	2.8	1.4	.9	2.9
19	8.0	78	41	537	12	53	99	57	3.2	1.4	.9	2.3
20	5.2	98	42	98	12	130	256	46	2.8	1.2	.9	2.2
21	3.9	46	26	57	11	69	377	33	3.1	1.1	.9	2.2
22	3.0	35	29	36	11	85	107	28	12	1.1	.9	1.9
23	2.9	34	27	31	10	89	61	23	5.9	1.0	1.2	2.0
24	3.0	29	26	28	10	57	46	23	4.7	1.0	1.2	2.0
25	3.0	30	26	32	11	49	57	20	4.5	8.4	1.2	1.9
26	3.3	23	26	24	66	85	107	16	3.8	2.1	1.1	2.0
27	3.1	23	32	21	195	49	53	15	3.2	1.6	1.1	2.0
28	3.1	27	36	20	81	49	46	17	3.3	1.3	1.2	2.0
29	3.0	46	28	18	-------	42	53	14	2.9	1.4	1.4	2.0
30	3.1	102	22	18	-------	41	53	14	2.6	1.2	1.5	2.1
31	2.9	-------	20	18	-------	34	-------	10	-------	1.1	1.4	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	12	1.1	2.79	0.127	0.15
November	102	2.9	24.3	1.10	1.23
December	188	20	41.1	1.87	2.16
January	718	13	67.9	3.09	3.56
February	195	10	24.2	1.10	1.14
March	285	51	89.0	4.05	4.67
April	377	36	85.2	3.87	4.32
May	102	10	37.4	1.70	1.96
June	12	2.6	5.27	.240	.27
July	8.4	1.0	1.91	.087	.10
August	1.5	.8	1.05	.048	.06
September	3.1	1.1	1.89	.086	.10
The year	718	.8	31.9	1.45	19.72

GENESEE RIVER AT SCIO, N. Y.

LOCATION.—Staff gage at highway bridge three-quarters of a mile upstream from Scio, Allegany County.
DRAINAGE AREA.—288 square miles.
RECORDS AVAILABLE.—June, 1916, to September, 1929.
EXTREMES.—Maximum discharge during year, 6,800 second-feet Apr. 21 (gage height, 7.1 feet); minimum, 20 second-feet Sept. 2 (gage height, 0.06 foot). 1916–1929: Maximum discharge, about 10,600 second-feet May 22, 1919 (gage height, 9.1 feet); minimum, 15 second-feet Sept. 3, 1925.
REMARKS.—Records good except those for periods of ice effect, Dec. 22–27, Jan. 1–18, and Feb. 5–26, and for periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	108	e2,400	170	e 160	735	1,090	645	437	100	60	21
2	37	98	1,060	150	e 150	645	800	588	370	167	57	20
3	34	113	e 850	130	e 140	534	615	1,310	350	107	52	
4	32	170	e 700	120	e 140	768	588	800	329	94	55	
5	31	134	610	130	140	1,340	956	1,480	310	86	51	
6	39	118	520	1,300	e 140	952	3,200	1,010	291	90	51	e 22
7	34	108	415	280	e 170	865	1,870	1,600	255	103	43	
8	31	134	370	200	e 130	414	1,410	935	238	133	43	
9	30	172	328	e 170	e 95	329	1,090	832	206	105	52	143
10	30	127	288	200	85	310	1,250	705	170	1,040	41	190
11	28	111	270	170	80	797	1,170	588	158	472	42	79
12	29	115	234	150	75	1,740	1,650	534	143	238	40	55
13	51	184	234	120	70	2,300	1,330	534	167	206	38	54
14	41	164	251	110	65	1,820	1,010	852	135	206	35	63
15	33	147	251	110	65	3,800	1,090	1,850	113	156	34	54
16	30	134	234	100	65	2,800	1,680	1,890	100	123	33	45
17	36	134	251	140	65	1,500	1,250	1,010	94	107	31	178
18	88	e 134	652	1,000	75	1,170	1,090	768	88	94	30	156
19	172	212	392	4,420	75	1,010	935	1,580	82	100	28	94
20	142	1,120	270	e 1,400	70	935	2,360	981	79	88	27	77
21	e 95	805	234	e 900	70	865	5,990	900	73	79	25	66
22	62	440	200	e 600	65	2,310	2,550	800	71	73	23	58
23	68	440	190	e 420	60	1,870	1,970	675	e 80	68	23	55
24	76	370	190	e 320	60	1,870	1,410	675	e 90	57	25	52
25	86	349	190	e 260	100	1,410	1,330	645	94	68	23	50
26		328	200	e 240	240	4,120	1,500	534	88		23	46
27		308	200	e 220	2,410	1,990	935	811	84	e 110	23	43
28	e 150	288	216	e 200	1,150	1,330	832	1,500	198		23	39
29		e 288	200	e 180	-------	1,010	735	1,170	183		22	35
30		e 550	104	e 170	-------	832	768	735	125	98	23	34
31	122	-------	158	e 160	-------	768	-------	560	-------	77	22	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	172	28	72.5	0.252	0.29
November	1,120	98	263	.913	1.02
December	e 2,400	104	408	1.42	1.64
January	4,420	100	459	1.59	1.83
February	2,410	60	222	.771	.80
March	4,120	310	1,390	4.83	5.57
April	5,990	588	1,480	5.14	5.74
May	1,890	534	952	3.31	3.82
June	437	71	173	.601	.67
July	1,040	57	154	.535	.62
August	60	22	35.4	.123	.14
September	190	20	61.3	.213	.24
The year	5,990	20	475	1.65	22.38

e Estimated; gage-height record missing.

GENESEE RIVER AT ST. HELENA, N. Y.

LOCATION.—Water-stage recorder at highway bridge in St. Helena, Wyoming County, 1½ miles downstream from mouth of Wolf Creek.

DRAINAGE AREA.—992 square miles.

RECORDS AVAILABLE.—August, 1908, to September, 1929.

EXTREMES.—Maximum discharge during year, 26,700 second-feet Apr. 21 (gage height, 10.8 feet); minimum, 44 second-feet Aug. 30 (gage height, 1.86 feet).

1908–1929: Maximum discharge, about 44,400 second-feet May 17, 1916 (gage height, 12.81 feet); minimum, about 18 second-feet Oct. 5, 17, 1913 (gage height, 1.70 feet).

REMARKS.—Records good except those for periods of ice effect, Dec. 6, 28–30, Jan. 9–11, Feb. 9–13, 21–27, and for periods of estimate, which are fair. Seasonal regulation of flow by storage in Caneadea Reservoir.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			7,970	930	874	2,580	1,760	1,890	922		191	78
2			3,700	960	1,000	2,420	2,260	1,620	802		155	142
3			2,240	643	984	1,820	1,690	2,760	770		167	145
4			1,860	431	906	3,260	1,440	3,200	740		152	145
5		a 345	1,580	694	794	4,900	3,040	5,300	732		145	138
6			1,300	3,010	740	3,890	12,300	4,670	718	a 300	172	87
7			1,080	2,600	642	2,930	5,740	5,100	665		162	71
8			1,050	718	503	1,590	3,300	3,830	509		142	73
9			1,260	550	460	1,660	2,500	2,580	477		122	76
10	a 135		1,190	650	440	1,150	2,180	2,110	477		112	139
11		a 840	1,130	900	420	1,160	3,070	1,690	434	1,680	139	336
12			960	1,200	380	1,790	6,040	1,500	394	a 688	142	215
13			876	1,000	360	6,020	4,580	1,760	373	a 471	136	159
14			662	768	365	11,400	3,110	1,500	411	a 355	139	152
15		a 632	1,240	726	371	12,300	2,180	6,120	394	a 299	134	128
16		546	1,320	734	371	9,400	3,300	5,580	344	a 261	117	128
17		602	1,380	1,000	371	6,270	4,360	4,940	323	a 235	107	143
18		655	2,550	5,080	394	3,370	4,020	3,060	293		104	305
19		947	2,300	16,500	349	2,660	3,720	3,480	284		96	326
20		4,520	1,100	5,950	349	2,660	10,100	4,560	279		94	235
21		2,200	750	2,370	340	2,580	22,200	2,670	273		91	195
22		1,320	662	1,500	340	4,020	11,100	2,420	252	a 190	87	162
23		1,190	694	1,140	320	5,000	5,780	1,820	254		84	129
24		990	784	939	320	4,240	4,010	1,690	262		82	128
25	a 330	903	885	922	360	3,200	2,930	1,820	318		106	123
26		795	894	1,020	600	8,410	4,250	1,440	287		126	111
27		694	690	1,130	4,000	6,130	3,180	1,140	332		142	106
28		710	600	1,230	4,590	3,600	2,180	1,630	382	206	158	107
29		759	550	1,050	-------	2,750	2,900	1,610	356	218	147	99
30		1,570	550	1,010	-------	2,110	2,420	1,590	520	284	77	107
31		-------	877	948	-------	1,820	-------	1,130	-------	246	81	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	-------	-------	217	0.219	0.25
November	4,520	-------	894	.901	1.01
December	7,970	550	1,440	1.45	1.67
January	16,500	431	1,880	1.90	2.19
February	4,590	320	784	.790	.82
March	12,300	1,150	4,100	4.13	4.76
April	22,200	1,440	4,720	4.76	5.31
May	6,120	1,130	2,780	2.80	3.23
June	922	252	453	.457	.51
July	1,680	-------	318	.321	.37
August	191	77	126	.127	.15
September	336	71	150	.151	.17
The year	22,200	71	1,490	1.50	20.44

a Estimated; gage-height record missing.

GENESEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS, N Y.

LOCATION.—Water-stage recorder at highway bridge known as Jones Bridge, 3½ miles northeast of Mount Morris, Livingston County.

DRAINAGE AREA.—1,400 square miles.

RECORDS AVAILABLE.—May, 1903, to April, 1906; August, 1908, to December, 1913; July, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 26,000 second-feet Apr. 21 (gage height, 24.0 feet); minimum, 75 second-feet Oct. 13 (gage height, 0.35 foot). 1903–1906, 1908–1913, 1915–1929: Maximum discharge, 55,100 second-feet May 17, 1916 (gage height, 25.44 feet); minimum, about 18 second-feet Aug. 29, 1909.

REMARKS.—Records good except those for periods of ice effect Dec. 6, 10, 11, 29, Jan. 7–17, and Jan. 20 to Mar. 5, and for periods of estimate, which are fair. Slight seasonal regulation by storage in Caneadea Reservoir.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		414	7,690	1,340	a 1,100	5,000	2,390	3,090	1,330		299	174
2		394	a 5,660	1,340	a 1,200	3,400	3,020	a 2,880	1,130		263	157
3		386	3,280	1,220	a 1,200	3,000	a 2,670	3,770	1,040		223	145
4	a 185	462	2,650	802	a 1,100	4,400	a 2,600	4,740	935		212	145
5		550	2,260	a 1,030	a 1,000	6,000	a 3,280	6,070	908	a 420	209	174
6		545	2,000	a 2,670	a 950	6,080	11,700	7,100	908		206	187
7	a 230	452	1,760	a 3,200	a 850	a 4,200	8,800	6,380	852		229	157
8	210	448	1,520	a 1,400	750	a 2,400	a 4,400	5,910	690		200	152
9	a 190	620	1,640	a 800	650	a 2,200	a 3,400	4,140	665		212	159
10		870	1,600	a 850	600	1,810	a 3,000	a 3,230	615		206	159
11	a 175	1,020	1,500	1,100	600	1,690	a 4,400	a 2,600	a 580	1,620	166	185
12		1,020	1,460	1,500	600	2,340	6,640	2,390	a 540	a 1,020	189	296
13		1,190	1,340	1,300	550	6,570	a 6,490	2,670	a 520	a 700	220	266
14	198	1,340	995	a 1,000	500	11,900	a 4,400	2,390	a 550	a 500	220	202
15	201	995	1,320	a 900	500	13,000	a 3,000	6,370	a 530	a 400	179	174
16	207	695	1,640	a 900	a 500	11,600	a 4,800	7,240	a 480	a 350	184	179
17	210	720	1,640	a 1,100	500	8,870	6,560	6,530	a 450	a 300	179	183
18	288	912	2,450	7,520	500	a 4,600	6,110	4,280	a 400	a 250	166	221
19	452	1,150	3,040	19,300	480	a 3,600	a 5,590	4,000	a 400	a 250	150	395
20	645	5,340	1,880	11,000	480	a 3,600	10,100	6,030	a 380	309	145	309
21	493	a 3,500	1,160	4,400	480	a 3,800	22,600	4,000	a 370	244	143	271
22	356	a 1,800	995	a 2,400	480	a 5,500	20,900	3,300	a 370	266	141	260
23	341	a 1,600	912	a 1,600	460	6,390	12,800	a 2,880	a 370	217	161	182
24	294	a 1,500	1,050	a 1,200	a 460	a 5,500	8,640	a 2,740	a 370	212	166	174
25	294	1,430	1,280	a 1,200	500	a 4,200	a 5,980	2,600	a 430	235	a 159	169
26	337	1,310	1,220	a 1,200	2,200	a 8,270	a 5,920	2,190	a 400	276	152	169
27	535	1,160	1,100	1,400	5,500	8,250	5,230	1,750	a 440	299	150	159
28	530	1,130	858	1,500	7,500	a 5,040	3,580	2,000	a 520	279	148	148
29	448	1,190	800	1,300	-------	3,790	3,930	2,260	a 500	341	148	139
30	484	1,620	748	1,200	-------	2,950	3,720	2,190	a 650	309	148	137
31	462	-------	932	1,100	-------	2,600	-------	1,630	-------	345	150	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	645	----------	297	0.212	0.24
November	5,340	386	1,190	.850	.95
December	7,690	748	1,880	1.34	1.54
January	19,300	800	2,540	1.81	2.09
February	7,500	460	1,150	.821	.85
March	13,000	1,690	5,240	3.74	4.31
April	22,600	2,390	6,560	4.69	5.23
May	7,240	1,630	3,850	2.75	3.17
June	1,330	----------	611	.436	.49
July	1,620	212	417	.298	.34
August	299	141	185	.132	.15
September	395	137	194	.139	.16
The year	22,600	137	2,020	1.44	19.52

a Estimated; gage-height record faulty or missing.

GENESEE RIVER AT DRIVING PARK AVENUE, ROCHESTER, N. Y.

LOCATION.—Water-stage recorder 40 feet downstream from plant No. 5 of Rochester Gas & Electric Corporation and 100 feet upstream from Driving Park Avenue Bridge, Rochester, Monroe County.

DRAINAGE AREA.—2,460 square miles.

RECORDS AVAILABLE.—December, 1919, to September, 1929.

EXTREMES.—Maximum discharge during year, 23,800 second-feet Apr. 23 (gage height, 11.6 feet); minimum, approaching zero, occurs frequently during low-water periods when power plant shuts down.

1919–1929: Maximum discharge, about 29,600 second-feet Dec. 2, 1927 (gage height, 13.5 feet); minimum as noted above.

REMARKS.—Records good. Barge Canal crosses river near south boundary of Rochester, discharges water from Lake Erie into Genesee River, and diverts, in general, a smaller amount to the east. Some additional regulation is provided by headwater storage in Caneadea Reservoir.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	877	1,170	5,030	1,540	2,520	10,100	3,220	5,810	3,010	1,410	1,100	846
2	965	1,100	10,800	2,210	2,320	8,040	3,000	4,830	2,370	1,360	1,040	886
3	1,010	1,130	6,430	1,890	2,040	6,310	3,520	4,830	2,310	1,390	1,050	920
4	976	1,150	4,290	1,850	2,500	5,780	3,290	6,830	2,230	1,270	1,120	949
5	1,040	1,230	3,770	1,580	2,370	7,740	3,420	7,300	2,150	1,410	1,030	938
6	965	1,400	3,560	1,560	2,220	9,700	10,400	10,600	2,020	1,260	999	941
7	860	1,320	3,320	2,760	2,090	8,430	15,400	9,780	2,030	1,220	1,000	920
8	971	1,280	2,940	3,500	2,110	4,840	12,300	10,400	1,900	1,360	997	740
9	1,040	1,270	1,710	2,090	1,880	3,170	8,140	7,800	1,800	1,290	1,050	1,050
10	973	1,360	1,960	1,740	1,630	2,520	5,020	5,580	1,710	1,360	1,220	1,020
11	953	1,530	1,950	1,870	1,750	3,030	4,040	4,600	1,530	1,300	896	1,010
12	944	1,670	2,020	2,100	1,680	3,230	6,820	4,280	1,620	2,120	963	929
13	958	1,810	2,000	1,950	1,740	5,570	10,300	4,090	1,550	1,920	1,020	986
14	861	1,890	1,940	1,870	1,510	11,900	8,210	4,310	1,590	1,450	1,000	1,030
15	897	2,090	1,910	1,750	1,410	16,400	5,200	5,170	1,520	1,330	1,060	853
16	956	1,920	1,860	1,360	1,280	17,600	5,200	11,100	1,520	1,300	1,050	965
17	1,060	1,530	2,580	1,750	1,080	16,900	11,300	10,600	1,520	1,300	978	1,050
18	1,250	1,530	3,320	3,590	1,550	12,900	13,000	8,510	1,280	1,210	827	988
19	1,100	2,020	3,310	13,300	1,460	7,090	10,300	5,920	1,440	1,140	984	950
20	1,300	3,240	3,940	16,600	1,460	5,050	9,900	7,490	1,410	1,130	976	982
21	1,490	6,330	3,510	15,900	1,430	5,220	16,300	7,760	1,370	1,010	906	990
22	1,280	3,950	1,830	11,100	1,320	4,680	20,900	5,290	1,280	1,000	926	916
23	1,190	3,050	1,460	6,160	1,250	7,420	23,300	4,460	1,300	1,000	1,010	956
24	1,160	2,780	1,830	3,870	1,270	8,280	21,800	4,080	1,350	997	962	946
25	1,090	2,480	1,570	3,260	1,300	6,720	16,500	3,660	1,620	1,680	829	908
26	1,050	2,580	2,210	2,500	1,470	5,890	11,200	3,740	1,540	1,140	955	906
27	1,010	2,310	2,300	2,200	6,230	11,400	10,100	3,520	1,380	1,270	973	918
28	1,110	2,350	2,420	2,720	9,740	8,880	[a] 8,500	3,100	1,340	1,130	947	842
29	1,230	2,350	2,040	2,760	-------	5,250	[a] 7,000	3,330	1,400	1,200	909	814
30	1,120	2,560	1,860	2,470	-------	4,090	6,410	3,320	1,380	1,090	946	932
31	1,190	-------	1,890	2,580	-------	3,580	--------	3,570	-------	1,130	910	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,490	860	1,060	0.431	0.50
November	6,330	1,100	2,080	.846	.94
December	10,800	1,460	2,950	1.20	1.38
January	16,600	1,360	3,950	1.61	1.86
February	9,740	1,080	2,160	.878	.91
March	17,600	2,520	7,670	3.12	3.60
April	23,300	3,000	9,800	3.98	4.44
May	11,100	3,100	5,990	2.43	2.80
June	3,010	1,280	1,680	.683	.76
July	2,120	997	1,300	.528	.61
August	1,220	827	988	.402	.46
September	1,050	740	936	.380	.42
The year	23,300	740	3,390	1.38	18.68

[a] Estimated; no gage-height record.

CANASERAGA CREEK NEAR DANSVILLE, N. Y.

LOCATION.—Water-stage recorder at highway bridge 1 mile west of Dansville, Livingston County.

DRAINAGE AREA.—148 square miles.

RECORDS AVAILABLE.—July, 1910, to December, 1912; July, 1915, to June, 1917; and March, 1919, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,150 second-feet Apr. 21 (gage height, 11.7 feet); minimum, 17 second-feet Sept. 3–6 (gage height, 5.16 feet).

1910–1912, 1915–1917, 1919–1929: Maximum discharge, about 6,900 second-feet Nov. 30, 1927 (gage height, 12.7 feet); minimum, 14 second-feet Sept. 10, 1921.

REMARKS.—Records good except those for periods of ice effect, Dec. 10, 11, 20–25, Dec. 30 to Jan. 17, and Jan. 22 to Feb. 25, and periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	e 24	41	827	65	75	298	268	348	e 120	56	34	20
2	e 22	38	326	70	75	298	259	226	e 110	48	34	19
3	e 21	48	230	70	75	298	227	620	e 105	56	34	18
4	e 21	51	201	70	75	345	256	492	e 100	56	41	18
5	e 25	51	184	75	75	420	486	1,010	e 95	48	34	18
6	28	42	155	180	75	370	1,580	641	e 90	48	34	19
7	e 24	39	132	110	80	275	582	1,020	e 85	56	34	21
8	e 25	59	114	100	80	234	370	555	e 85	63	34	31
9	e 25	80	107	100	80	197	298	394	e 80	71	34	31
10	e 22	59	100	130	75	150	302	309	e 75	63	28	25
11	e 21	53	95	110	65	276	419	248	e 70	48	34	21
12	e 21	57	86	90	65	487	671	248	e 65	48	34	20
13	e 25	111	86	90	65	820	450	271	e 65	41	34	24
14	25	90	93	90	65	1,550	335	284	e 60	41	28	25
15	25	71	98	85	65	1,680	288	577	e 60	41	28	24
16	26	62	100	85	65	1,060	438	625	63	34	21	21
17	28	61	104	200	65	595	516	456	56	34	28	47
18	84	59	188	1,270	70	370	504	313	41	34	e 24	29
19	67	300	138	1,710	65	311	702	636	56	34	21	25
20	43	433	110	626	60	370	2,050	481	48	34	21	24
21	36	207	95	270	55	420	4,070	354	48	34	e 21	22
22	34	161	85	180	55	610	1,400	296	63	34	21	22
23	35	147	85	150	55	450	786	230	63	34	22	24
24	35	125	85	130	55	370	530	273	56	34	24	24
25	41	114	85	110	85	311	492	267	56	71	21	21
26	50	107	84	100	e 1,200	861	492	206	56	41	21	22
27	46	104	84	85	e 1,000	434	348	181	56	34	21	22
28	44	109	88	80	e 400	350	292	184	71	34	22	22
29	47	130	86	80	------	298	341	266	63	34	24	22
30	47	379	75	80	------	263	267	169	63	41	24	25
31	42	------	65	75	------	234	------	142	------	34	21	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	84	21	34.2	0.231	0.27
November	433	38	113	.764	.85
December	827	65	142	.959	1.11
January	1,710	65	215	1.45	1.67
February	1,200	55	154	1.04	1.08
March	1,680	150	484	3.27	3.77
April	4,070	227	667	4.51	5.03
May	1,020	142	397	2.68	3.09
June	120	41	70.8	.478	.53
July	71	34	44.5	.301	.35
August	41	21	27.6	.186	.21
September	47	18	23.5	.159	.18
The year	4,070	18	198	1.34	18.14

e Estimated; gage-height record faulty or missing.

KESHEQUA CREEK AT CRAIG COLONY, SONYEA, N. Y.

LOCATION.—Staff gage on grounds of Craig Colony at Sonyea, Livingston County.
DRAINAGE AREA.—69 square miles
RECORDS AVAILABLE.—July, 1910, to December, 1912; October, 1917, to September, 1929.
EXTREMES.—Maximum discharge during year, 2,200 second-feet Apr. 21 (gage height, 3.4 feet); minimum, 0.8 second-foot Aug. 27 and Sept. 5 and 6 (gage height, 0.17 foot).

1910–1912; 1917–1929: Maximum stage, 5.9 feet Mar. 14, 1918, May 22, 1919, and Nov. 17, 1927 (discharge not determined); minimum discharge, 0.7 second-foot Aug. 20, 1918, and Aug. 24, 1923.

REMARKS.—Records fair. Stage-discharge relation affected by ice Dec. 10, 11, 22, 23, Jan. 8–17, Jan. 22 to Feb. 5, and Feb. 12–24, and by backwater from sandbag on control Aug. 23 to Sept. 11.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.7	9.7	256	18	a 24	146	83	a 61	30	10	4.5	2.2
2	4.8	9.7	93	21	24	130	63	a 53	30	7.5	4.9	1.2
3	4.5	13	62	18	24	110	55	196	28	7.0	3.8	1.1
4	5.9	a 16	56	18	24	186	53	133	28	7.0	5.7	1.0
5	5.1	16	48	18	24	280	359	611	26	8.5	4.5	.8
6	7.6	12	40	84	28	168	547	165	30	8.0	3.8	.8
7	6.3	10	30	19	26	176	152	371	23	9.0	2.7	1.2
8	5.9	12	26	17	28	95	100	130	21	11	a 2.7	5.3
9	4.8	33	19	15	21	73	77	95	17	8.0	3.0	a 4.5
10	4.5	a 24	16	46	21	41	77	77	18	8.5	3.0	a 4.1
11	6.7	19	16	40	18	61	228	61	16	10	3.0	3.5
12	3.2	18	18	26	16	130	327	79	14	6.5	a 3.0	a 2.7
13	3.8	30	23	18	16	208	146	100	14	9.0	3.2	2.0
14	7.6	27	a 26	11	16	580	100	89	16	6.5	2.7	2.5
15	5.1	20	30	11	16	305	77	314	13	5.3	3.2	a 2.2
16	5.1	18	30	11	18	352	356	382	13	6.1	3.2	2.2
17	8.6	16	29	24	19	a 208	384	156	11	2.7	3.2	6.1
18	25	a 16	128	942	20	86	232	100	11	3.8	2.5	6.1
19	24	134	41	680	a 20	81	186	418	10	4.9	2.2	4.5
20	13	186	30	109	18	130	919	172	8.5	6.1	2.2	3.5
21	a 11	61	19	43	16	a 146	1,410	130	8.0	3.2	1.8	3.8
22	9.1	43	16	40	a 15	212	309	108	11	3.0	a 1.8	4.5
23	8.1	44	16	38	15	182	165	79	7.0	2.2	1.8	2.7
24	8.6	30	a 21	30	17	116	116	69	7.0	2.5	2.2	3.2
25	7.6	33	23	30	24	86	105	86	7.5	6.1	1.5	3.0
26	16	23	19	28	613	236	139	67	8.0	7.0	.9	3.2
27	12	30	24	15	528	108	86	53	9.0	a 3.2	.8	3.8
28	9.7	33	a 24	a 19	168	83	73	111	10	a 3.2	.9	3.5
29	12	54	24	26	------	71	133	55	23	32	2.5	a 3.8
30	10	77	12	26	------	61	a 71	44	10	8.5	2.5	a 3.8
31	9.1	------	19	26	------	58	------	36	------	5.3	2.5	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	25	3.2	8.75	0.127	0.15
November	186	9.7	35.6	.516	.58
December	256	12	39.8	.577	.67
January	942	11	79.6	1.15	1.33
February	613	15	64.9	.941	.98
March	580	41	158	2.29	2.64
April	1,410	53	238	3.45	3.85
May	611	36	148	2.14	2.47
June	30	7.0	15.9	.230	.26
July	32	2.2	7.15	.104	.12
August	5.7	.8	2.78	.040	.05
September	6.1	.8	3.09	.045	.05
The year	1,410	.8	66.8	.968	13.15

a Estimated; gage-height record missing.

CONESUS CREEK NEAR LAKEVILLE, N. Y.

LOCATION.—Staff gage at highway bridge known as Millville Bridge, 1½ miles downstream from Lakeville, Livingston County.

DRAINAGE AREA.—72 square miles.

RECORDS AVAILABLE.—November, 1919, to September, 1929.

EXTREMES.—Maximum discharge during year, 400 second-feet Apr. 22 (gage height, 3.1 feet); minimum, 4.1 second-feet Sept. 27–30 (gage height, 0.70 foot).

1919–1929: Maximum discharge from estimated gage-height graph, about 625 second-feet Dec. 1, 1927 (gage height, 3.6 feet); minimum, 0.45 second-foot Nov. 22, 1923 (gage height, 0.52 foot).

REMARKS.—Records good. Slight backwater effect from ice Dec. 7–14, 21–25, Jan. 8–18, 26, 27, Feb. 4, 5, 11–24. Natural storage and regulation afforded by Conesus Lake. Water supply for villages of Avon and Geneseo taken from Conesus Lake.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	14	28	29	42	70	116	206	108	46	21	11
2	16	15	30	31	40	72	110	185	105	44	20	11
3	15	17	33	29	40	71	108	185	96	46	20	11
4	15	15	34	28	38	72	105	195	93	43	20	11
5	17	15	35	29	38	84	108	206	93	40	20	10
6	15	16	34	28	37	82	124	195	89	39	19	9.6
7	14	14	32	26	39	82	128	217	82	39	18	9.1
8	14	16	30	26	39	82	128	206	82	39	16	9.1
9	12	14	30	26	39	82	123	195	78	39	15	11
10	12	15	30	26	37	80	121	185	75	35	16	11
11	12	15	30	26	36	77	121	185	72	35	16	8.6
12	14	16	30	28	36	77	121	175	71	35	18	8.6
13	14	16	32	28	34	80	121	175	70	35	18	8.6
14	14	16	32	28	34	92	119	166	72	33	19	8.6
15	14	15	34	28	34	96	118	185	67	30	18	7.6
16	14	15	34	28	34	111	131	195	65	33	16	6.6
17	16	16	34	28	34	113	175	195	63	30	16	6.1
18	19	16	35	32	32	111	166	185	63	29	16	6.6
19	18	20	36	46	32	111	166	185	63	27	16	5.7
20	17	22	34	50	32	118	228	185	61	26	15	5.7
21	17	23	32	50	32	118	370	185	70	25	14	5.7
22	16	24	30	48	32	118	400	175	70	22	14	5.7
23	16	25	28	48	30	116	370	166	58	23	15	4.9
24	15	25	28	46	30	118	342	166	60	22	14	4.9
25	14	25	28	46	31	119	328	147	58	25	14	4.9
26	15	25	29	46	53	121	302	138	55	24	14	4.5
27	15	24	31	44	65	121	276	133	53	23	13	4.1
28	16	26	32	44	67	121	240	121	52	23	12	4.1
29	16	25	30	43	------	119	228	119	52	23	12	4.1
30	16	26	29	43	------	119	217	118	52	23	12	4.1
31	15	------	28	42	------	111	------	118	------	21	12	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	19	12	15.2	0.211	0.24
November	26	14	18.9	.262	.29
December	36	28	31.4	.436	.50
January	50	26	35.5	.493	.57
February	67	30	38.1	.529	.55
March	121	70	98.8	1.37	1.58
April	400	105	190	2.64	2.94
May	217	118	174	2.42	2.79
June	108	52	71.6	.994	1.11
July	46	21	31.5	.438	.50
August	21	12	16.1	.224	.26
September	11	4.1	7.45	.103	.11
The year	400	4.1	60.8	.844	11.44

CANADICE LAKE OUTLET NEAR HEMLOCK, N. Y.

LOCATION.—Hook gage above weir at foot of Canadice Lake, Ontario County, 4 miles southeast of Hemlock, Livingston County.
DRAINAGE AREA.—12.6 square miles.
RECORDS AVAILABLE.—April, 1903, to September, 1929.
REMARKS.—Records good. Data collected, computed, and furnished for publication by city engineer of Rochester, N. Y.

Month	Mean height of lake above low-water mark (feet)	Discharge in second-feet		Run-off in inches
		Mean	Per square mile	
October	0.399	2.846	0.226	0.261
November	.721	4.932	.391	.436
December	2.216	.116	.009	.010
January	2.891	4.506	.358	.413
February	3.167	11.209	.890	.927
March	3.707	35.013	2.779	3.204
April	3.916	56.367	4.474	4.991
May	3.165	35.667	2.831	3.264
June	2.761	11.234	.892	.995
July	1.861	8.249	.655	.755
August	.974	7.512	.596	.687
September	.089	3.230	.256	.286
The year	2.156	15.063	1.195	16.229

NOTE.—Terminal water surface level for the year was 0.62 foot lower than that of preceding year, corresponding to a loss in storage of 17,523,351 cubic feet or a discharge of 0.556 second-foot for the year. This correction applied to the above total gives 14.507 second-feet, equivalent to 1.151 second-feet per square mile, or a run-off of 15.624 inches from the drainage area.

OSWEGO RIVER AT HIGH DAM, NEAR OSWEGO, N. Y.

LOCATION.—Water-stage recorder at High Dam, 1½ miles southeast from center of Oswego, Oswego County.

DRAINAGE AREA.—5,100 square miles.

RECORDS AVAILABLE.—April, 1897, to December, 1901; October, 1927, to September, 1928.

REMARKS—Owing to inaccuracy of some of the basic data, the records of discharge for 1929 are withheld from publication. The records for the year ending Sept. 30, 1928, published in Water-Supply Paper 664, are in error, being too small, especially for medium and low stages.

FALL CREEK NEAR ITHACA, N. Y.

LOCATION.—Water-stage recorder in Forest Home, Tompkins County, half a mile upstream from Cornell University dam and 1½ miles northwest of Ithaca.

DRAINAGE AREA.—126 square miles.

RECORDS AVAILABLE.—February, 1925, to September, 1929. July, 1908, to June, 1909, 1¼ miles below present site.

EXTREMES.—Maximum discharge during year, 3,370 second-feet Apr. 21; maximum gage height, 7.6 feet Feb. 27; minimum discharge, 15 second-feet Oct. 10 (gage height, 0.44 foot).

1925–1929: Maximum discharge, about 5,320 second-feet Nov. 16, 1926; maximum gage height, that of Feb. 27, 1929; minimum discharge, about 3 second-feet Aug. 25, 1927 (gage height, 0.18 foot).

REMARKS.—Records good except those for periods of ice effect Jan. 6, 7, 9–11, 15–18, 22, 23, Feb. 8–10, 23, and Feb. 26 to Mar. 4, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	54	1,250	58	50	280	265	e260	127	72	45	39
2	21	49	504	70	49	220	252	257	124	80	40	36
3	20	70	324	41	49	180	208	1,440	122	60	40	31
4	18	135	305	47	54	190	288	573	115	48	78	30
5	19	92	260	41	50	364	652	570	113	78	64	27
6	21	65	223	75	53	369	1,090	519	140	106	47	26
7	21	49	164	70	64	291	530	730	115	63	36	27
8	18	53	149	37	75	110	334	440	102	48	36	28
9	22	74	111	65	70	168	287	334	93	72	36	100
10	17	68	104	65	70	140	368	287	86	812	33	115
11	18	60	118	65	60	135	418	244	78	259	33	63
12	18	58	111	59	63	214	449	235	70	124	33	41
13	17	82	111	47	58	738	464	252	68	88	33	37
14	21	92	115	45	58	2,180	349	285	72	88	42	47
15	22	82	113	42	58	2,270	296	626	90	70	234	52
16	22	73	115	42	56	1,730	672	483	66	55	88	45
17	21	78	129	48	50	836	900	448	58	50	50	53
18	155	90	160	300	55	445	798	265	55	56	41	80
19	206	134	118	568	59	429	687	402	45	254	34	56
20	92	425	108	186	53	429	1,280	468	61	116	37	42
21	47	200	73	94	53	385	2,750	305	52	72	29	52
22	42	160	56	75	55	567	1,310	310	45	55	25	37
23	38	157	62	65	60	567	745	239	41	46	216	36
24	68	143	61	59	64	624	500	270	82	41	517	33
25	84	140	65	60	65	380	512	390	54	101	152	30
26	80	132	69	57	70	734	732	248	68	150	82	33
27	69	129	68	50	500	450	475	212	68	76	63	28
28	69	132	65	58	460	344	349	269	82	86	59	24
29	78	157	65	45	-------	305	e344	204	129	161	52	25
30	65	383	44	40	-------	269	e301	168	70	115	50	26
31	59	-------	57	50	-------	273	-------	146	-------	63	46	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	206	17	48.0	0.381	0.44
November	425	49	121	.960	1.07
December	1,250	44	170	1.35	1.56
January	568	37	84.6	.671	.77
February	500	49	88.6	.703	.73
March	2,270	110	536	4.25	4.90
April	2,750	208	620	4.92	5.49
May	1,440	146	383	3.04	3.50
June	140	41	83.0	.659	.74
July	812	41	115	.913	1.05
August	517	25	76.5	.607	.70
September	115	24	43.3	.344	.38
The year	2,750	17	198	1.57	21.33

e Estimated; gage-height record faulty.

OWASCO LAKE OUTLET NEAR AUBURN, N. Y.

LOCATION.—Water-stage recorder above concrete dam 2½ miles downstream from center of Auburn, Cayuga County, and 4 miles downstream from State dam at outlet of Owasco Lake.

DRAINAGE AREA.—206 square miles.

RECORDS AVAILABLE.—November, 1912, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,110 second-feet Apr. 22 (gage height, 4.35 feet); minimum, 9 second-feet Oct. 25 (gage height, 1.45 feet). 1912–1929: Maximum discharge, determined by leveling from flood marks, 2,750 second-feet Mar. 25–30, 1913 (gage height, 6.4 feet); minimum, 3.8 second-feet Aug. 21, 1920.

REMARKS.—Records good except those for periods of estimate, which are fair. Seasonal regulation at State dam. Water supply for Auburn taken from Owasco Lake, part of which returns to outlet as sewage above gaging station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	121	138	147	153	140	207	892	1,070	236	160	158	155
2	127	146	138	161	149	217	834	1,040	205	144	150	157
3	132	164	154	163	147	187	802	1,090	248	102	150	185
4	140	154	145	151	148	207	748	1,100	248	84	145	182
5	140	159	146	160	146	308	767	1,120	237	124	152	173
6	127	132	148	170	135	431	933	1,100	222	115	146	162
7	120	152	148	159	204	448	971	1,110	220	100	144	178
8	117	157	146	160	231	473	958	1,100	215	136	158	101
9	134	147	152	153	242	450	901	1,060	194	136	149	239
10	119	157	165	153	222	447	847	1,000	216	120	138	160
11	121	128	157	157	227	474	899	969	185	110	157	164
12	114	144		159	251	547	865	930	160	116	165	157
13	99	144	[a] 160	195	262	568	822	886	178	115	163	156
14	71	137			226	762	778	863	184	96	181	163
15	117	156			222	1,080	766	868	165	122	179	150
16	116	150	145	[a] 160	207	1,260	786	899	174	122	172	189
17	111	167	172		182	1,330	896	897	184	117	176	188
18	106	98	168		188	1,320	1,060	876	183	127	169	176
19	138	162	172	163	193	1,310	1,030	854	184	137	180	168
20	98	151	181	164	195	1,300	1,120	840	185	119	183	167
21	123	146	163	190	212	1,260	1,560	811	185	124	182	141
22	124	150	160	169	179	1,210	1,760	782	179	147	181	149
23	116	142	176	153		1,200	1,690	752	155	142	269	164
24	121	139	153	160		1,180	1,620	724	173	142	176	162
25	120	132	139	153		1,150	1,540	700	175	191	116	156
26	120	149	146	153	[a] 185	1,100	1,470	670	168	146	193	172
27	120	152	154	163		1,080	1,410	650	172	142	189	172
28	34	145	146	156		1,010	1,340	595	171	168	178	151
29	104	138	142	154	-------	973	1,220	443	170	177	174	157
30	141	168	149	[a] 150	-------	930	1,130	239	159	167	174	165
31	141	-------	148	[a] 145	-------	912	-------	245	-------	158	200	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	141	34	117	0.568	0.65
November	168	98	147	.714	.80
December	181	138	155	.752	.87
January	195	145	160	.777	.90
February	262	135	194	.942	.98
March	1,330	187	817	3.97	4.58
April	1,760	748	1,080	5.24	5.85
May	1,120	239	848	4.12	4.75
June	248	155	191	.927	1.03
July	191	84	132	.641	.74
August	269	138	169	.820	.95
September	239	101	165	.801	.89
The year	1,760	34	349	1.69	22.99

[a] Estimated; imperfect gage-height record.

NOTE.—Elevation of surface of Owasco Lake increased from 706.46 feet on October 1 to 706.82 feet on September 30. This indicates a net gain in storage of about 103,373,000 cubic feet, equivalent to an average flow for the year of 3.3 second-feet, 0.016 second-foot per square mile, or a run-off of 0.22 inch on drainage area.

EAST BRANCH OF FISH CREEK AT FISH CREEK, NEAR CONSTABLEVILLE, N. Y.

LOCATION.—Chain gage at highway bridge half a mile west of Fish Creek, Lewis County, and 6½ miles southwest of Constableville.

DRAINAGE AREA.—75 square miles.

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

EXTREMES.—Maximum discharge during year, 3,460 second-feet Apr. 6; maximum gage height, 7.5 feet Jan. 19; minimum discharge, 27 second-feet July 23 and 24 (gage height, 1.30 feet).

1923–1929: Maximum discharge, about 5,520 second-feet Apr. 8, 1928; maximum gage height, 8.3 feet Apr. 6, 1928; minimum discharge, 21 second-feet Oct. 18, 1923 (gage height, 1.28 feet).

REMARKS.—Records good except those for periods of ice effect, Nov. 25–29, Dec. 7–15, and Dec. 22 to Mar. 27, and for period Sept. 5–30, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	153	730	120	140	120	1,020	445	73	114	35	42
2	78	173	730	130	130	110	1,300	388	69	71	32	39
3	74	223	445	120	120	110	730	1,420	69	54	29	35
4	67	388	415	110	110	120	610	910	73	64	78	30
5	60	265	320	100	110	180	771	650	80	307	212	33
6	245	193	244	220	100	200	2,860	575	138	204	122	32
7	166	173	200	300	130	190	2,020	575	106	114	69	31
8	114	212	170	240	120	150	1,500	388	88	396	46	31
9	122	186	150	190	120	120	815	301	73	204	49	43
10	119	160	150	170	110	100	540	252	60	208	38	106
11	97	153	150	160	100	110	388	212	52	119	39	141
12	82	141	160	150	95	140	388	330	46	71	35	76
13	166	138	160	140	90	240	388	335	82	54	32	80
14	201	130	170	130	90	800	345	252	90	91	199	197
15	153	136	180	130	85	2,200	315	1,090	74	71	1,670	170
16	141	143	216	120	85	3,000	296	770	54	46	415	116
17	658	478	430	130	90	1,600	306	540	44	39	204	404
18	610	415	1,640	380	100	1,000	325	360	39	35	112	439
19	610	477	910	2,000	95	850	306	340	38	46	78	193
20	388	1,040	650	1,400	90	1,000	388	292	114	35	60	112
21	355	540	415	850	90	850	508	231	91	32	49	78
22	257	360	320	650	85	1,000	508	197	54	33	42	67
23	278	278	260	460	85	1,800	445	173	60	28	260	59
24	475	248	220	320	80	2,000	355	231	299	27	388	53
25	330	220	220	260	80	1,200	301	231	153	80	179	49
26	240	190	220	220	90	1,000	690	204	153	119	99	46
27	186	170	200	200	120	800	475	147	76	59	122	43
28	227	160	190	180	130	770	375	133	156	122	82	62
29	301	180	170	160	-------	610	1,030	119	320	124	67	62
30	212	240	150	150	-------	508	650	102	168	56	56	64
31	163	-------	130	140	-------	508	-------	88	-------	39	46	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	658	60	235	3.13	3.61
November	1,040	130	265	3.53	3.94
December	1,640	130	346	4.61	5.32
January	2,000	100	324	4.32	4.98
February	140	80	102	1.36	1.42
March	3,000	100	754	10.1	11.64
April	2,860	296	698	9.31	10.39
May	1,420	88	396	5.28	6.09
June	320	38	99.6	1.33	1.48
July	396	27	98.8	1.32	1.52
August	1,670	29	159	2.12	2.44
September	439	30	97.8	1.30	1.45
The year	3,000	27	300	4.00	54.28

EAST BRANCH OF FISH CREEK AT TABERG, N. Y.

LOCATION.—Water-stage recorder at highway bridge in Taberg, Oneida County, just below mouth of Furnace Creek.

DRAINAGE AREA.—188 square miles.

RECORDS AVAILABLE.—April, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,750 second-feet Mar. 16 (gage height, 6.0 feet); minimum, 19 second-feet Aug. 12 (gage height, 0.19 foot).

1923–1929: Maximum discharge, about 16,200 second-feet Apr. 6, 1924 (gage height, 8.2 feet); minimum, that of Aug. 12, 1929.

REMARKS.—Records good for ordinary open-water stages and fair for extremely high stages and for periods of ice effect, Nov. 26, 27, Dec. 9–14, 23, 24, Dec. 31 to Jan. 17, Jan. 30 to Feb. 26, and Mar. 9–11. A small amount of water is diverted above station by city of Oneida for municipal supply.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	352	1,750	240	280	245	2,260	851	175	277	°76	75
2	158	365	1,390	260	260	217	2,590	766	166	198	72	67
3	155	507	910	240	240	221	1,600	3,560	163	°145	70	58
4	140	910	846	220	220	234	1,270	2,190	175	151	160	48
5	162	582	903	200	220	331	1,480	1,700	189	462	374	47
6	526	420	665	440	200	390	5,320	1,620	284	400	252	47
7	382	348	657	650	260	390	4,200	1,320	238	234	°145	49
8	251	370	573	500	260	307	3,590	950	198	676	°104	52
9	238	400	360	380	240	240	1,840	692	169	402	95	88
10	255	323	320	380	220	200	1,130	561	148	327	100	185
11	198	307	300	380	200	220	769	486	132	242	72	284
12	172	296	320	320	190	273	910	667	121	148	77	150
13	284	288	320	280	180	468	995	727	155	123	48	122
14	527	280	320	260	180	1,550	806	700	202	150	336	294
15	312	270	340	240	170	4,220	692	2,900	273	163	3,500	292
16	269	273	454	220	180	5,790	896	1,980	169	115	848	175
17	559	1,030	897	240	190	3,270	1,040	1,270	130	98	350	815
18	1,820	907	3,820	805	200	2,120	995	870	117	115	192	865
19	1,700	1,130	1,930	4,340	190	1,720	822	862	104	266	140	361
20	827	2,630	1,190	3,090	190	2,010	910	699	193	132	106	207
21	727	1,150	709	1,820	180	1,660	1,280	531	192	93	89	177
22	520	727	531	1,370	180	2,010	1,080	442	140	76	65	169
23	564	585	420	995	170	3,420	830	365	119	65	244	138
24	1,160	498	400	699	170	3,940	637	499	538	62	713	121
25	790	486	405	561	170	2,500	663	555	327	156	307	115
26	623	360	420	481	190	2,080	1,490	395	284	257	163	106
27	470	340	375	432	241	1,560	1,020	319	186	138	155	100
28	521	385	361	385	252	1,640	848	284	415	280	140	104
29	760	459	336	344	-------	1,270	2,910	259	738	266	112	135
30	531	600	273	320	-------	1,220	1,490	228	376	142	102	155
31	395	-------	260	300	-------	1,280	-------	202	-------	95	86	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,820	140	523	2.78	3.20
November	2,630	270	586	3.12	3.48
December	3,820	260	734	3.90	4.50
January	4,340	200	690	3.67	4.23
February	280	170	208	1.11	1.16
March	5,790	200	1,520	8.09	9.33
April	5,320	637	1,550	8.24	9.19
May	3,560	202	950	5.05	5.82
June	738	104	227	1.21	1.35
July	462	62	208	1.11	1.28
August	3,500	48	300	1.60	1.84
September	865	47	187	.995	1.11
The year	5,790	47	643	3.42	46.49

° Estimated from fragmentary gage-height record.

BLACK RIVER NEAR BOONVILLE, N. Y.

LOCATION.—Chain gage at highway bridge three-quarters of a mile upstream from Sugar River and 2 miles northeast of Boonville, Oneida County.

DRAINAGE AREA.—303 square miles.

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

EXTREMES.—Maximum discharge during year, 4,680 second-feet Apr. 7 and May 4 (gage height, 9.4 feet); minimum, 180 second-feet Sept. 7 (gage height, 4.18 feet).

1911–1929: Maximum discharge, about 10,000 second-feet Mar. 28, 1913 (gage height, about 12.5 feet); minimum, about 5 second-feet Aug. 26, 1918 (gage height, 2.40 feet).

REMARKS.—Records good except those for periods of ice effect, Dec. 11–16, Jan. 2–18, and Jan. 26 to Mar. 6, which are fair. Flow partly regulated by storage in State Pond at Forestport and other headwater reservoirs. Forestport feeder diverts water from State Pond at Forestport. That portion of diversion which does not pass down Black River Canal (flowing south) returns to Black River below station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	335	558	920	490	460	500	1,640	1,290	390	1,210	305	238
2	352	490	920	480	460	500	2,610	1,220	390	990	290	205
3	335	490	795	460	440	500	2,620	2,640	410	855	305	205
4	352	490	735	460	440	500	2,740	3,970	430	680	335	216
5	335	450	795	440	440	500	2,740	2,980	430	735	410	205
6	490	410	855	480	440	550	3,500	2,860	450	558	390	205
7	470	450	795	550	480	558	4,570	2,270	450	512	370	184
8	450	470	680	650	550	535	4,280	1,370	410	535	335	184
9	390	490	680	650	550	490	3,490	1,290	390	535	305	205
10	370	490	605	600	500	450	2,860	1,210	370	605	275	216
11	352	512	600	500	500	470	2,620	1,210	335	580	250	194
12	352	490	600	460	500	490	2,380	1,060	305	535	250	184
13	390	470	550	460	480	558	1,940	735	370	430	275	227
14	370	450	600	440	480	1,200	1,640	735	335	390	275	275
15	390	450	600	440	460	1,940	1,290	1,230	410	370	512	410
16	410	450	600	440	460	2,390	1,290	1,840	450	335	490	370
17	490	580	630	460	460	1,630	1,210	1,840	410	305	370	305
18	820	630	959	800	480	1,460	1,210	1,460	370	238	305	335
19	1,900	795	2,360	2,380	480	1,290	1,140	1,290	357	410	290	320
20	1,740	1,450	1,740	2,620	460	1,060	1,140	1,060	680	370	275	335
21	1,460	1,320	1,060	2,160	460	1,140	1,060	855	680	352	262	352
22	990	855	680	1,540	460	1,140	990	630	390	335	275	335
23	795	735	630	920	460	1,610	990	605	410	335	238	335
24	795	680	630	795	460	3,860	920	795	876	335	262	335
25	920	630	580	735	460	3,880	920	735	920	370	290	320
26	1,060	580	580	650	480	3,490	1,060	735	855	450	275	305
27	920	535	535	650	500	2,740	1,140	680	795	410	250	290
28	920	558	558	600	480	2,050	1,460	680	680	370	238	275
29	795	535	535	550	-------	1,940	1,740	580	1,440	335	250	305
30	680	558	535	500	-------	1,640	1,540	490	1,370	320	262	335
31	580	-------	512	480	-------	1,370	-------	410	-------	320	275	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,900	335	678	2.24	2.58
November	1,450	410	602	1.99	2.22
December	2,360	512	769	2.54	2.93
January	2,620	440	769	2.54	2.93
February	550	440	474	1.56	1.62
March	3,880	450	1,370	4.52	5.21
April	4,570	920	1,960	6.47	7.22
May	3,970	410	1,310	4.32	4.98
June	1,440	305	552	1.82	2.03
July	1,210	238	487	1.61	1.86
August	512	238	306	1.01	1.16
September	410	184	274	.904	1.01
The year	4,570	184	798	2.63	35.75

BLACK RIVER AT WATERTOWN, N. Y.

LOCATION.—Water-stage recorder at Vanduzee Street Bridge in Watertown, Jefferson County.

DRAINAGE AREA.—1,880 square miles.

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

EXTREMES.—Maximum discharge during year, 17,500 second-feet May 6 (gage height, 7.5 feet); minimum, 449 second-feet July 28 (gage height, 0.88 foot).

1920–1929: Maximum discharge, 33,900 second-feet Apr. 9, 1928 (gage height, 10.6 feet); minimum, 155 second-feet Aug. 6, 1923 (gage height, 0.30 foot).

REMARKS.—Records excellent. Flow regulated by storage in Stillwater Reservoir, Fulton Chain of Lakes, Forestport Reservoir, and other reservoirs. During canal season water is diverted out of drainage basin through Forestport feeder and Black River Canal (flowing south).

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,080	2,910	5,080	3,000	3,340	2,850	7,980	9,680	2,470	4,320	1,710	1,110
2	2,120	2,870	6,400	2,600	3,160	2,720	8,520	9,380	1,630	3,730	1,650	779
3	2,100	2,700	5,870	2,740	1,830	2,170	9,080	10,300	2,120	3,090	1,780	1,430
4	2,150	2,480	5,770	2,740	2,780	2,370	9,680	11,700	2,120	1,830	1,500	1,140
5	2,150	3,160	5,770	2,600	2,960	2,740	9,680	14,800	2,510	2,520	1,350	1,260
6	2,090	3,080	5,900	3,160	2,740	3,300	9,680	16,200	2,200	2,510	1,750	1,440
7	1,460	3,140	5,640	4,370	2,660	3,560	10,300	15,100	2,270	2,300	1,980	1,430
8	2,350	2,830	4,770	3,750	2,590	3,150	12,400	13,800	2,330	2,880	1,850	1,100
9	2,150	2,660	3,430	4,550	2,680	3,220	14,000	12,100	1,310	3,480	1,810	1,050
10	2,220	2,850	3,280	4,590	2,500	2,390	12,800	10,400	2,190	3,540	1,650	1,470
11	2,280	2,410	3,170	4,770	2,240	2,530	11,000	8,690	1,600	3,260	1,490	1,590
12	2,280	2,480	3,440	4,460	2,940	2,630	10,000	7,370	1,730	2,870	1,120	1,600
13	2,420	2,590	3,700	3,530	2,700	3,390	9,080	6,630	1,850	2,400	1,510	1,740
14	1,910	[a]2,770	3,450	3,650	2,620	6,540	7,720	6,520	1,860	1,930	1,760	1,810
15	2,710	[a]2,340	3,470	3,600	2,630	11,300	7,720	6,370	1,830	1,940	3,460	1,740
16	2,640	2,550	3,120	3,380	2,530	13,200	7,460	7,130	1,770	2,400	5,200	1,900
17	2,650	2,430	4,020	3,290	2,240	13,600	7,200	7,980	2,820	2,420	4,260	2,200
18	3,650	3,230	7,640	4,940	2,190	15,300	7,460	8,360	2,160	2,210	2,880	3,160
19	5,080	3,780	8,520	12,900	2,470	14,000	7,720	7,900	2,000	1,970	2,240	3,670
20	5,750	7,100	9,080	12,400	2,660	13,600	7,720	7,850	2,060	2,130	2,150	3,280
21	5,860	7,460	9,380	13,200	2,390	13,200	7,250	7,410	2,780	1,520	1,800	2,510
22	5,210	7,460	7,400	13,200	2,480	11,300	7,530	6,650	3,100	1,480	1,400	1,700
23	4,470	6,760	4,960	11,300	2,620	[a]11,000	7,720	5,460	1,970	1,600	1,840	1,530
24	4,260	5,770	4,610	9,680	2,300	[a]12,100	7,460	4,650	2,310	1,790	1,950	1,980
25	4,890	4,510	3,920	7,980	2,120	[a]13,200	7,070	4,440	3,610	1,790	1,890	2,200
26	4,650	3,670	4,320	6,580	2,340	14,400	6,940	3,770	4,540	1,850	1,940	1,900
27	4,190	3,520	3,950	5,430	2,570	13,200	7,200	3,920	4,280	2,040	2,000	1,830
28	3,450	3,300	4,370	4,620	2,810	12,400	6,940	3,740	3,910	1,440	2,010	1,810
29	3,210	3,350	4,090	3,970	-------	11,000	7,460	3,500	3,570	1,790	1,800	1,280
30	3,430	3,200	2,070	3,830	-------	10,000	8,800	2,690	4,000	1,820	1,800	1,560
31	3,300	-------	3,320	3,570	-------	8,250	--------	2,470	-------	1,810	1,790	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,860	1,460	3,200	1.70	1.96
November	7,460	[a]2,340	3,650	1.94	2.16
December	9,380	2,070	4,960	2.64	3.04
January	13,200	2,600	5,630	2.99	3.45
February	3,340	1,830	2,570	1.37	1.43
March	15,300	2,170	8,210	4.37	5.04
April	14,000	6,940	8,720	4.64	5.18
May	16,200	2,470	7,970	4.24	4.89
June	4,540	1,310	2,500	1.33	1.48
July	4,320	1,440	2,340	1.24	1.43
August	5,200	1,120	2,040	1.09	1.26
September	3,670	779	1,770	.941	1.05
The year	16,200	779	4,480	2.38	32.37

[a] Estimated; gage-height record faulty.

FORESTPORT FEEDER NEAR BOONVILLE, N. Y.

LOCATION.—Slope station with two water-stage recorders at lower end of feeder, above point where it enters basin at Boonville, Oneida County. Gage No. 1 is in village of Hawkinsville; gage No. 2 is 2.53 miles downstream from No. 1 and 1 mile upstream from basin in Boonville.

RECORDS AVAILABLE.—October, 1915, to September, 1929, during canal seasons.

REMARKS.—Records fair. Slope relation nonexistent Aug. 19 to Sept. 6 and Sept. 12–30; open-water rating used. From Oct. 1 to June 6 canal probably carried normal minimum flow of about 35 second-feet. Canal diverts water from Black River at Forestport.

Daily and monthly discharge, in second-feet, 1929

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		120	39	10	16	69	42	47	10
2		111	40	10	17	a 57	41	a 40	31
3		110	a 39	10	18	a 64	40	a 23	24
4		102	42	9	19	95	48	17	7
5		45	46	9	20	121	44	14	3
6		26	44	9	21	124	40	11	2
7	57	a 30	41	21	22	118	40	12	2
8	55	a 40	39	35	23	118	40	15	2
9	40	a 44	38	39	24	109	41	16	2
10	38	a 46	39	27	25	114	44	14	2
11	33	a 44	40	23	26	106	48	13	1
12	30	a 40	39	13	27	118	41	12	1
13	28	a 36	39	10	28	130	33	12	1
14	61	a 44	39	21	29	112	39	12	2
15	72	44	50	18	30	126	41	11	3
					31		39	11	

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
June 7–30	130	28	83.1	August	50	11	28.8
July	120	26	49.8	September	39	1	11.9

a Estimated; gage-height record incomplete.

BLACK RIVER CANAL (FLOWING SOUTH) NEAR BOONVILLE, N. Y.

LOCATION.—Two water-stage recorders; No. 1 on main canal at Lock 69 and No. 2 on Lansingkill spillway 100 feet downstream from head gates in summit level of canal, 600 feet upstream from Lock 70, and 2 miles south of Boonville, Oneida County. Prior to June 7, 1929, station was operated as a slope station.

RECORDS AVAILABLE.—September, 1915, to September, 1929, during canal seasons.

REMARKS.—Records excellent. Flow inconsequential during October and November. Records subsequent to June 7 include combined flow at gages No. 1 and No. 2 and represent total diversion from Black River through Forestport feeder, which passes out of Black River drainage basin into Mohawk River Basin.

Daily and monthly discharge, in second-feet, 1929

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		96	*32	5	16	52	29	31	5
2		96	*32	4	17	40	29	29	31
3		97	*33	3	18	29	29	22	20
4		92	38	3	19	61	29	5	4
5		31	37	3	20	85	29	2	2
6		2	34	3	21	83	36	3	2
7	8	8	30	7	22	86	33	4	2
8	14	25	27	22	23	91	26	6	2
9	12	31	29	29	24	78	6	8	2
10	10	33	24	27	25	101	26	7	2
11	10	29	30	14	26	84	27	5	2
12	10	26	22	6	27	96	24	4	2
13	8	21	22	2	28	97	*20	3	2
14	15	27	31	3	29	85	*26	4	2
15	40	30	49	6	30	100	*31	5	2
					31		*31	4	

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
June 7–30	101	8	54.00	August	49	2	19.7
July	97	2	34.7	September	31	2	7.30

* Estimated; gage-height record incomplete.

SUGAR RIVER AT TALCOTTVILLE, N. Y.

LOCATION.—Staff gage 150 feet upstream from crest of falls in Talcottville, Lewis County.

DRAINAGE AREA.—42 square miles.

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

EXTREMES.—Maximum discharge during year, 1,550 second-feet Jan. 19 (gage height, 4.0 feet); minimum, 6.7 second-feet Aug. 3 and 14 (gage height, 0.88 foot).

1926–1929: Maximum discharge, about 2,440 second-feet Apr. 7, 1928; (gage height, 5.2 feet); minimum, 6.5 second-feet July 27, 28, 1926, and Aug. 6, 1927 (gage height, 0.88 foot).

REMARKS.—Records generally good, but fair for high stages and during periods of ice effect, Nov. 24–30, Dec. 7–14, 22, 23, Jan. 2–17, Jan. 28 to Feb. 6, Feb. 20 to Mar. 3, and Mar. 8–12.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	65	468	47	55	36	655	151	27	27	8.2	14
2	25	75	256	38	50	32	256	158	27	18	7.7	13
3	24	125	235	34	48	34	227	763	24	14	6.7	10
4	22	165	215	38	44	43	211	301	24	19	20	9.4
5	42	85	256	50	42	69	252	462	27	85	45	8.8
6	78	78	227	95	38	78	644	269	32	37	22	8.8
7	40	65	150	150	50	69	372	348	25	21	14	8.8
8	27	119	100	180	39	55	261	158	22	111	10	8.8
9	45	85	85	150	40	40	176	119	21	37	13	14
10	34	61	75	120	40	38	111	92	18	61	10	30
11	34	67	65	110	40	38	83	78	16	27	10	37
12	24	63	65	90	37	42	188	158	16	18	8.2	19
13	73	63	70	75	45	200	176	100	20	14	7.2	18
14	61	63	70	60	34	688	151	80	21	30	6.7	69
15	37	57	73	65	32	1,220	108	602	37	19	302	37
16	51	51	125	65	40	1,210	151	321	25	14	73	22
17	241	325	534	70	36	585	215	188	20	11	37	285
18	464	195	800	656	37	372	244	119	15	11	27	108
19	245	474	324	1,290	37	631	215	145	14	16	18	51
20	132	456	256	558	36	721	195	111	20	11	14	36
21	119	176	119	372	36	578	324	85	14	9.4	13	29
22	78	145	110	278	34	730	215	69	13	7.7	11	24
23	270	114	100	195	34	1,000	114	61	13	7.7	145	21
24	241	110	95	132	32	774	83	111	62	7.7	116	19
25	128	100	92	125	30	465	85	78	40	37	34	18
26	103	95	85	97	30	407	73	57	29	27	29	17
27	73	90	73	90	44	278	111	48	18	14	71	16
28	119	85	73	85	44	423	96	43	50	22	29	29
29	132	85	65	75	------	235	518	40	75	18	22	24
30	78	85	69	70	------	227	233	37	32	12	18	27
31	65	------	57	65	------	278	------	32	------	8.8	15	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	464	22	101	2.40	2.77
November	474	51	127	3.02	3.37
December	800	57	174	4.14	4.77
January	1,290	34	178	4.24	4.89
February	55	30	39.4	.938	.98
March	1,220	32	374	8.90	10.26
April	655	73	225	5.36	5.98
May	763	32	174	4.14	4.77
June	75	13	26.6	.633	.71
July	111	7.7	24.9	.593	.68
August	302	6.7	37.5	.893	1.03
September	285	8.8	34.4	.819	.91
The year	1,290	6.7	127	3.02	41.12

MOOSE RIVER AT McKEEVER, N. Y.

LOCATION.—Water-stage recorder half a mile west of McKeever, Herkimer County, and 2 miles downstream from mouth of South Branch of Moose River.

DRAINAGE AREA.—366 square miles.

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

EXTREMES.—Maximum discharge during year, 6,830 second-feet Apr. 6 (gage height, 10.0 feet); minimum, 101 second-feet Sept. 4 (gage height, 1.57 feet).

1922–1929: Maximum discharge, 11,000 second-feet June 22, 1922 (gage height, 12.9 feet); minimum, 64 second-feet Sept. 2, 1925 (gage height, 1.37 feet).

REMARKS.—Records good except those for period of ice effect, Dec. 30 to Mar. 14 and periods of estimate, which are fair. Flow regulated to some extent by storage in Fulton Chain of Lakes.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	554	463	572	550	a 550	550	2,080	1,930	576	1,030	265	236
2	576	422	578	500	a 550	550	3,470	1,820	360	890	255	230
3	468	509	538	500	550	400	2,560	3,860	503	785	255	217
4	464	467	512	440	600	700	2,250	4,930	472	581	272	203
5	460	768	545	500	600	650	2,240	3,460	571	778	395	212
6	460	686	558	420	550	700	4,350	3,650	a 590	735	466	218
7	542	460	518	800	550	700	5,620	3,180	a 520	592	359	278
8	673	460	492	750	600	700	4,730	2,820	a 440	1,050	308	255
9	512	468	365	700	550	650	3,650	2,320	242	1,270	268	267
10	502	525	508	750	550	550	2,730	1,900	413	1,080	262	253
11	484	345	457	650	600	800	2,190	1,710	427	904	258	353
12	501	598	408	650	550	700	1,920	1,540	396	757	278	412
13	474	467	448	500	500	750	1,820	1,420	388	610	282	386
14	521	446	472	600	500	1,200	1,910	1,360	388	618	268	444
15	753	364	444	500	500	2,400	1,640	1,760	832	670	434	439
16	582	342	286	500	480	4,130	1,420	2,320	774	676	619	634
17	663	376	491	500	440	4,340	1,360	2,240	626	532	550	567
18	1,010	563	2,280	1,100	600	3,160	1,330	1,850	454	509	402	791
19	1,950	738	2,870	3,000	500	2,520	1,270	1,630	359	424	336	968
20	1,500	1,890	1,790	4,400	460	2,400	1,160	1,710	476	373	a 280	562
21	1,040	1,740	1,220	3,200	500	2,140	1,350	1,480	857	300	a 320	476
22	834	1,170	1,020	2,400	500	2,730	1,630	984	680	376	a 420	384
23	760	877	935	a 1,900	500	2,960	a 1,500	1,000	424	345	a 500	a 500
24	835	785	910	a 1,500	500	4,890	a 1,500	972	1,520	342	a 550	a 550
25	862	685	862	a 1,200	600	4,100	a 1,600	966	1,700	383	590	a 460
26	785	494	772	a 1,100	600	3,180	a 1,900	819	1,270	460	522	a 400
27	731	558	760	a 900	600	2,910	a 2,500	882	1,160	500	320	a 360
28	453	540	685	a 800	480	a 2,400	1,910	660	716	368	275	384
29	685	554	660	a 750	------	a 2,080	2,760	612	1,370	352	268	416
30	516	522	600	a 650	------	a 1,740	2,960	612	1,500	338	249	509
31	468	------	600	a 600	------	1,550	------	570	------	292	245	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,950	453	697	1.90	2.19
November	1,890	342	646	1.77	1.98
December	2,870	286	779	2.13	2.46
January	4,400	420	1,070	2.92	3.37
February	600	440	538	1.47	1.53
March	4,890	400	1,910	5.22	6.02
April	5,620	1,160	2,310	6.31	7.04
May	4,930	570	1,840	5.03	5.80
June	1,700	242	700	1.91	2.13
July	1,270	292	610	1.67	1.92
August	619	245	357	.975	1.12
September	968	203	412	1.13	1.26
The year	5,620	203	993	2.71	36.82

a Estimated; gage-height record missing.

MIDDLE BRANCH OF MOOSE RIVER AT OLD FORGE, N. Y.

LOCATION.—Staff gage in Old Forge, Herkimer County, 400 feet downstream from State dam.

DRAINAGE AREA.—52 square miles.

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

EXTREMES.—Maximum discharge during year, 635 second-feet May 5 (gage height, 4.15 feet); minimum, 0.7 second-foot Oct. 20–23 (gage height, 0.11 foot).

1911–1929: Maximum discharge, 862 second-feet Mar. 23, 1921; minimum that of Oct. 20–23, 1928.

REMARKS.—Records fair. Discharge Jan. 6, Mar. 24–27, May 22, June 9, 20–22, Sept. 5–14, 16–21, 23–28, 30, computed from gate ratings; probable backwater from Thendara Dam. Flow controlled by gates in the State dam.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	222	1	5	115	173	146	45	266	70	146	65	31
2	222	1	5	91	173	146	65	255	70	130	65	20
3	212	1	5	70	164	146	230	364	70	130	65	20
4	212	2	5	70	164	146	290	506	70	130	65	65
5	212	2	5	75	164	146	202	583	70	130	39	111
6	212	3	6	75	191	138	202	620	70	130	27	155
7	212	3	6	75	222	138	222	591	70	130	30	190
8	202	3	6	80	212	128	266	548	70	138	35	204
9	202	3	6	75	212	138	222	458	70	138	40	197
10	212	3	6	75	212	138	240	375	70	130	37	190
11	202	3	24	80	212	138	255	375	70	130	34	197
12	202	3	59	80	212	138	244	350	70	162	32	196
13	202	3	58	75	212	138	244	326	70	182	31	196
14	202	3	57	75	212	138	233	294	70	182	31	189
15	202	3	57	93	212	90	207	202	60	173	44	212
16	202	4	57	115	202	11	152	212	39	173	42	162
17	202	3	57	115	202	11	168	222	39	137	37	232
18	202	3	59	115	202	12	192	222	39	108	33	198
19	68	3	64	138	225	13	192	222	39	108	46	198
20	1	3	70	146	244	12	172	179	41	108	70	198
21	1	3	70	184	244	11	102	95	42	108	61	172
22	1	4	101	212	272	11	108	75	42	102	61	248
23	1	4	130	212	302	11	108	75	44	108	71	196
24	1	4	122	182	302	11	115	70	60	108	95	243
25	1	4	122	182	302	11	144	70	74	108	31	243
26	1	4	115	182	290	11	182	70	90	102	31	243
27	1	5	115	173	227	14	212	70	90	102	31	242
28	1	5	115	173	146	37	233	75	108	102	31	180
29	1	5	115	173	------	32	233	75	155	96	31	202
30	1	5	115	173	------	34	244	75	146	70	40	180
31	1	------	115	173	------	34	-----	75	------	65	29	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	222	1	123	2.37	2.73
November	5	1	3.20	.062	.07
December	130	5	59.7	1.15	1.33
January	212	70	124	2.38	2.74
February	302	146	218	4.19	4.36
March	146	11	75.4	1.45	1.67
April	290	45	191	3.67	4.10
May	620	70	258	4.96	5.72
June	155	39	69.6	1.34	1.50
July	182	65	125	2.40	2.77
August	95	27	44.5	.856	.99
September	248	20	177	3.40	3.79
The year	620	1	122	2.35	31.77

NOTE.—Elevation of water surface in reservoir at end of year was 0.36 foot lower than at beginning of year, corresponding to a loss in storage of 49,980,396 cubic feet. This is equivalent to a yearly mean discharge of 1.58 second-feet, 0.030 second-foot per square mile, or 0.41 inch on drainage area.

MIDDLE BRANCH OF MOOSE RIVER NEAR McKEEVER, N. Y.

LOCATION.—Water-stage recorder half a mile upstream from confluence of Middle and South Branches of Moose River and 1½ miles northeast of McKeever, Herkimer County.

DRAINAGE AREA.—148 square miles.

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

EXTREMES.—Maximum discharge during year, 1,550 second-feet May 6 (gage height, 5.9 feet); minimum, about 57 second-feet Sept. 5 (gage height, 2.20 feet).

1925–1929: Maximum discharge, 2,100 second-feet Apr. 27, 1926 (gage height, 6.6 feet); minimum, that of Sept. 5, 1929.

REMARKS.—Records good except those for periods of ice effect, Dec. 6–12 and Dec. 20 to Mar. 12, and of estimate, which are fair. Flow regulated by storage in Fulton Chain of Lakes.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	304	199	240	280	300	300	692	692	301	418	148	128
2	310	192	238	260	300	240	715	840	275	380	148	116
3	307	190	215	300	280	280	765	1,060	259	354	150	104
4	304	201	210	190	280	280	1,000	1,270	259	335	197	88
5	307	197	210	240	280	300	948	1,440	370	344	222	73
6	322	194	200	260	300	300	1,000	1,520	247	364	164	228
7	319	190	190	320	340	300	1,000	1,480	108	377	121	220
8	316	185	190	220	340	280	1,180	1,410	84	432	106	164
9	313	235	180	300	320	280	1,210	1,300	106	488	111	140
10	307	243	170	320	[a] 320	280	1,150	1,120	232	488	131	215
11	301	245	160	260	[a] 320	280	1,090	1,000	210	439	131	251
12	298	268	190	260	[a] 300	260	1,000	948	192	387	124	215
13	310	330	220	240	[a] 300	310	948	865	192	367	119	199
14	319	208	210	240	[a] 300	349	865	815	208	414	130	284
15	319	177	225	260	[a] 280	520	815	790	322	367	199	304
16	331	148	201	280	[a] 280	602	740	765	273	344	230	280
17	347	166	218	300	280	580	648	840	230	335	218	292
18	390	172	429	440	280	670	648	892	199	284	179	341
19	432	197	442	800	300	715	625	892	114	215	154	325
20	307	298	440	1,000	320	740	625	840	192	225	126	281
21	307	319	400	[a] 950	340	648	602	685	256	228	162	267
22	292	360	380	[a] 850	340	670	580	410	232	218	238	310
23	304	344	360	[a] 650	[a] 340	715	560	560	228	192	264	322
24	331	325	380	[a] 550	380	840	540	488	292	213	301	273
25	316	313	360	[a] 500	380	865	540	446	310	235	270	292
26	295	292	340	[a] 460	420	975	602	408	399	270	190	256
27	270	273	320	[a] 400	440	975	625	338	460	230	146	259
28	251	264	300	360	260	975	692	281	180	199	129	301
29	243	232	300	340	-------	865	765	298	292	208	129	374
30	230	220	280	320	-------	790	765	301	411	192	129	312
31	213	-------	280	300	-------	715	-------	298	-------	148	133	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	432	213	307	2.07	2.39
November	360	148	239	1.61	1.80
December	442	160	273	1.84	2.12
January	1,000	190	402	2.72	3.14
February	440	260	319	2.16	2.25
March	975	240	545	3.68	4.24
April	1,210	540	798	5.39	6.01
May	1,520	281	816	5.51	6.35
June	460	84	248	1.68	1.87
July	488	148	313	2.11	2.43
August	301	106	168	1.14	1.31
September	374	73	240	1.62	1.81
The year	1,520	73	390	2.64	35.72

[a] Estimated; gage-height record missing.

OTTER CREEK NEAR GLENFIELD, N. Y.

LOCATION.—Water-stage recorder a quarter of a mile above dam of Otter Creek Power Corporation, 1¾ miles above mouth, and 2½ miles northeast of Glenfield, Lewis County.

DRAINAGE AREA.—62 square miles.

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

EXTREMES.—Maximum discharge during year, 920 second-feet May 4 (gage height, 5.1 feet); minimum, 37 second-feet Sept. 8 (gage height, 1.59 feet).

1924–29: Maximum discharge, about 2,130 second-feet Apr. 8, 1928 (gage height, 7.1 feet); minimum, 27 second-feet Sept. 2, 1925.

REMARKS.—Records good except those for periods of ice effect, Dec. 10–14, Jan. 5–17, Jan. 25 to Feb. 14, and Feb. 19–27, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	104	153	101	100	84	260	306	99	155	46	48
2	51	104	171	87	[a] 95	80	404	274	94	130	46	47
3	48	116	151	87	[a] 85	79	379	568	90	114	43	44
4	47	127	149	94	[a] 75	80	318	805	85	106	57	43
5	48	129	167	100	[a] 75	90	288	595	85	136	63	41
6	52	118	167	120	[a]80	102	364	539	92	136	58	39
7	52	109	151	120	[a] 120	104	497	470	89	123	51	38
8	52	104	134	120	[a] 130	94	456	404	84	175	48	37
9	51	97	99	140	100	85	379	318	79	171	47	38
10	48	94	90	140	95	69	297	262	72	155	46	51
11	47	90	90	130	90	84	245	223	69	138	46	63
12	47	82	85	110	90	79	229	214	66	118	44	56
13	54	80	90	95	90	99	238	212	71	101	44	48
14	66	79	95	85	85	199	234	194	79	92	83	51
15	66	77	99	90	82	442	214	237	145	84	318	58
16	66	76	101	100	82	706	207	306	142	77	216	57
17	90	90	132	140	80	669	216	318	118	71	127	94
18	133	108	281	192	80	546	231	281	101	66	94	142
19	198	140	379	446	80	392	227	247	98	68	79	111
20	188	304	318	497	80	354	238	227	153	64	68	92
21	167	300	225	430	75	342	274	198	140	60	62	80
22	151	244	184	342	75	354	304	179	120	57	56	72
23	147	190	167	267	75	438	274	161	113	54	82	66
24	209	171	163	212	70	665	240	151	196	52	109	63
25	216	157	153	180	70	610	220	151	212	66	89	57
26	177	134	138	160	65	497	238	147	198	76	74	54
27	149	127	123	150	75	404	245	132	163	63	68	51
28	138	132	116	140	84	342	236	125	163	57	64	52
29	134	113	109	130	-------	304	324	118	220	54	62	54
30	121	109	104	120	-------	269	366	114	186	50	58	54
31	113	-------	108	110	-------	245	-------	106	-------	47	54	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	216	47	103	1.66	1.91
November	304	76	130	2.10	2.34
December	379	85	151	2.44	2.81
January	497	85	169	2.73	3.15
February	130	65	85.1	1.37	1.43
March	706	69	287	4.63	5.34
April	497	207	288	4.65	5.19
May	805	106	277	4.47	5.15
June	220	66	121	1.95	2.18
July	175	47	94.1	1.52	1.75
August	318	43	77.5	1.25	1.44
September	142	37	60.0	.968	1.08
The year	805	37	154	2.48	33.77

[a] Estimated; gage-height record missing.

INDEPENDENCE RIVER AT SPERRYVILLE, N. Y.

LOCATION.—Staff gage half a mile upstream from highway bridge at Sperryville, Lewis County, and 9½ miles east of Lowville.

DRAINAGE AREA.—86 square miles.

RECORDS AVAILABLE.—December, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,480 second-feet Mar. 16 (gage height, 5.35 feet); minimum, 40 second-feet Sept. 4–9.

1927–1929: Maximum discharge, about 3,700 second-feet Apr. 8, 1928 (gage height, 8.1 feet); minimum, that of Sept. 4–9, 1929.

REMARKS.—Records good except those for periods of ice effect, Nov. 29 to Dec. 1, Dec. 9–16, Dec. 22 to Jan. 18, and Jan. 24 to Mar. 13, and for periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	120	200	a 120	a 95	85	402	410	84	144	43	46
2	76	120	186	95	a 85	80	800	336	78	111	46	43
3	62	137	196	90	a 75	75	658	776	73	90	46	43
4	62	a 147	207	95	70	75	435	1,150	73	78	56	40
5	a 66	a 156	218	110	70	85	402	765	73	148	127	40
6	a 66	a 147	230	150	85	100	790	720	84	172	97	40
7	a 66	147	186	140	120	110	1,240	592	84	144	73	40
8	71	129	111	140	130	100	910	553	78	260	60	40
9	66	111	95	160	a 110	85	720	379	73	239	56	40
10	62	94	90	160	a 100	70	410	295	68	144	49	a 55
11	62	94	90	150	90	85	295	234	64	111	52	73
12	62	88	90	a 130	85	80	257	212	60	90	49	73
13	a 71	81	90	100	80	90	282	257	64	73	49	60
14	a 71	81	95	95	75	176	282	222	64	73	83	64
15	111	81	100	100	75	648	269	427	198	78	534	78
16	94	88	110	110	a 70	1,280	245	720	144	73	498	73
17	129	111	138	130	a 70	1,140	245	592	90	64	245	97
18	253	186	556	160	70	697	257	379	73	56	136	234
19	496	230	823	890	70	540	245	295	64	64	97	162
20	435	653	504	946	70	435	295	269	162	60	73	104
21	281	607	295	655	70	402	379	212	181	56	64	78
22	207	370	a 240	504	70	504	478	181	97	52	56	56
23	186	255	a 190	370	a 65	615	410	162	84	49	56	56
24	354	207	a 170	280	a 60	1,160	322	144	205	49	73	56
25	339	176	a 160	220	55	980	308	153	245	56	78	52
26	242	156	140	a 180	60	830	379	144	212	56	73	49
27	a 207	137	120	160	70	697	295	127	153	52	60	49
28	a 186	147	110	140	80	504	295	111	119	49	52	49
29	166	130	a 100	130	-------	469	461	104	245	46	49	49
30	147	130	a 100	110	-------	370	583	104	191	46	49	52
31	129	-------	a 120	100	-------	309	-------	97	-------	43	49	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	496	62	158	1.84	2.12
November	653	81	177	2.06	2.30
December	823	90	195	2.27	2.62
January	946	90	223	2.59	2.99
February	130	55	79.5	.924	.96
March	1,280	70	415	4.83	5.57
April	1,240	245	445	5.17	5.77
May	1,150	97	359	4.17	4.81
June	245	60	116	1.35	1.51
July	260	43	91.2	1.06	1.22
August	534	43	101	1.17	1.35
September	234	40	66.4	.772	.86
The year	1,280	40	203	2.36	32.08

a Estimated; gage not read.

BEAVER RIVER BELOW STILLWATER DAM, NEAR BEAVER RIVER, N. Y.

LOCATION.—Staff gage 1,000 feet below Stillwater Dam at outlet of Beaver River Flow and 7½ miles west of Beaver River post office, Herkimer County.

DRAINAGE AREA.—178 square miles.

RECORDS AVAILABLE. June, 1924, to September, 1929. Comparable records from station at State dam May, 1908, to May, 1924.

EXTREMES.—Maximum discharge during year, about 1,910 second-feet during flood of May 3–4 (gage height, about 5.7 feet); minimum, 2 second-feet Mar. 19 to Apr. 4.

1924–1929: Maximum discharge, about 3,700 second-feet May 3, 1926 (gage height, about 7.1 feet); minimum, practically zero when gates in dam are closed and no water is spilling.

REMARKS.—Records good. Seasonal distribution of flow almost completely regulated at Stillwater Dam.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	440	421	333	424	635	460	2	1,040	266	217	565	685
2	440	421	410	635	336	245	2	933	137	160	565	685
3	470	421	542	625	11	208	2	1,590	333	93	338	685
4	500	421	542	635	460	421	6	1,860	333	76	430	685
5	500	421	542	635	688	421	9	1,860	333	43	588	627
6	500	421	542	635	635	421	20	1,860	393	177	541	588
7	500	421	542	635	635	402	30	1,780	440	277	500	683
8	500	421	409	635	635	402	376	1,250	380	421	500	255
9	500	421	187	635	635	223	897	825	282	421	500	431
10	500	421	542	635	635	130	977	732	440	421	429	587
11	500	421	542	635	635	421	1,040	606	440	421	279	508
12	500	421	542	529	635	402	953	520	440	421	500	520
13	357	421	542	409	635	402	757	494	440	309	500	520
14	128	421	542	610	635	359	590	480	440	299	500	520
15	480	421	354	610	610	141	542	797	240	467	231	335
16	480	421	181	610	610	4	637	1,260	128	500	180	306
17	480	292	520	610	610	4	685	1,250	440	500	170	421
18	462	144	520	610	610	4	685	1,140	440	500	13	421
19	206	440	478	610	610	2	685	1,040	440	518	368	421
20	11	354	350	635	610	2	592	806	440	471	546	421
21	85	156	350	635	610	2	609	487	440	335	565	421
22	333	12	350	635	610	2	685	384	241	565	659	421
23	333	12	350	635	410	2	685	233	128	565	710	504
24	333	12	251	635	199	2	685	143	432	588	710	542
25	333	12	125	463	610	2	685	143	367	588	532	542
26	333	298	350	120	565	2	1,010	158	263	579	710	542
27	110	520	469	194	526	2	1,040	304	217	524	710	520
28	105	372	610	635	460	2	798	366	217	422	710	454
29	333	105	610	635	------	2	850	366	168	565	710	367
30	333	333	610	635	------	2	977	366	74	565	710	542
31	382	------	513	635	------	2	------	350	------	565	710	------

Month	Observed			Corrected for storage and diversion		Run-off in inches
	Maximum	Minimum	Mean	Mean	Per square mile	
October	500	11	370	304	1.71	1.97
November	520	12	327	377	2.12	2.36
December	610	125	444	407	2.29	2.64
January	635	120	576	559	3.14	3.62
February	688	11	563	222	1.25	1.30
March	460	2	164	834	4.69	5.41
April	1,040	2	584	987	5.54	6.18
May	1,860	143	820	802	4.51	5.20
June	440	74	326	245	1.38	1.54
July	588	43	406	230	1.29	1.49
August	710	13	506	218	1.22	1.41
September	685	255	505	181	1.02	1.14
The year	1,860	2	465	449	2.52	34.26

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

EAST BRANCH OF OSWEGATCHIE RIVER AT CRANBERRY LAKE, N. Y.

LOCATION.—Staff gage 850 feet downstream from dam at outlet of Cranberry Lake, in Cranberry Lake village, St. Lawrence County.

DRAINAGE AREA.—144 square miles.

RECORDS AVAILABLE.—May, 1923, to September, 1929.

EXTREMES.—Maximum daily discharge during year, 1,340 second-feet May 5–8; minimum daily discharge, 160 second-feet Oct. 11–16.

1923–1929: Maximum discharge, 1,590 second-feet May 15–21, 1924; minimum discharge occurs when gates in dam are closed and there is no discharge over spillway.

REMARKS.—Records fair. Flow regulated by operation of gates in Cranberry Lake Dam. Owing to unreliability of gage-height record, daily discharge was computed from record of gate openings and reservoir gage heights.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	350	172	186	238	300	315	1,060	610	255	255	320	350
2	350	172	186	238	300	310	1,060	660	255	255	320	345
3	350	172	186	238	300	310	1,060	960	255	255	320	345
4	310	172	186	238	300	310	1,060	1,140	255	255	320	345
5	285	172	186	238	300	305	1,060	1,340	255	255	320	345
6	248	172	186	238	300	280	1,060	1,340	255	255	320	340
7	224	174	186	238	300	280	1,060	1,340	255	255	320	340
8	224	174	186	238	300	280	1,180	1,340	255	255	320	340
9	224	174	188	238	300	280	1,280	1,320	255	255	320	340
10	180	174	188	238	300	280	1,260	1,300	255	255	320	340
11	160	174	188	238	300	280	1,060	1,000	255	255	320	340
12	160	174	188	238	300	280	830	405	255	255	320	340
13	160	174	188	240	295	280	690	220	255	255	315	335
14	160	174	188	240	295	280	590	202	255	255	315	335
15	160	174	188	255	295	285	590	335	255	255	315	335
16	160	174	188	280	295	285	590	465	255	255	315	335
17	162	174	190	280	295	290	560	620	255	255	315	335
18	164	174	190	280	295	295	500	620	250	255	315	335
19	164	176	192	285	295	295	500	480	250	255	315	335
20	166	178	194	290	295	300	500	410	255	255	315	335
21	166	184	194	295	320	300	500	410	255	255	315	330
22	168	188	196	300	320	305	500	410	255	255	315	330
23	168	188	196	300	315	300	500	410	255	255	315	330
24	168	192	196	300	315	295	435	410	255	295	315	330
25	168	192	198	300	315	360	405	390	255	325	315	330
26	170	196	198	300	315	460	405	335	255	325	325	325
27	170	198	198	300	315	790	405	335	255	325	350	325
28	170	196	198	300	315	1,060	410	335	255	325	350	325
29	170	186	198	300	------	1,060	610	315	255	325	350	320
30	172	186	198	300	------	1,060	610	260	255	325	350	320
31	172	------	206	300	------	1,060	------	255	------	320	350	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	350	160	201	1.40	1.61
November	198	172	179	1.24	1.38
December	206	186	191	1.33	1.53
January	300	238	268	1.86	2.14
February	320	295	303	2.10	2.19
March	1,060	280	413	2.87	3.31
April	1,280	405	744	5.17	5.77
May	1,340	202	644	4.47	5.15
June	255	250	255	1.77	1.98
July	325	255	272	1.89	2.18
August	350	315	323	2.24	2.58
September	350	320	335	2.33	2.60
The year	1,340	160	344	2.39	32.42

NOTE.—Elevation of water surface in Cranberry Lake at end of year was 3.42 feet higher than at beginning of year, corresponding to a gain in storage of 1,048,785,408 cubic feet. This is equivalent to a yearly mean discharge of 33.3 second-feet, 0.231 second-foot per square mile, or 3.14 inches on drainage area.

EAST BRANCH OF OSWEGATCHIE RIVER NEAR OSWEGATCHIE, N. Y.

LOCATION.—Water-stage recorder at Flat Rock hydroelectric plant of Northern New York Utilities, Inc., 2¾ miles north of Oswegatchie, St. Lawrence County..

DRAINAGE AREA.—262 square miles.

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

EXTREMES.—Maximum discharge during year, 3,780 second-feet Apr. 1 (gage height, 6.95 feet); minimum, 18 second-feet Jan. 4 (gage height, 1.03 feet).

1924–1929: Maximum discharge, 4,010 second-feet Apr. 6, 1928 (gage height, 7.1 feet); minimum discharge frequently occurs after complete shutdown of power plant.

REMARKS.—Records excellent. Discharge estimated June 30. Seasonal regulation by storage in Cranberry Lake.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	466	265	422	256	344	408	2,060	811	367	688	429	46
2	592	384	330	484	562	444	2,640	1,240	120	702	356	132
3	521	211	400	590	112	252	1,920	1,620	69	404	341	510
4	483	251	658	400	664	508	1,590	2,340	26	166	150	697
5	467	480	428	416	612	368	1,480	2,010	340	370	382	572
6	271	388	565	111	516	564	1,680	2,130	49	295	542	482
7	70	515	510	444	402	522	1,620	2,100	644	148	612	322
8	524	413	508	588	522	708	1,810	2,100	518	460	466	24
9	703	382	230	508	535	355	1,610	1,900	144	596	460	364
10	582	176	376	576	122	243	1,400	1,740	372	516	280	342
11	366	120	364	414	402	677	1,470	1,650	382	509	196	548
12	254	360	321	550	496	404	1,470	1,980	390	352	431	520
13	150	481	298	287	618	290	1,340	1,010	450	338	488	524
14	174	498	288	396	602	858	1,050	786	50	252	460	559
15	211	474	392	570	252	324	1,120	654	336	550	820	212
16	254	343	212	522	203	920	954	766	132	504	794	658
17	397	214	460	382	112	1,160	936	898	372	358	508	622
18	448	219	1,170	782	450	1,080	1,290	690	373	456	142	616
19	683	476	1,020	2,100	518	972	1,190	836	432	568	425	572
20	452	872	1,020	1,380	546	1,160	1,040	1,050	592	464	477	642
21	150	934	812	1,310	518	1,120	735	854	563	205	433	434
22	505	1,030	745	984	258	1,350	1,220	750	687	482	350	158
23	337	711	242	825	306	1,430	953	800	227	404	450	496
24	312	333	425	725	198	2,200	1,020	807	688	332	270	466
25	420	357	112	714	420	2,030	911	732	772	331	144	540
26	396	334	509	656	560	1,770	767	126	750	312	387	461
27	245	394	398	395	490	1,420	761	893	644	376	638	576
28	141	574	310	464	516	1,540	368	683	736	208	684	314
29	424	180	250	882	-------	1,070	1,070	792	568	308	620	66
30	256	575	151	568	-------	1,220	1,020	364	237	505	371	534
31	340	-------	288	506	-------	1,220	-------	807	-------	540	633	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	703	70	374	1.43	1.65
November	1,030	120	431	1.65	1.84
December	1,170	112	459	1.75	2.02
January	2,100	111	638	2.44	2.81
February	664	112	423	1.61	1.68
March	2,200	243	922	3.52	4.06
April	2,640	368	1,280	4.89	5.46
May	2,340	126	1,160	4.43	5.11
June	778	120	460	1.76	1.96
July	702	148	410	1.56	1.80
August	820	142	443	1.69	1.95
September	697	24	434	1.66	1.85
The year	2,640	24	621	2.37	32.19

OSWEGATCHIE RIVER NEAR HEUVELTON, N. Y.

LOCATION.—Water-stage recorder 2½ miles upstream from Heuvelton, St. Lawrence County.

DRAINAGE AREA.—967 square miles.

RECORDS AVAILABLE.—June, 1916, to September, 1929.

EXTREMES.—Maximum discharge during year, 8,220 second-feet Mar. 27 (gage height, 6.15 feet); minimum, 307 second-feet Sept. 5.

1916–1929: Maximum discharge, 12,400 second-feet Apr. 15, 1926, and Nov. 20, 1927 (gage height, 7.9 feet); minimum, 211 second-feet Sept. 2, 1925 (gage height, 0.67 foot).

REMARKS.—Records excellent except those for period of backwater from eel weir, Aug. 9 to Sept. 12, and for period of estimate, which are fair. Seasonal flow slightly regulated by storage in Cranberry Lake.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	940	904	2,640	962	1,410	1,610	4,830	3,000	1,050	1,400	678	750
2	694	814	3,620	952	1,300	1,580	4,740	3,080	1,170	1,210	779	600
3	702	823	3,220		1,100	1,440	5,210	3,920	954	1,430	745	500
4	832	868	3,220		1,030	1,550	5,400	4,950	686	1,430	636	360
5	832	886	3,380		914	2,560	5,400	5,600	860	1,320	596	340
6	814	924	3,300		980	2,790	5,020	6,000	823	1,480	636	800
7	779	1,000	3,000		1,140	2,510	5,020	6,200	728	1,440	745	950
8	593	1,050	2,720		1,070	2,300	4,830	6,200	877	1,300	1,000	750
9	475	1,090	2,040		933	1,910	4,830	6,000	990	1,090	1,200	550
10	497	1,000	1,790	[a] 1,500	962	1,710	4,740	5,400	859	1,160	1,000	460
11	779	868	1,540		962	1,230	4,380	4,740	719	1,240	700	400
12	877	728	1,670		814	1,160	3,950	4,380	661	1,090	600	500
13	805	644	1,550		711	2,360	4,120	4,380	762	1,010	460	686
14	694	628	1,430		745	3,610	4,200	4,040	762	877	550	814
15	644	809	1,270		779	5,090	3,950	3,380	788	669	800	823
16	719	933	1,190		814	6,690	3,540	3,080	805	669	1,100	850
17	832	868	1,260		823	7,160	3,540	3,080	686.	974	2,000	753
18	1,080	1,100	1,610	[a] 3,000	678	7,450	4,040	3,000	604	1,050	2,200	904
19	1,500	1,540	2,430	5,860	628	7,240	4,560	2,860	581	832	1,900	1,040
20	1,840	2,860	3,220	7,030	711	7,450	4,560	2,720	719	841	1,400	1,140
21	1,910	3,700	3,380	7,450	952	7,450	4,200	2,790	841	942	1,200	1,100
22	1,670	3,860	2,760	7,240	980	7,450	3,700	2,580	938	962	1,100	1,040
23	1,470	3,860	2,650	6,400	933	6,820	3,380	2,370	1,090	805	850	895
24	1,600	3,540	2,290	5,020	779	6,820	3,300	2,170	1,320	796	850	669
25	1,430	3,000	1,710	3,860	612	7,240	2,930	2,100	1,050	788	850	628
26	1,340	2,370	1,660	2,930	573	7,890	3,080	1,980	1,580	678	800	719
27	1,350	1,980	1,460	2,290	804	8,110	3,150	1,680	1,910	604	650	762
28	1,240	1,680	1,620	1,860	1,560	7,890	2,930	1,290	1,700	557	700	753
29	1,030	2,040	1,480	1,630	-------	7,240	2,720	1,560	1,440	550	850	686
30	914	2,240	1,520	1,440	-------	6,610	2,840	1,480	1,460	520	1,000	620
31	933	-------	1,180	1,530	-------	5,600	-------	1,330	-------	490	900	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,910	475	1,030	1.07	1.23
November	3,860	628	1,620	1.68	1.87
December	3,620	1,180	2,190	2.26	2.61
January	7,450	952	2,640	2.73	3.15
February	1,560	573	918	.949	.99
March	8,110	1,160	4,790	4.95	5.71
April	5,400	2,720	4,100	4.24	4.73
May	6,200	1,290	3,460	3.58	4.13
June	1,910	581	980	1.01	1.13
July	1,480	490	974	1.01	1.16
August	2,200	460	951	.983	1.13
September	1,140	340	728	.753	.84
The year	8,110	340	2,040	2.11	28.68

[a] Estimated; gage height records missing.

WEST BRANCH OF OSWEGATCHIE RIVER NEAR HARRISVILLE, N. Y.

LOCATION.—Staff gage at highway bridge half a mile northeast of Geers Corners and 4 miles downstream from Harrisville, Lewis County.

DRAINAGE AREA.—256 square miles.

RECORDS AVAILABLE.—July, 1916, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,940 second-feet Jan. 20 (gage height, 7.3 feet); minimum, 73 second-feet Sept. 6, 7, and 11 (gage height, 1.40 feet).

1916–1929: Maximum discharge, 5,760 second-feet Apr. 26, 1926 (gage height, 8.8 feet); minimum, 27 second-feet several times during August and October, 1923 (gage height, 0.90 foot).

REMARKS.—Records good except those for periods of ice effect Dec. 6–12, 23–25 30, 31, Jan. 8–17, 24, 27, 28, and Mar. 8–10, and period of estimate, Jan. 14, 15, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	305	288	765	345	345	345	1,370	1,100	270	545	160	115
2	227	270	980	345	345	325	1,590	1,100	270	505	170	108
3	202	255	980	345	305	305	2,000	1,440	270	405	180	115
4	170	365	925	305	305	325	1,830	2,000	270	345	150	108
5	150	425	870	270	305	385	1,510	2,450	240	425	202	141
6	150	385	800	445	288	425	1,440	2,180	240	485	270	86
7	160	385	700	625	288	445	1,510	2,000	240	405	240	93
8	124	345	650	550	288	440	1,910	1,830	240	325	214	93
9	160	305	600	460	288	400	1,590	1,510	234	305	227	108
10	160	288	500	500	288	380	1,230	1,300	202	270	170	100
11	170	270	480	500	270	365	1,100	1,040	202	227	150	93
12	202	212	460	460	255	325	980	925	180	240	170	180
13	255	240	425	400	240	445	1,040	925	160	240	160	202
14	325	240	405	380	240	870	1,040	925	191	270	191	202
15	385	191	345	340	191	2,000	980	980	180	445	585	288
16	345	180	385	320	214	3,380	870	1,040	202	425	1,100	270
17	465	255	445	300	214	3,160	870	1,100	227	325	1,230	255
18	625	505	870	870	214	2,950	980	1,100	180	270	980	405
19	815	980	1,670	2,180	191	2,270	1,100	1,100	202	325	625	465
20	870	1,590	1,510	3,600	191	1,830	1,160	980	255	485	425	405
21	815	2,000	1,100	2,850	170	1,670	1,160	870	238	425	270	288
22	765	1,830	815	2,180	170	1,830	1,230	765	270	270	214	202
23	670	1,440	800	1,670	180	2,180	1,230	670	170	227	214	214
24	585	1,160	750	1,400	170	3,160	1,160	545	191	191	270	191
25	585	765	650	1,100	180	3,600	1,100	545	445	214	345	150
26	505	625	585	815	202	3,050	1,040	505	545	191	255	141
27	445	545	465	700	288	2,750	1,040	465	425	170	202	141
28	425	505	425	600	305	2,180	1,040	445	425	191	170	124
29	385	505	425	505	------	1,830	1,100	365	425	191	124	124
30	345	485	400	445	------	1,670	1,100	325	545	191	115	141
31	325	------	380	365	------	1,510	------	305	------	160	108	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	870	124	391	1.53	1.76
November	2,000	180	594	2.32	2.59
December	1,670	345	695	2.71	3.12
January	3,600	270	844	3.30	3.80
February	345	170	248	.969	1.01
March	3,600	305	1,510	5.90	6.80
April	2,000	870	1,240	4.84	5.40
May	2,450	305	1,060	4.14	4.77
June	545	160	276	1.08	1.20
July	545	160	313	1.22	1.41
August	1,230	108	319	1.25	1.44
September	465	86	185	.723	.81
The year	3,600	86	644	2.52	34.11

GRASS RIVER AT PYRITES, N. Y.

LOCATION.—Water-stage recorder 1,000 feet downstream from lower bridge in Pyrites, St. Lawrence County, and half a mile upstream from mouth of Harrison Creek.

DRAINAGE AREA.—334 square miles.

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

EXTREMES.—Maximum discharge during year, 4,960 second-feet Mar. 24 (gage height, 9.6 feet); minimum, 42 second-feet Sept. 8 (gage height, 1.08 feet). 1924–1929: Maximum discharge, about 8,300 second-feet Nov. 18, 1927 (gage height, 13.0 feet); minimum, 40 second-feet Sept. 28, 1924.

REMARKS.—Record during winter months poor; for high stages and days of individual estimate, fair; otherwise good.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	222	267	938				1,360	1,060	295	752	135	127
2	196	269					1,620	1,010	263	781	181	115
3	181	273					1,830	1,550	273	611	197	127
4	169	339					1,650	2,560	280	463	175	120
5	164	413	a 550				1,470	2,310	285	740	226	107
6	178	385					1,620	2,070	298	1,010	263	94
7	202	350			a 320	a 260	2,140	1,950	319	763	263	98
8	205	339					2,190	1,770	322	590	254	96
9	186	310	447				1,880	1,500	292	480	218	110
10	183	277	464	a 320			1,500	1,240	260	425	183	122
11	188	258	409				1,240	1,040	240	347	162	200
12	205	245	409				1,110	1,060	215	285	162	245
13	264	236	389			a 500	1,210	1,140	218	240	155	200
14	358	224	377			a 1,200	1,260	1,040	226	210	162	216
15	373	219	a 360			a 2,200	1,210	1,080	245	254	450	360
16	332	a 224	a 340			2,920	1,140	1,340	312	276	940	319
17	443	a 332	a 400			2,500	1,260	1,470	260	226	743	248
18	730	a 920				2,070	1,620	1,280	220	195	456	310
19	820	a 920				1,890	1,590	1,060	195	180	292	340
20	730	a 1,680	a 700	a 1,900	a 220	a 1,830	1,530	950	336	195	234	263
21	588	a 1,620				a 1,770	1,500	830	590	a 190	195	205
22	464	a 1,270				a 1,890	1,530	712	414	171	166	178
23	413	a 920				a 2,370	1,470	604	289	155	166	169
24	434	a 790				4,240	1,280	a 543	260	155	a 245	149
25	451	700				4,170	1,140	a 502	726	162	a 282	145
26	417	482	a 440	a 600		3,260	1,210	a 475	1,210	190	a 248	141
27	362	426				2,570	1,260	a 446	1,090	205	197	137
28	314	417				2,250	1,140	a 421	694	173	171	143
29	314	515				1,890	1,060	389	571	160	160	145
30	307	456				1,560	1,080	362	644	135	149	151
31	286					1,380		333		115	133	

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	820	164	344	1.03	1.19
November	a 1,680	219	536	1.60	1.78
December		a 340	511	1.53	1.76
January			656	1.96	2.26
February			266	.796	.83
March	4,240		1,470	4.40	5.07
April	2,190	1,060	1,440	4.31	4.81
May	2,560	333	1,100	3.29	3.79
June	1,210	195	395	1.18	1.32
July	1,010	115	349	1.04	1.20
August	940	133	257	.769	.89
September	360	94	179	.536	.60
The year	4,240	94	628	1.88	25.50

a Estimated; gage-height record faulty or missing.

NORTH BRANCH OF GRASS RIVER NEAR SOUTH COLTON, N. Y.

LOCATION.—Staff gage at Gleasons Mill, 4¼ miles southwest of South Colton, St. Lawrence County.

DRAINAGE AREA.—25.8 square miles.

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

EXTREMES.—Maximum discharge during year, 323 second-feet Mar. 24; minimum, 4.5 second-feet several times in July, August, and September (gage height, 0.80 foot).

1924–1929: Maximum discharge, about 700 second-feet Apr. 25, 1926 (gage height, 4.3 feet); minimum, 2.3 second-feet Aug. 20, 1927 (gage height, 0.73 foot).

REMARKS.—Records good except those for periods of ice effect, Nov. 27 to Dec. 3, Dec. 6–15, and Dec. 21 to Mar. 22, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	27	48	44	22	28	138	107	15	79	6.1	5.3
2	16	28	55	44	22	26	147	111	19	55	7.7	5.3
3	13	30	60	42	22	26	151	123	17	39	11	4.5
4	13	47	66	40	20	30	156	135	20	57	13	5.3
5	11	47	73	40	20	34	166	166	28	70	23	5.3
6	24	38	70	60	19	32	175	156	28	107	26	5.3
7	30	39	60	55	24	30	239	149	28	55	28	6.1
8	23	37	50	48	24	24	217	154	27	61	26	6.5
9	19	31	44	40	22	24	206	124	24	40	17	16
10	19	27	40	36	22	22	136	111	16	27	9.6	31
11	20	26	36	36	20	22	106	85	16	19	9.6	44
12	32	22	38	36	18	24	98	106	16	19	9.6	24
13	44	22	40	32	16	44	107	96	9.0	12	11	20
14	66	20	40	30	16	110	98	76	19	12	21	19
15	47	21	32	24	14	200	111	112	19	19	138	26
16	33	20	33	20	14	280	102	142	17	16	111	24
17	66	39	88	20	20	240	104	156	16	8.5	55	28
18	124	118	195	32	17	180	121	114	16	9.0	22	27
19	118	130	175	100	15	130	128	91	16	8.5	17	30
20	80	217	147	260	13	120	140	79	10	9.6	9.6	23
21	55	185	95	160	13	120	142	70	16	8.5	8.5	20
22	47	107	80	100	12	200	156	61	13	9.0	9.6	9.6
23	38	73	55	90	12	287	152	45	12	9.6	7.7	8.5
24	45	58	65	75	12	323	152	37	11	9.6	42	8.5
25	52	51	65	60	12	299	156	39	20	12	47	8.5
26	39	47	65	50	12	287	124	37	76	16	32	9.6
27	33	40	55	44	20	263	118	34	52	13	11	9.6
28	29	38	48	40	30	228	104	32	24	9.6	8.5	11
29	32	36	44	34	-------	175	101	30	61	11	9.6	16
30	31	38	42	30	-------	156	107	21	70	5.3	6.5	13
31	27	-------	40	24	-------	175	-------	17	-------	5.3	5.3	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	124	11	40.1	1.55	1.79
November	217	20	55.3	2.14	2.39
December	195	32	65.9	2.55	2.94
January	260	20	56.3	2.18	2.51
February	30	12	18.0	.698	.73
March	323	22	134	5.19	5.98
April	239	98	139	5.39	6.01
May	166	17	90.8	3.52	4.06
June	76	9.0	24.4	.946	1.06
July	107	5.3	26.8	1.04	1.20
August	138	5.3	24.5	.950	1.10
September	44	4.5	15.7	.609	.68
The year	323	4.5	57.8	2.24	30.45

RAQUETTE RIVER AT PIERCEFIELD, N. Y.

LOCATION.—Water-stage recorder half a mile downstream from dam of International Paper Co. at Piercefield, St. Lawrence County.

DRAINAGE AREA.—723 square miles.

RECORDS AVAILABLE.—August, 1908, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,220 second-feet Apr. 12 (gage height, 10.05 feet); minimum, 93 second-feet Sept. 8 (gage height, 2.19 feet).

1908–1929: Maximum discharge, 7,580 second-feet Apr. 17, 1922 (gage height, 11.8 feet); minimum, about 10 second-feet Sept. 2,1913 (gage height, 0.85 foot).

REMARKS.—Records good except those for period of estimate, Jan. 14 to Feb. 13, which are fair. Seasonal distribution of flow appreciably regulated by natural storage in lakes and ponds in upper drainage basin.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	555	1,070	1,350	1,140		755	4,140	3,150	1,940	1,410	930	391
2	696	1,070	1,080	1,100		840	4,140	3,250	1,560	1,410	952	194
3	677	1,020	1,330	1,070		431	4,260	3,350	1,800	1,410	952	460
4	677	521	1,350	1,040		718	4,260	3,460	1,660	1,240	464	521
5	632	913	1,300	1,020		818	4,140	3,460	1,620	1,510	730	537
6	585	1,070	1,270	676		797	4,260	3,900	1,530	1,500	930	537
7	312	1,040	1,270	1,000	>1,300	756	4,260	4,140	1,470	1,270	782	559
8	598	1,070	1,220	1,040		660	4,760	4,260	1,380	1,490	680	256
9	558	952	918	1,040		755	4,890	4,380	1,080	1,440	707	331
10	474	998	1,170	1,020		441	5,020	4,380	1,400	1,380	787	415
11	490	497	1,170	1,020		721	5,150	4,380	1,300	1,350	462	459
12	474	794	1,140	1,040		776	5,150	4,020	1,200	1,300	680	430
13	490	1,040	1,120	653		776	5,150	4,140	1,140	1,300	755	430
14	307	930	1,120		1,170	797	4,890	3,900	1,120	1,020	658	430
15	447	862	1,100		1,170	953	4,890	3,790	1,100	1,280	622	283
16	570	772	852		1,140	1,100	4,630	3,680	699	1,300	622	403
17	570	797	952		630	990	4,380	3,680	1,070	1,240	811	490
18	570	414	1,070		969	1,550	4,140	3,570	1,020	1,220	483	474
19	670	745	1,140		1,120	1,720	3,900	3,350	952	1,140	704	474
20	755	975	1,200		1,040	1,900	3,790	3,570	827	1,200	722	490
21	509	1,070	1,220		998	2,140	3,570	3,350	747	910	604	622
22	1,040	1,120	1,240	>1,400	952	2,310	3,570	3,250	848	1,150	622	321
23	1,100	1,200	944		952	2,670	3,350	3,150	456	1,140	658	501
24	1,120	1,270	998		480	2,950	3,250	3,050	770	1,120	764	640
25	1,100	1,040	1,020		767	3,460	3,250	2,850	952	1,070	414	622
26	1,070	1,390	1,290		913	3,790	3,150	2,580	1,120	1,040	415	570
27	1,120	1,380	1,270		797	4,020	3,150	2,670	1,220	1,070	537	587
28	661	1,380	1,220		776	4,140	2,950	2,490	1,300	560	521	587
29	1,050	1,350	1,200		-------	4,260	3,150	2,400	1,270	865	521	339
30	1,070	1,350	898		-------	4,260	3,150	2,220	1,230	930	521	468
31	1,100	-------	1,140		-------	3,900	-------	2,060	-------	952	583	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,120	307	711	0.983	1.13
November	1,390	414	1,000	1.38	1.54
December	1,350	852	1,150	1.59	1.83
January	-------	-------	1,230	1.70	1.96
February	-------	480	1,100	1.52	1.58
March	4,260	431	1,810	2.50	2.88
April	5,150	2,950	4,090	5.66	6.32
May	4,380	2,060	3,420	4.73	5.45
June	1,940	456	1,190	1.65	1.84
July	1,510	560	1,200	1.66	1.91
August	952	414	664	.918	1.06
September	640	194	461	.638	.71
The year	5,150	194	1,500	2.07	28.21

ST. REGIS RIVER AT BRASHER CENTER, N. Y.

LOCATION.—Water-stage recorder 600 feet above highway bridge at Brasher Center, St. Lawrence County, and 6½ miles below junction of East and West Branches at Winthrop.

DRAINAGE AREA.—616 square miles.

RECORDS AVAILABLE.—August, 1910, to November, 1917; January, 1919, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,820 second-feet Mar. 15; maximum gage height, 10.2 feet Mar. 20; minimum discharge, 179 second-feet Sept. 6 (gage height, 5.79 feet).

1910–1929: Maximum discharge, about 16,200 second-feet Mar. 27, 1914 (gage height, 9.1 feet, old datum); minimum, about 34 second-feet Aug. 8, 1917 (gage height, 5.25 feet).

REMARKS.—Records good except those for periods of ice effect, Nov. 26–28, Dec. 5–11, 21–24, Dec. 29 to Mar. 12, and Mar. 19–22, and for periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	468	660	1,290	800	a 850	a 600	2,770	1,970	744	1,230	324	289
2	477	630	1,180	850	850	a 550	3,480	2,400	692	1,180	532	296
3	443	640	1,200	800	800	a 550	3,760	4,200	600	1,100	468	262
4	401	734	1,200	750	800	a 650	3,210	3,770	620	1,100	296	255
5	376	881	1,200	700	750	a 750	2,860	3,210	712	1,180	398	236
6	401	936	1,100	1,300	750	a 700	3,450	3,300	630	1,310	488	201
7	376	936	1,100	900	700	a 650	4,580	3,300	765	1,260	548	302
8	401	786	1,000	750	750	a 600	4,580	3,390	786	1,080	572	269
9	401	796	850	700	750	a 550	4,060	3,030	754	947	520	236
10	426	754	800	650	700	a 500	3,390	2,680	670	936	339	339
11	443	a 630	750	700	650	a 480	2,770	2,190	610	860	369	302
12	486	a 590	681	700	600	500	2,680	2,010	551	712	362	486
13	630	723	754	650	550	3,000	3,030	2,190	650	620	316	434
14	650	505	744	a 650	500	3,030	3,030	1,970	660	580	269	460
15	765	496	702	a 550	500	4,730	2,770	2,270	881	477	1,180	477
16	776	460	670	a 500	500	4,260	2,430	2,520	1,240	560	1,540	532
17	1,040	642	786	a 480	500	3,210	2,770	2,680	1,270	426	1,100	460
18	1,870	1,580	1,660	a 1,400	500	2,940	3,300	2,350	968	551	828	401
19	2,080	1,920	2,270	4,800	480	2,800	2,680	1,950	776	514	620	570
20	1,800	3,030	2,010	3,000	460	2,800	2,600	1,920	969	477	426	600
21	1,480	2,680	1,700	2,400	440	2,800	2,860	1,720	1,090	468	376	409
22	1,140	2,190	1,400	2,200	420	3,200	3,120	1,640	925	369	384	418
23	992	1,820	1,200	2,000	a 420	a 4,200	3,210	1,510	744	376	324	269
24	980	1,510	1,000	1,800	a 400	a 5,000	3,030	1,430	734	354	434	316
25	958	1,330	969	1,600	a 400	a 4,400	2,600	1,270	838	324	316	376
26	914	1,000	947	1,400	a 420	a 4,000	2,770	1,220	1,360	332	346	316
27	870	1,000	1,000	1,300	a 550	a 3,600	2,600	1,160	1,480	369	369	316
28	807	950	870	a 1,200	a 650	a 3,200	2,350	958	1,330	302	316	316
29	734	1,140	850	a 1,000	-------	a 3,000	2,190	936	1,300	369	269	324
30	744	1,410	800	a 1,000	-------	2,860	2,110	914	1,130	269	262	262
31	702	-------	800	a 900	-------	2,680	-------	860	-------	276	282	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,080	376	807	1.31	1.51
November	3,030	460	1,110	1.80	2.01
December	2,270	670	1,080	1.75	2.02
January	4,800	a 480	1,240	2.01	2.32
February	a 850	a 400	594	.964	1.00
March	a 5,000	a 480	2,350	3.81	4.39
April	4,580	2,110	3,030	4.92	5.49
May	4,200	860	2,160	3.51	4.05
June	1,480	551	883	1.43	1.60
July	1,310	269	674	1.09	1.26
August	1,540	262	489	.794	.92
September	600	201	358	.581	.65
The year	a 5,000	201	1,240	2.01	27.22

a Estimated; imperfect gage-height record.

SALMON RIVER AT CHASM FALLS, N. Y.

LOCATION.—Water-stage recorder at Chasm Falls, Franklin County, a quarter of a mile downstream from power plant of Malone Light & Power Co.

DRAINAGE AREA.—131 square miles.

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

EXTREMES.—Maximum discharge during year, 1,180 second-feet Apr. 7 (gage height, 3.35 feet); minimum, about 21 second-feet Sept. 22 (gage height, 0.63 foot).

1925–1929: Maximum discharge, 2,890 second-feet Apr. 25, 1926 (gage height, 5.0 feet); minimum, that of Sept. 22, 1929.

REMARKS.—Records good except those for periods of estimate, which are fair. Small diversion from tributary stream above gage is used as water supply for village of Malone.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		186	228	165	200	136	450	355	179	311	124	105
2		186	225	186	173	139	636	355	182	268	138	120
3		192	203	152	180	[a] 146	550	519	185	241	127	116
4	[a] 165	218	209	157	180	[a] 152	460	714	188	234	186	144
5		206	209	155	155	162	490	642	182	285	206	142
6		198	192	[a] 198	155	165	783	702	200	251	179	138
7	165	237	192	[a] 251	150	160	1,140	666	200	222	162	140
8	171	161	180	222	152	139	990	654	191	222	139	73
9	163	144	149	180	150	146	824	530	176	206	124	126
10	175	139	186	173	[a] 157	132	621	436	174	185	120	144
11	183	84	174	175	169	155	468	368	157	174	139	155
12	215	146	170	167	146	157	436	418	149	157	145	93
13	259	139	165	143	141	266	436	440	154	144	137	131
14	275	126	165	171	141	427	400	360	221	152	142	164
15	216	122	150	159	126	774	364	454	418	150	178	106
16	195	125	170	141	141	920	343	505	284	136	161	132
17	325	176	204	161	134	759	339	510	212	121	142	138
18	475	338	492	312	160	589	343	418	185	127	109	154
19	440	341	470	767	141	535	347	396	179	134	140	132
20	314	590	335	642	136	678	391	409	258	129	131	124
21	278	528	242	485	119	606	460	347	238	122	125	137
22	264	382	218	414	150	772	475	293	203	134	101	84
23	244	315	244	391	132	818	515	251	182	112	93	128
24	247	296	228	335	115	1,060	480	258	309	99	127	133
25	241	271	234	339	141	955	520	268	956	104	122	140
26	222	226	209	311	130	844	594	254	894	127	138	140
27	206	218	186	[a] 308	136	733	600	241	536	120	126	139
28	212	212	186	[a] 289	139	578	510	225	368	113	124	139
29	215	228	183	251	-------	480	455	215	351	114	136	78
30	192	180	145	225	-------	427	418	206	315	129	132	129
31	186	-------	165	209	-------	422	-------	194	-------	114	132	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	475	----------	228	1.74	2.01
November	590	84	230	1.76	1.96
December	492	145	216	1.65	1.90
January	767	141	266	2.03	2.34
February	200	115	148	1.13	1.18
March	1,060	132	466	3.56	4.10
April	1,140	339	528	4.03	4.50
May	714	194	407	3.11	3.58
June	956	149	281	2.15	2.40
July	311	99	166	1.27	1.46
August	206	93	138	1.05	1.21
September	164	73	127	.969	1.08
The year	1,140	73	267	2.04	27.72

[a] Estimated; imperfect gage-height record.

CHATEAUGAY RIVER NEAR CHATEAUGAY, N. Y.

LOCATION.—Water-stage recorder 150 feet downstream from dam of High Falls Pulp & Paper Co., 1 mile south of Chateaugay, Franklin County.

DRAINAGE AREA.—114 square miles.

RECORDS AVAILABLE.—September to December, 1908; October, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 870 second-feet Mar. 22 (gage height, 5.0 feet); minimum, 6 second-feet Nov. 20 (gage height, 0.23 foot).

1926–1929: Maximum discharge, 2,060 second-feet Apr. 8, 1928 (gage height, 7.3 feet); minimum, that of Nov. 20, 1928.

REMARKS.—Records fair. Flow regulated by storage in Upper and Lower Chateaugay Lakes.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	103	120	119	429	166	560		23?	223	108	
2	103	109	116	111	457	160	545	a 350	98	202	106	
3	99	107	116	117	452	160	545		12?	194	101	
4	94	88	117	147	467	184	530	a 341	129	197	102	
5	98	112	111	151	542	195	530	400	112	188	99	a 120
6	100	109	108	152	525	178	456	472	111		97	
7	84	111	110	120	232	172	295	530	12?		96	
8	86	112	108	143	174	196		500	106		91	
9	97	a 111	a 105	148	164	207		500	11?		94	126
10	94	a 107	a 103	133	172	225	a 300	470	10?	a 150	100	
11	92	104	79	127	217	236		455	117		94	
12	89	108	38	137	234	193		440	11?		100	
13	106	107	72	111	245	348	a 317	394	12?		94	
14	98	104	69	129	274	405	306	365	125	124	96	
15	96	104	104	164	185	502	306	390	117	116	105	
16	99	103	100	166	158	433	295	390	10?	115	90	
17	122	128	127	146	155	353	466	378	11?	113	98	a 115
18	118	79	151	295	155	368	672	365	10?	110	99	
19	108	70	116	239	188	578	672	365	126	112	95	
20	101	28	112	134	197	725	708	365	15?	114	88	
21	a 98	81	105	150	194	708	690	353	12?	116		
22	100	78	127	188	187	778	708	341	12?	110	a 85	
23	100	80	129	193	173	712	528	341	a 114	112		
24	104	69	131	188	179	317	341	341	12?	105		
25	97	116	102	213	178	477	340	329	164	114	91	
26	98	106	112	193	176	638	345	329	188	107	99	118
27	100	104	111	233	172	620		306	20?	105	97	121
28	104	117	112	265	166	605	a 350	273	24?	109	99	123
29	103	116	104	296	-------	590		259	21?	105	97	122
30	104	116	94	419	-------	575		238	225	110	96	115
31	109	-------	116	424	-------	560	-------	236	-------	107	a 95	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	122	84	100	0.877	1.01
November	128	28	99.6	.874	.98
December	151	68	108	.947	1.09
January	424	111	186	1.63	1.88
February	542	155	252	2.21	2.30
March	778	160	405	3.55	4.09
April	708	295	435	3.82	4.26
May	530	236	371	3.25	3.75
June	242	98	140	1.23	1.37
July	223	105	136	1.19	1.37
August	108	----------	95.7	.839	.97
September	126	----------	118	1.04	1.16
The year	778	28	203	1.78	24.23

a Estimated; gage-height record incomplete or missing.

RICHELIEU RIVER AT ROUSES POINT, N. Y.

LOCATION.—Staff gage at Rutland Railroad bridge in Rouses Point, Clinton County, 1 mile south of Fort Montgomery. Zero of gage is 92.50 feet above mean sea level.

DRAINAGE AREA.—7,870 square miles.

RECORDS AVAILABLE.—1875 to September, 1929.

EXTREMES.—Maximum elevation during year, 99.80 feet May 10; minimum, 93.30 feet Oct. 13 and Sept. 26.

1869–1929: Maximum elevation known, 103.28 feet April, 1869 (Water-Supply Paper 97, p. 340); minimum, 91.9 feet Nov. 13, 1908.

REMARKS.—Gage heights observed under direction of Corps of Engineers, United States Army, and reported monthly to United States Geological Survey.

Daily gage height, in feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.18	1.43	1.70	1.70	1.72	1.48	5.40	6.62	5.30	3.95	2.38	1.25
2	1.35	1.42	1.80	1.60	1.65	1.48	4.95	6.57	5.25	3.83	2.27	1.32
3	1.17	1.52	1.83	1.58	1.60	1.45	5.10	6.80	5.10	3.85	2.40	1.30
4	1.18	1.45	1.88	1.52	1.57	1.45	5.15	6.93	5.00	4.00	2.20	1.18
5	1.45	1.47	2.05	1.45	1.60	1.40	5.00	6.90	4.97	3.75	2.12	1.18
6	1.07	1.70	1.80	1.55	1.65	1.47	5.35	7.10	4.85	3.78	2.07	1.35
7	.98	1.30	2.00	1.68	1.70	1.57	5.37	7.15	4.73	3.75	2.00	1.08
8	1.08	1.35	1.67	1.55	1.70	1.60	5.58	7.17	4.65	3.63	2.07	1.10
9	1.40	1.32	1.65	1.52	1.68	1.60	5.75	7.27	4.55	3.60	2.03	1.13
10	.82	1.38	1.60	1.65	1.65	1.58	5.75	7.30	4.48	3.55	2.05	1.32
11	1.20	1.37	1.68	1.65	1.63	1.58	5.92	7.22	4.47	3.45	2.05	1.07
12	1.00	1.37	1.73	1.58	1.65	1.57	6.15	6.93	4.32	3.38	1.83	1.25
13	.80	1.38	1.72	1.57	1.65	1.57	5.90	6.80	4.15	3.47	1.85	1.28
14	1.03	1.60	1.68	1.55	1.65	1.80	5.90	7.10	4.12	3.05	2.25	1.16
15	1.30	1.35	1.78	1.53	1.65	2.15	5.93	6.85	4.08	3.23	1.90	1.10
16	1.12	1.30	1.67	1.52	1.63	2.58	5.85	7.20	4.00	3.18	1.77	1.40
17	1.15	1.28	1.70	1.52	1.60	3.05	5.80	6.95	3.95	3.18	2.00	1.42
18	1.23	1.42	1.50	1.50	1.58	3.35	6.15	6.80	3.82	3.07	1.78	1.28
19	1.40	1.40	2.10	1.48	1.55	3.55	6.17	6.50	3.75	2.95	1.60	.98
20	1.53	1.47	1.90	1.85	1.55	3.62	6.28	6.63	3.70	2.98	1.58	.97
21	1.57	1.83	1.88	1.90	1.57	3.75	6.27	6.55	3.65	3.02	1.60	.97
22	2.00	1.85	1.85	1.90	1.57	3.98	6.30	6.45	3.62	2.95	1.65	1.05
23	2.10	1.87	1.87	1.85	1.53	4.20	6.32	6.48	3.80	2.93	1.70	1.07
24	1.55	2.05	2.00	1.90	1.48	4.35	6.38	6.50	3.80	2.80	1.48	.97
25	1.55	1.60	1.85	1.97	1.45	4.80	6.35	6.12	3.97	2.75	1.55	1.08
26	1.50	1.85	1.85	1.90	1.50	4.77	6.37	6.08	3.88	2.70	1.68	.80
27	1.62	1.73	1.90	1.90	1.47	4.87	6.57	6.00	3.90	2.82	1.45	.83
28	1.58	2.18	1.75	1.80	1.45	4.90	6.70	5.87	4.10	2.77	1.38	1.05
29	1.48	1.83	1.72	1.80	-------	4.95	6.55	5.75	3.78	2.57	1.32	.85
30	1.55	1.85	1.75	1.78	-------	5.15	6.60	5.68	4.05	2.45	1.30	.85
31	1.85	-------	1.72	1.78	-------	4.90	-------	5.50	-------	2.43	1.42	-------

LAKE CHAMPLAIN AT BURLINGTON, VT.

LOCATION.—Staff gage on south side of wharf of Champlain Transportation Co., at foot of King Street, Burlington, Chittenden County. Zero of gage is about 92.5 feet above mean sea level.

RECORDS AVAILABLE.—May, 1907, to September, 1929.

EXTREMES.—Maximum gage height recorded during year, 7.62 feet May 9; minimum, 0.94 foot Sept. 30.

1907–1929: Maximum gage height recorded, 8.22 feet Apr. 19, 1922; minimum, −0.25 foot Dec. 4, 1908.

REMARKS.—Gage-height record furnished by D. A. Loomis, general manager, Champlain Transportation Co.

Daily gage height, in feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.50	1.83	2.24				5.30		5.83	4.22		
2				1.98	2.14	1.80	5.40			4.24		1.28
3	1.43	1.82	2.20				5.45		5.48	4.20	2.30	1.26
4						1.74	5.50	7.15	5.36	4.14		
5			2.15		2.08	1.75	5.50					1.22
6	1.38				2.04	1.80	5.50	7.42	5.16	4.03	2.12	
7		1.74				1.88		7.56	5.15			1.16
8	1.38	1.80	2.20		2.10		5.92	7.60			2.02	
9					2.10		6.10	7.62	4.94	3.90	2.02	1.16
10	1.30	1.74	2.14				6.25	7.56	4.90	3.84		1.14
11	1.28		2.10				6.30	7.50	4.70			
12	1.26	1.74	2.08		2.06		6.25				1.94	1.14
13		1.72	2.04				6.25	7.30			1.90	1.08
14					2.03			7.18	4.46			1.12
15	1.38		2.04				6.25	7.14	4.40	3.55	1.84	
16		1.72			1.96		6.22					1.16
17	1.44	1.72	1.96	1.76			6.40	7.16	4.2[illegible]	3.35	1.76	1.12
18	1.52			1.85	1.90	3.70	6.45	7.10	4.17			
19	1.67	1.80		2.00			6.55				1.72	1.10
20	1.82	1.96	2.16		1.88		6.62	7.00	4.0[illegible]	3.25	1.70	1.12
21		2.10		2.28	1.89			6.93	3.9[illegible]			
22	1.88	2.20	2.15	2.32			6.70	6.87		3.20		
23	1.92	2.25			1.89		6.70	6.73		3.18		1.02
24			2.15	2.32			6.70	6.60			1.58	1.00
25				2.28	1.84		6.65	6.50*	4.0[illegible]	3.10		.98
26		2.28	2.14	2.26	1.84		6.70		4.18		1.52	
27	1.98						6.88	6.35	4.22	3.00		.98
28			2.08		1.82			6.20	4.15			.96
29	1.92		2.08					6.08	4.18			
30	1.88	2.20						5.98			1.42	.94
31	1.83		2.04	2.17				5.88		2.44		

NOTE.—Gage not checked with level between Aug. 28, 1912, and July 29, 1929. At latter date gage was reading 0.32 foot too high and was reset. Observed gage heights have not been corrected.

GREAT CHAZY RIVER AT PERRY MILLS, N. Y.

LOCATION.—Water-stage recorder 500 feet above highway bridge at Perry Mills, Clinton County.
DRAINAGE AREA.—243 square miles.
RECORDS AVAILABLE.—September, 1928, to September, 1929.
EXTREMES.—Maximum discharge during period, 5,810 second-feet Mar. 16; maximum gage height, 11.2 feet Mar. 15; minimum discharge, 4.6 second-feet Sept. 7, 1929 (gage height, 1.61 feet).
REMARKS.—Records good except those for periods of ice effect, Nov. 27–30, Dec. 8–15, Dec. 22 to Jan. 19, and Jan. 23 to Mar. 15, which are fair. Diurnal fluctuation during low stages caused by operation of sawmill near by.

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

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	70	203	297	160	170	140	574	510	189	274	58	25
2	-------	58	192	313	170	160	150	1,080	580	187	237	68	16
3	-------	66	208	297	170	160	160	765	1,520	217	195	72	28
4	-------	71	203	290	160	150	200	620	1,590	223	181	78	24
5	-------	89	211	341	150	150	260	598	1,200	203	195	93	20
6	-------	98	208	411	160	150	220	1,320	1,740	148	195	91	28
7	-------	114	226	377	280	160	180	1,840	1,090	156	171	78	18
8	-------	130	237	320	200	170	160	1,300	1,080	174	148	68	12
9	-------	132	226	300	170	160	150	1,240	740	153	141	75	24
10	-------	130	214	280	160	150	140	715	575	139	136	60	22
11	-------	136	203	260	160	150	140	530	446	119	112	59	25
12	-------	151	203	240	160	140	150	612	442	112	116	60	34
13	-------	180	195	240	150	140	500	865	482	127	108	69	31
14	-------	223	192	240	130	140	1,800	815	392	230	110	66	27
15	56	176	189	260	120	140	4,200	624	727	845	104	62	24
16	59	156	187	284	110	130	5,590	534	892	448	108	62	36
17	84	207	210	337	140	130	4,050	773	823	265	99	55	31
18	68	374	528	800	650	140	2,590	1,260	566	179	102	48	28
19	42	462	640	704	2,000	150	2,020	1,450	518	153	104	49	30
20	40	298	1,400	423	1,140	140	2,410	1,390	665	192	108	52	27
21	40	223	737	359	430	140	1,700	1,380	522	303	104	46	26
22	50	214	478	300	314	130	1,760	1,160	430	208	95	52	22
23	48	203	403	280	260	120	1,660	1,340	362	171	82	57	24
24	48	206	359	260	240	120	1,450	1,130	320	214	90	84	33
25	46	211	351	260	220	110	805	1,420	323	647	72	78	27
26	45	208	284	240	220	110	1,030	1,710	300	614	72	60	21
27	24	211	260	240	200	120	785	1,360	268	384	70	52	22
28	34	203	260	220	190	140	638	840	256	320	64	40	21
29	27	226	260	190	180	-------	534	765	231	240	63	30	19
30	70	220	280	160	180	-------	539	665	217	252	64	25	22
31	-------	214	-------	160	170	-------	510	-------	200	-------	57	30	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1928					
September 15–30	84	24	48.8	0.201	0.12
1928-29					
October	462	58	183	.753	.87
November	1,400	187	325	1.34	1.50
December	800	160	312	1.28	1.48
January	2,000	110	295	1.21	1.40
February	170	110	142	.584	.61
March	5,590	140	1,180	4.86	5.60
April	1,840	530	1,020	4.20	4.69
May	1,740	200	645	2.65	3.06
June	845	112	260	1.07	1.19
July	274	57	122	.502	.58
August	93	25	60.5	.249	.29
September	36	12	24.9	.102	.11
The year	5,590	12	383	1.58	21.38

LOWER SARANAC LAKE NEAR SARANAC LAKE, N. Y.

LOCATION.—Staff gage on dock at Crescent Bay Camps, 2 miles southwest of Saranac Lake, Franklin County.

DRAINAGE AREA.—158 square miles above State dam at lake outlet.

RECORDS AVAILABLE.—September, 1928, to October, 1929, when station was discontinued.

EXTREMES.—Maximum gage height during period, 5.20 feet May 8–9, 1929; minimum, 3.46 feet Sept. 6–7, 1929.

REMARKS.—A State dam and lock at outlet of lake provide for slight regulation. Crest of spillway is at about 3.03 feet, gage datum.

Daily gage height, in feet, 1928–29

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
1	------	3.81	4.01	4.15	4.21	4.20	3.99	4.70	4.87	4.26	4.69	3.84	3.58	3.54
2	------	3.83	4.00	4.13	4.21	4.20	3.98	4.70	4.95	4.23	4.66	3.84	3.56	3.56
3	------	3.83	4.01	4.11	4.21	4.20	3.98	4.70	5.01	4.20	4.61	3.91	3.54	3.59
4	------	3.83	4.00	4.09	4.21	4.20	3.97	4.70	5.10	4.17	4.57	3.94	3.47	3.63
5	------	3.85	3.97	4.07	4.21	4.17	3.97	4.76	5.13	4.17	4.49	3.91	3.47	3.65
6	------	3.85	3.95	4.05	4.23	4.17	3.97	4.82	5.15	4.15	4.47	3.91	3.46	3.65
7	------	3.83	3.95	4.05	4.23	4.15	3.97	4.87	5.17	4.12	4.45	3.90	3.46	3.67
8	------	3.83	3.93	4.02	4.25	4.15	3.99	4.91	5.20	4.10	4.41	3.90	3.48	3.67
9	------	3.75	3.91	4.03	4.25	4.15	3.99	4.94	5.20	4.05	4.32	3.90	3.48	3.67
10	------	3.75	3.90	4.03	4.25	4.13	4.00	4.96	5.17	4.05	4.25	3.88	3.50	3.69
11	------	3.75	3.90	4.03	4.25	4.13	4.00	4.96	5.11	4.03	4.22	3.86	3.50	3.69
12	------	3.75	3.89	4.03	4.25	4.11	4.00	4.94	5.07	3.99	4.22	3.84	3.50	3.69
13	------	3.75	3.85	4.03	4.25	4.11	4.01	4.91	5.03	3.96	4.22	3.82	3.53	3.69
14	------	3.75	3.83	4.03	4.25	4.11	4.01	4.91	4.90	3.92	4.20	3.80	3.53	3.69
15	------	3.75	3.80	4.03	4.25	4.11	4.03	4.89	4.87	3.90	4.20	3.80	3.54	3.71
16	------	3.75	3.77	4.03	4.23	4.09	4.03	4.89	4.83	3.90	4.14	3.81	3.56	3.71
17	------	3.81	3.75	4.03	4.23	4.07	4.03	4.87	4.81	3.90	4.11	3.81	3.57	3.71
18	------	3.93	3.79	4.03	4.23	4.07	4.03	4.87	4.79	3.90	4.11	3.81	3.56	3.73
19	------	3.97	3.87	4.03	4.23	4.05	4.03	4.85	4.77	3.90	4.09	3.80	3.56	------
20	------	4.01	4.21	4.03	4.25	4.05	4.05	4.85	4.73	4.06	4.14	3.78	3.56	------
21	------	4.03	4.23	4.03	4.25	4.03	4.03	4.85	4.70	4.15	4.11	3.78	3.54	------
22	3.93	4.03	4.23	4.03	4.25	4.03	4.03	4.83	4.67	4.03	4.08	3.76	3.54	------
23	3.93	4.03	4.23	4.07	4.25	4.03	4.07	4.83	4.62	4.05	4.03	3.75	3.54	------
24	3.90	4.05	4.23	4.09	4.25	4.01	4.19	4.81	4.59	4.60	4.00	3.75	3.54	------
25	3.87	4.07	4.23	4.12	4.25	4.00	4.45	4.80	4.51	4.65	3.96	3.72	3.54	------
26	3.84	4.07	4.20	4.17	4.25	4.00	4.65	4.77	4.47	4.65	3.92	3.70	3.53	------
27	3.81	4.07	4.20	4.21	4.25	4.00	4.67	4.77	4.45	4.62	3.89	3.68	3.53	------
28	3.81	4.05	4.20	4.21	4.23	3.99	4.67	4.77	4.45	4.63	3.87	3.68	3.53	------
29	3.81	4.05	4.18	4.21	4.23	------	4.69	4.77	4.43	4.65	3.85	3.65	3.54	------
30	3.81	4.03	4.18	4.21	4.20	------	4.69	4.79	4.39	4.66	3.85	3.62	3.54	------
31	------	4.03	------	4.21	4.20	------	4.70	------	4.31	------	3.85	3.60	------	------

SARANAC RIVER NEAR PLATTSBURG, N. Y.

LOCATION.—Water-stage recorder at Indian Rapids power plant of Associated Gas & Electric System, 4½ miles above mouth of river at Plattsburg, Clinton County.

DRAINAGE AREA.—607 square miles.

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

EXTREMES.—Maximum daily discharge during year, 3,800 second-feet Apr. 7; minimum, 360 second-feet Oct. 1 and Aug. 10.

1903–1929: Maximum daily discharge, 8,600 second-feet Apr. 8, 1928; minimum, 15 second-feet Aug. 4, 1908.

REMARKS.—Records poor to fair. Discharge ascertained by adding to flow over spillway the quantity of water passing through gates and power plant. Flow partly regulated by storage in Lower Saranac Lake and elsewhere.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	360	640	650	610	620	560	2,140	1,760	750	1,220	620	420
2	450	580	560	580	580	560	2,900	1,840	610	1,180	560	435
3	450	570	600	440	570	610	2,440	2,650	760	1,080	510	465
4	485	490	660	650	600	660	2,140	3,000	610	990	570	460
5	500	560	650	490	560	760	2,140	2,700	570	1,240	600	460
6	540	560	650	540	550	800	3,150	3,150	660	1,140	570	445
7	530	630	670	540	580	780	3,800	2,900	670	980	530	500
8	560	670	670	580	640	650	3,200	2,900	660	1,000	520	415
9	610	640	480	630	650	650	2,950	2,550	480	930	485	425
10	590	600	560	630	600	660	2,550	2,260	630	840	360	450
11	600	670	710	620	600	750	2,220	1,980	570	760	465	520
12	640	400	700	580	610	790	2,180	1,880	540	740	510	480
13	600	540	690	560	560	1,520	2,300	1,960	540	770	420	455
14	710	560	650	540	580	1,420	2,180	1,760	580	550	425	495
15	550	660	720	530	640	2,500	2,120	2,060	760	690	550	450
16	560	610	650	590	650	3,000	2,120	2,160	760	620	495	475
17	600	610	690	600	580	1,860	2,280	1,940	485	610	510	485
18	870	790	1,200	1,080	620	1,740	2,340	1,760	630	590	420	480
19	760	990	970	2,550	620	2,000	2,140	1,600	580	620	435	465
20	620	1,780	820	1,640	610	2,300	2,000	1,720	980	600	470	465
21	475	1,240	650	680	590	2,700	2,300	1,520	880	435	510	470
22	530	1,140	560	730	610	3,000	2,320	1,400	610	630	510	440
23	610	1,020	650	810	590	2,900	2,360	1,260	465	540	520	485
24	700	920	650	860	480	3,250	2,240	1,180	800	490	465	475
25	720	760	680	860	560	2,850	2,280	1,100	2,200	560	440	470
26	670	750	580	900	600	3,150	2,700	1,020	1,980	570	465	475
27	650	680	580	640	560	2,850	2,650	950	1,500	560	470	500
28	495	720	640	600	590	2,600	2,220	970	800	465	455	475
29	640	760	650	590	-------	2,240	2,180	880	1,420	530	470	465
30	630	700	510	600	-------	2,000	1,940	820	1,300	520	480	475
31	590	-------	590	670	-------	1,880	-------	850	-------	480	480	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	870	360	590	0.972	1.12
November	1,780	400	741	1.22	1.36
December	1,200	480	667	1.10	1.27
January	2,550	440	739	1.22	1.41
February	650	480	593	.977	1.02
March	3,250	560	1,740	2.87	3.31
April	3,800	1,940	2,420	3.99	4.45
May	3,150	820	1,820	3.00	3.46
June	2,200	465	826	1.36	1.52
July	1,240	435	740	1.22	1.41
August	620	360	493	.812	.94
September	520	415	466	.768	.86
The year	3,800	360	988	1.63	22.13

WEST BRANCH OF AUSABLE RIVER NEAR NEWMAN, N. Y.

LOCATION.—Water-stage recorder 4 miles northeast of Newman, Essex County, and 5 miles below Lake Placid outlet.

DRAINAGE AREA.—116 square miles.

RECORDS AVAILABLE.—June, 1916, to December, 1917; July, 1919, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,940 second-feet Mar. 24 (gage height, 7.15 feet); minimum, 34 second-feet Sept. 4 (gage height, 2.37 feet). 1916–17; 1919–1929: Maximum discharge, 5,150 second-feet Oct. 1, 1924 (gage height, 9.0 feet); minimum, practically zero Sept. 18, 1920, caused by closing gates in logging dam (gage height, 1.60 feet).

REMARKS.—Records excellent except those for periods of ice effect, Nov. 27–29, Dec. 6–17, and Dec. 21 to Mar. 23, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	116	139	100	85	85	485	472	160	703	106	48
2	88	120	131	100	85	85	776	671	134	367	101	58
3	105	129	122	100	80	90	468	1,830	130	253	88	46
4	91	236	125	95	80	95	363	1,100	141	231	187	48
5	89	218	123	90	80	100	502	834	152	326	247	44
6	100	175	110	110	80	100	1,630	908	285	243	243	52
7	105	175	95	150	95	95	1,980	758	209	197	234	52
8	104	151	90	120	100	85	1,520	621	173	194	172	48
9	94	134	85	100	95	75	1,060	459	143	172	122	57
10	110	116	80	100	95	70	655	384	125	146	107	87
11	103	113	80	100	9	75	445	336	114	136	104	124
12	108	106	75	95	85	85	436	593	107	118	106	84
13	168	98	75	80	85	100	405	526	129	109	90	78
14	212	102	75	75	85	160	332	309	111	275	88	139
15	154	88	80	75	85	480	291	700	158	315	115	155
16	133	107	80	75	90	1,100	277	665	118	194	106	111
17	298	207	90	80	95	750	266	520	108	146	92	182
18	514	384	594	240	100	460	270	372	95	127	89	257
19	602	401	442	1,100	95	280	243	384	96	404	66	139
20	355	1,060	284	600	85	260	234	414	708	251	67	103
21	277	509	180	380	80	280	260	324	358	161	68	86
22	226	339	140	280	75	360	295	277	210	136	56	76
23	203	270	110	220	75	1,000	339	247	166	114	70	72
24	296	223	100	180	70	2,130	347	247	1,130	114	82	70
25	278	194	100	150	70	862	495	277	751	129	63	68
26	205	166	100	130	80	1,030	1,380	231	621	131	66	81
27	164	160	110	120	90	644	996	218	335	107	57	47
28	148	150	110	100	85	463	758	221	255	94	58	66
29	141	140	110	95	-------	355	1,380	189	501	103	54	60
30	109	136	100	90	-------	317	693	192	482	82	53	63
31	104	-------	95	85	-------	280	-------	175	-------	76	56	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	602	88	186	1.60	1.84
November	1,060	88	217	1.87	2.09
December	594	75	136	1.17	1.35
January	1,100	75	175	1.51	1.74
February	100	70	85.5	.737	.77
March	2,130	70	398	3.43	3.95
April	1,980	234	653	5.63	6.28
May	1,830	175	499	4.30	4.96
June	1,130	95	274	2.36	2.63
July	703	76	199	1.72	1.98
August	247	53	104	.897	1.03
September	257	44	86.7	.747	.83
The year	2,130	44	252	2.17	29.45

AUSABLE RIVER NEAR AUSABLE FORKS, N. Y.

LOCATION.—Water-stage recorder 1¾ miles below junction of East and West Branches of Ausable River at Ausable Forks, Clinton County.

DRAINAGE AREA.—448 square miles.

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

EXTREMES.—Maximum discharge during year, 8,690 second-feet May 3 (gage height, 7.1 feet); minimum, 143 second-feet Sept. 26 (gage height, 1.29 feet).

1924–1929: Maximum discharge, about 19,100 second-feet Oct. 1, 1924 (gage height, 10.55 feet); minimum, 93 second-feet Nov. 9, 1924 (gage height, 1.08 feet).

REMARKS.—Records good except those for periods of ice effect Nov. 27–29, Dec. 8–15, 23–27, and Dec. 31 to Mar. 13, and for periods of estimate, which are fair. Flow partly regulated by storage, chiefly in Taylor Pond and Fern Lake.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	247	255	387	360	320	300	1,190	1,690	506	1,780	241	232
2	243	266	348	340	320	300	2,630	2,170	455	1,040	263	232
3	239	295	339	320	300	320	1,540	6,320	428	704	239	232
4	247	431	348	320	300	360	1,210	4,200	558	620	329	247
5	236	542	353	300	300	460	1,440	3,010	442	787	512	243
6	239	512	334	380	300	480	4,740	3,470	606	641	542	239
7	270	555	308	650	340	400	6,210	2,700	559	501	518	243
8	278	392	280	480	360	320	4,820	2,260	466	472	397	243
9	243	334	280	400	320	300	3,530	1,690	422	433	306	259
10	274	295	280	400	300	280	2,190	1,360	397	377	270	286
11	278	354	260	380	280	280	1,470	1,160	422	344	243	374
12	282	372	260	340	280	380	1,310	1,580	380	312	274	321
13	406	262	260	320	260	600	1,210	1,790	332	299	259	247
14	555	255	260	300	260	1,090	1,040	1,360	344	653	232	319
15	[a] 450	235	260	300	240	3,190	932	2,160	417	875	255	422
16	[a] 380	247	274	300	260	4,330	975	2,400	362	506	266	330
17	[a] 600	350	304	300	280	2,920	1,000	1,880	307	392	229	278
18	1,010	992	1,170	550	280	1,420	1,080	1,360	270	330	207	526
19	1,620	1,080	1,170	3,800	260	1,140	1,030	1,260	285	1,250	218	357
20	1,100	3,460	767	2,400	240	1,210	1,080	1,420	1,030	922	194	270
21	704	1,560	536	1,200	240	1,130	1,360	1,120	869	558	197	214
22	555	916	382	[a] 800	240	1,260	1,470	949	615	417	194	202
23	466	704	360	[a] 650	260	3,310	1,580	826	518	344	211	213
24	536	581	340	[a] 550	260	6,140	1,520	764	2,510	302	262	214
25	574	506	340	[a] 480	260	2,700	2,120	907	1,930	325	235	221
26	489	392	340	[a] 420	260	3,170	5,030	787	1,860	348	236	239
27	387	340	360	[a] 400	280	1,930	3,850	712	1,030	304	218	247
28	382	340	377	380	280	1,360	2,930	654	712	266	232	229
29	382	360	325	360	-------	1,060	4,780	654	1,480	262	247	221
30	278	348	306	340	-------	941	2,530	634	1,150	236	247	239
31	229	-------	320	320	-------	875	-------	581	-------	218	243	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,620	229	457	1.02	1.18
November	3,460	235	584	1.30	1.45
December	1,170	260	394	.879	1.01
January	3,800	300	608	1.36	1.57
February	360	240	281	.627	.65
March	6,140	280	1,420	3.17	3.66
April	6,210	932	2,260	5.04	5.62
May	6,320	581	1,740	3.88	4.47
June	2,510	270	722	1.61	1.80
July	1,780	218	543	1.21	1.40
August	542	194	275	.614	.71
September	526	202	271	.605	.68
The year	6,320	194	798	1.78	24.20

[a] Estimated; gage-height record faulty or missing.

BLACK BROOK AT BLACK BROOK, N. Y.

LOCATION.—Staff gage 100 feet below hydroelectric plant of Associated Gas & Electric System and three-quarters of a mile south of Black Brook, Clinton County.

DRAINAGE AREA.—49.3 square miles.

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

EXTREMES.—Maximum discharge during year, 297 second-feet Apr. 7 (gage height, 3.7 feet); minimum, about 6 second-feet frequently when plant shuts down.

1924–1929: Maximum discharge, 720 second-feet Apr. 25, 1926 (gage height, 5.6 feet); minimum, as stated above.

REMARKS.—Records good. Flow regulated by storage in Taylor Pond and Fern Lake, and by operation of power plant.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	6	24	43	84	69	96	116	27	52	37	113
2	38	24	20	48	85	70	130	113	38	52	32	114
3	20	20	36	52	83	46	113	144	38	43	36	118
4	45	16	29	52	81	50	92	157	42	39	9	122
5	41	28	31	53	83	39	84	164	42	39	41	122
6	38	23	30	69	85	37	140	219	48	39	23	124
7	21	28	34	93	89	29	254	189	45	38	21	124
8	42	29	26	68	90	38	169	186	44	48	17	125
9	16	24	21	59	76	19	150	164	37	27	13	134
10	41	15	36	62	42	26	118	150	31	25	25	132
11	33	21	23	54	51	29	86	124	31	26	6	125
12	34	17	28	45	44	57	88	145	26	22	30	106
13	44	17	39	28	39	108	93	118	23	29	31	86
14	61	14	23	35	44	96	100	134	34	19	29	103
15	56	17	25	47	49	194	92	125	48	46	30	97
16	44	17	17	52	68	266	85	130	32	28	28	62
17	51	26	24	53	73	162	114	119	34	32	23	47
18	62	38	40	60	60	93	112	104	27	26	16	45
19	58	90	68	128	51	80	101	103	27	30	35	29
20	45	101	65	107	45	74	100	114	52	28	38	25
21	31	92	57	54	47	81	86	107	55	16	44	19
22	25	62	49	47	60	103	167	93	40	28	55	6
23	23	50	35	42	85	146	184	86	24	28	66	61
24	25	43	35	41	72	164	167	74	68	23	61	64
25	40	33	24	35	81	101	161	69	122	22	64	78
26	31	39	54	41	80	140	196	60	164	23	72	85
27	20	34	47	38	74	114	201	84	124	26	75	86
28	6	35	41	64	69	90	156	57	69	20	100	85
29	16	20	35	50	-------	78	140	51	59	22	110	83
30	10	29	15	56	-------	85	131	46	49	23	110	84
31	12	-------	37	67	-------	78	-------	46	-------	36	112	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	62	6	34.5	0.700	0.81
November	101	6	33.6	.682	.76
December	68	15	34.5	.700	.81
January	128	28	56.2	1.14	1.31
February	90	39	67.5	1.37	1.43
March	266	19	89.1	1.81	2.09
April	254	84	130	2.64	2.94
May	219	46	116	2.35	2.71
June	164	23	49.7	1.01	1.13
July	52	16	30.8	.625	.72
August	112	6	44.8	.909	1.05
September	134	6	86.8	1.76	1.96
The year	266	6	64.3	1.30	17.72

EAST BRANCH OF AUSABLE RIVER AT AUSABLE FORKS, N. Y.

LOCATION.—Staff gage at lower highway bridge in Ausable Forks, Essex County, 400 feet above confluence with West Branch of Ausable River.

DRAINAGE AREA.—199 square miles.

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

EXTREMES.—Maximum discharge during year, 5,500 second-feet May 3 (gage height, 5.2 feet); minimum, 40 second-feet Sept. 4 and 6 (gage height, 0.50 foot).

1924–1929: Maximum discharge, Mar. 28, 1925, not determined (gage height, 11.4 feet); minimum, 38 second-feet July 23, 1926.

REMARKS.—Records good except those for periods of ice effect, Nov. 25–30, Dec. 5–18, Dec. 23 to Jan. 19, and Jan. 23 to Mar. 13, and for period of backwater from construction work, Aug. 4–12, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	91	180	160	130	90	685	790	231	848	87	47
2	91	91	162	160	120	90	1,210	1,170	198	526	91	47
3	83	103	149	140	120	130	645	3,680	175	353	72	45
4	83	175	145	130	120	190	575	1,970	258	270	130	40
5	83	216	140	130	110	220	729	1,400	184	258	180	45
6	87	248	130	180	110	220	2,500	1,540	231	252	250	42
7	107	288	120	320	120	190	2,960	1,290	188	202	200	45
8	107	154	110	220	130	140	2,220	1,040	166	175	160	45
9	107	120	100	200	120	110	1,290	750	166	158	110	47
10	112	103	95	190	120	110	870	575	154	145	80	64
11	107	166	90	180	110	100	680	491	206	124	70	84
12	107	209	90	160	95	170	610	808	175	116	80	73
13	206	107	100	150	85	320	519	790	128	103	81	62
14	220	91	110	140	80	619	405	610	116	373	81	64
15	171	83	110	140	75	1,500	405	1,080	136	372	87	107
16	145	75	130	130	75	2,060	405	1,130	103	216	78	93
17	202	138	150	130	85	1,210	405	906	87	158	70	84
18	356	464	380	180	90	680	444	645	72	158	67	161
19	699	600	540	1,700	85	519	431	610	87	674	64	121
20	450	1,870	353	972	70	575	450	645	253	512	59	93
21	314	719	231	549	70	519	575	505	220	327	57	84
22	231	418	149	412	60	575	610	438	206	253	52	73
23	188	334	140	320	60	1,780	715	372	202	198	54	62
24	206	248	130	220	60	2,450	715	246	1,140	158	73	59
25	220	190	140	190	60	1,290	955	386	756	145	67	54
26	184	140	140	180	65	1,720	2,600	386	722	149	59	54
27	162	120	160	170	85	1,340	2,040	320	392	145	52	52
28	141	120	180	150	85	715	1,550	270	327	124	50	54
29	136	130	180	140	-------	680	2,440	301	770	103	47	57
30	112	150	170	140	-------	457	1,130	282	575	87	50	57
31	95	-------	160	130	-------	392	-------	258	-------	72	52	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	699	83	181	0.910	1.05
November	1,870	75	265	1.33	1.48
December	540	90	167	.839	.97
January	1,700	130	268	1.35	1.56
February	130	60	92.7	.466	.49
March	2,450	90	683	3.43	3.95
April	2,960	405	1,060	5.33	5.95
May	3,680	258	832	4.18	4.82
June	1,140	72	287	1.44	1.61
July	848	72	250	1.26	1.45
August	250	47	87.4	.439	.51
September	161	40	67.2	.338	.38
The year	3,680	40	355	1.78	24.22

BOUQUET RIVER AT WILLSBORO, N. Y.

LOCATION.—Water-stage recorder half a mile southwest of Willsboro, Essex County.

DRAINAGE AREA.—271 square miles.

RECORDS AVAILABLE.—August and September, 1904; August to November, 1908; July, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,480 second-feet Jan. 19 (gage height, 6.2 feet); minimum, 55 second-feet Sept. 24 (gage height, 2.34 feet). 1923–1929: Maximum discharge, about 11,800 second-feet Oct. 1, 1924 (gage height, 10.85 feet); minimum, 30 second-feet Oct. 23, 1923 (gage height, 2.17 feet).

REMARKS.—Records good except those for periods of ice effect, Nov. 27 to Jan. 19 and Jan. 23 to Mar. 14, and for periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	114	180	170	e 160	110	571	734	227	600	110	77
2	100	121	170	170	e 150	110	1,370	720	e 206	456	114	69
3	98	124	160	160	140	170	758	1,850	189	344	105	67
4	95	135	150	150	140	190	614	1,910	193	273	124	65
5	92	158	150	150	130	240	659	1,320	198	255	132	67
6	88	158	150	180	130	240	1,850	1,760	232	259	121	67
7	90	158	e 140	300	140	220	2,310	1,420	241	219	121	65
8		173	e 140	240	150	180	1,520	1,180	223	181	114	69
9		154	e 130	220	150	150	1,140	878	193	169	105	65
10	e 95	142	e 120	200	e 140	140	800	727	177	146	98	85
11		128	e 120	190	e 130	140	620	626	173	132	92	100
12		121	e 120	180	e 130	220	562	588	169	121	95	85
13	e 108	128	e 120	170	120	500	588	626	169	117	92	77
14	146	121	e 120	160	110	1,000	549	536	181	225	88	83
15	150	124	e 130	150	100	1,640	530	699	214	323	95	e 85
16	128	121	e 140	150	100	2,210	721	755	e 160	210	102	e 78
17	132	132	e 160	150	110	1,600	1,250	640	e 130	158	90	e 70
18	177	158	e 320	280	120	713	958	530	e 100	161	83	e 88
19	360	240	e 550	1,600	110	620	741	511	e 121	1,540	75	88
20	316	851	e 380	1,270	100	685	727	600	315	734	79	81
21	214	569	e 280	489	90	720	870	511	246	383	77	79
22	173	360	220	334	85	755	958	450	214	259	77	77
23	162	283	180	e 280	85	1,680	966	404	586	210	83	69
24	158	245	170	e 260	85	2,260	902	376	1,710	189	110	65
25	158	223	170	e 240	85	1,070	1,080	376	1,070	181	102	69
26	150	159	180	e 220	90	1,160	1,790	350	846	193	79	69
27	139	150	190	e 200	100	910	1,820	318	549	169	71	69
28	128	150	200	e 180	110	692	1,100	308	461	142	75	71
29	121	160	200	e 170	-------	588	1,610	288	1,070	121	77	71
30	132	170	190	e 170	-------	498	1,120	283	678	110	77	73
31	114	-------	180	e 160	-------	450	-------	255	-------	100	79	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	360	88	139	0.513	0.59
November	851	114	201	.742	.83
December	550	120	187	.690	.80
January	1,600	150	288	1.06	1.22
February	160	85	118	.435	.45
March	2,260	110	705	2.60	3.00
April	2,310	530	1,040	3.84	4.28
May	1,910	255	727	2.68	3.09
June	1,710	100	375	1.38	1.54
July	1,540	100	280	1.03	1.19
August	132	71	94.9	.350	.40
September	100	65	74.8	.276	.31
The year	2,310	65	353	1.30	17.70

e Estimated; gage-height record missing.

LAKE GEORGE AT ROGERS ROCK, N. Y.

LOCATION.—Staff gage at Hoopers Dock, on south side of Stones Bay, Rogers Rock, Essex County.

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

EXTREMES.—Maximum gage height during year, 4.50 feet May 4–6; minimum, 1.47 feet Jan. 31 and Feb. 6.

1913–1929: Maximum gage height, 5.07 feet Apr. 18, 1922; minimum, 1.06 feet Dec. 29, 1922.

REMARKS.—No record Apr. 1 and 2. Elevation of lake surface regulated by operation of gates and wheels at dam at Ticonderoga. Gage-height record furnished by C. S. Colson, hydraulic engineer, International Paper Co.

Daily gage height, in feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.55	2.10	1.77	1.50	1.50	1.65	-------	4.40	4.00	4.10	3.50	3.00
2	2.52	2.07	1.80	1.52	1.52	1.67	-------	4.45	4.05	4.05	3.52	3.05
3	2.50	2.05	1.77	1.52	1.52	1.70	3.32	4.47	4.00	4.02	3.50	3.05
4	2.50	2.05	1.77	1.55	1.50	1.67	3.40	4.50	3.97	4.02	3.50	3.02
5	2.47	2.02	1.75	1.60	1.50	1.70	3.42	4.50	3.95	4.00	3.47	3.00
6	2.47	2.00	1.72	1.70	1.47	1.75	3.45	4.50	3.90	4.02	3.50	2.97
7	2.45	1.97	1.70	1.72	1.60	1.77	3.47	4.40	3.85	4.00	3.47	3.02
8	2.42	1.97	1.72	1.70	1.70	1.80	3.50	4.45	3.82	3.97	3.45	3.00
9	2.45	1.95	1.75	1.65	1.72	1.77	3.52	4.40	3.80	3.95	3.42	3.02
10	2.40	1.92	1.72	1.60	1.75	1.75	3.45	4.35	3.80	3.92	3.40	3.10
11	2.37	1.90	1.75	1.57	1.72	1.77	3.50	4.32	3.82	3.90	3.40	3.15
12	2.35	1.87	1.72	1.55	1.70	1.75	3.55	4.30	3.85	3.87	3.37	3.25
13	2.32	1.87	1.70	1.52	1.72	1.77	3.65	4.35	3.87	3.85	3.37	3.27
14	2.20	1.85	1.67	1.55	1.67	1.87	3.72	4.37	3.90	3.82	3.35	3.32
15	2.25	1.82	1.65	1.52	1.62	1.90	3.80	4.40	3.92	3.80	3.32	3.30
16	2.22	1.87	1.62	1.55	1.60	2.00	3.85	4.37	3.95	3.80	3.35	3.32
17	2.20	1.82	1.65	1.55	1.55	2.20	3.90	4.35	3.92	3.77	3.32	3.37
18	2.22	1.80	1.67	1.57	1.57	2.30	3.97	4.32	3.90	3.75	3.30	3.27
19	2.20	1.82	1.65	1.67	1.60	2.40	4.00	4.30	3.85	3.70	3.30	3.27
20	2.17	1.80	1.70	1.72	1.62	2.50	4.10	4.30	3.82	3.72	3.27	3.22
21	2.22	1.82	1.75	1.67	1.65	2.45	4.20	4.27	3.87	3.70	3.25	3.17
22	2.32	1.85	1.72	1.65	1.65	2.55	4.27	4.25	3.95	3.72	3.25	3.20
23	2.30	1.87	1.72	1.62	1.67	2.65	4.35	4.25	4.02	3.70	3.22	3.17
24	2.25	1.85	1.67	1.62	1.70	2.80	4.40	4.22	4.12	3.67	3.20	3.15
25	2.22	1.80	1.65	1.60	1.67	2.90	4.42	4.20	4.15	3.70	3.17	3.12
26	2.20	1.82	1.62	1.50	1.65	2.97	4.40	4.17	4.12	3.67	3.15	3.05
27	2.20	1.80	1.60	1.52	1.62	3.02	4.35	4.15	4.15	3.65	3.15	3.02
28	2.22	1.77	1.57	1.50	1.65	3.07	4.30	4.15	4.15	3.65	3.00	3.05
29	2.17	1.80	1.55	1.52	-------	3.10	4.35	4.10	4.12	3.60	3.02	3.05
30	2.15	1.77	1.60	1.50	-------	3.15	4.37	4.07	4.10	3.57	3.00	3.02
31	2.12	-------	1.52	1.47	-------	3.25	-------	4.05	-------	3.55	3.02	-------

POULTNEY RIVER BELOW FAIR HAVEN, VT.

LOCATION.—Water-stage recorder one-third mile below Carver Falls, 1.9 miles above Hubbardton River, and 3¼ miles northwest of Fair Haven, Rutland County.

DRAINAGE AREA.—187 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,190 second-feet Mar. 16 (gage height, 13.48 feet); minimum, 14 second-feet Oct. 26, 27, and Dec. 25.

REMARKS.—Records excellent except those for period of ice effect, Jan. 5 to Mar. 13, and estimated discharge, Oct. 1–7 and Mar. 14–16. Lake Bomoseen may produce seasonal storage.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		39	67	18	59	100	600	700	202	419	64	32
2		35	18	50	64	110	806	612	136	431	68	38
3		28	82	71	39	84	612	650	187	340	54	68
4		16	73	52	63	94	527	834	187	225	38	66
5	70	43	103	28	49	136	479	700	191	233	90	68
6		52	119	58	46	334	551	918	184	225	52	62
7		34	101	309	45	437	515	890	157	139	42	58
8	72	28	85	78	94	305	515	890	133	299	64	20
9	79	24	17	71	101	216	467	700	64	277	58	81
10	78	34	74	56	76	81	396	625	142	251	58	482
11	70	15	52	45	69	129	362	539	106	233	18	809
12	72	23	52	42	75	152	384	407	92	193	96	306
13	67	28	49	48	58	1,040	455	431	108	180	68	239
14	23	31	52	51	72	1,200	373	407	118	98	92	267
15	24	19	49	30	56	1,500	419	808	199	167	105	712
16	26	28	15	44	71	2,640	539	806	98	178	153	413
17	24	28	63	30	29	1,430	834	890	138	149	118	298
18	24	16	100	54	66	700	862	650	117	170	48	298
19	48	38	145	1,000	116	600	752	625	96	149	92	237
20	46	62	101	628	91	563	725	947	104	130	77	212
21	22	60	81	492	104	455	1,160	675	366	56	66	192
22	51	55	54	326	97	503	1,330	612	948	112	75	113
23	23	48	34	200	106	752	1,030	527	409	81	65	169
24	48	67	78	111	50	779	890	479	798	79	88	148
25	37	15	14	84	86	700	862	515	963	101	18	147
26	44	44	56	120	82	834	1,460	322	725	78	70	137
27	32	40	49	82	99	675	1,300	337	527	76	68	140
28	15	41	48	96	74	600	918	294	443	30	64	138
29	34	15	65	74	-------	575	890	272	650	83	56	59
30	40	49	19	66	-------	491	834	200	455	74	58	132
31	39	-------	61	66	-------	443	-------	217	-------	71	52	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	79	15	49.3	0.264	0.30
November	67	15	35.2	.188	.21
December	145	14	63.7	.341	.39
January	1,000	18	145	.775	.89
February	116	29	72.8	.389	.41
March	2,640	81	602	3.22	3.71
April	1,460	362	728	3.89	4.34
May	947	200	596	3.19	3.68
June	963	64	301	1.61	1.80
July	431	30	172	.920	1.06
August	153	18	68.9	.368	.42
September	809	20	205	1.10	1.23
The year	2,640	14	254	1.36	18.44

OTTER CREEK AT CENTER RUTLAND, VT.

LOCATION.—Chain gage at highway bridge in Center Rutland, Rutland County, 100 feet below dam and 1 mile below East Creek. Water-stage recorder used after July 23, 1929.

DRAINAGE AREA.—307 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 8,070 second-feet Apr. 30 (gage height, 8.47 feet); minimum, 14 second-feet about midnight Saturday nights in August and September (gage height, 0.24 foot).

1928–29: Same as above.

REMARKS.—Chain gage records fair; recorder records good; estimated discharge may be poor. Diurnal regulation. Seasonal storage on East Creek at Pittsford and Chittenden.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	340	360	360	e 360	190	266	1,420	2,640	465	535	152	62
2	213	380	e 266	380	320	213	2,160	2,400	e 304	380	156	180
3	266	e 342	380	230	e 188	e 238	1,520	2,760	435	360	142	189
4	230	e 284	435	360	266	340	1,230	3,160	435	e 300	158	182
5	213	405	465	230	320	380	1,230	e 2,160	380	284	211	162
6	e 192	e 430	535	e 469	302	575	1,940	2,400	500	302	189	171
7	e 211	465	380	670	340	500	e 2,160	2,050	435	e 350	187	158
8	302	340	e 342	360	405	320	2,400	1,830	380	500	176	84
9	266	435	e 224	360	302	320	2,280	1,320	e 266	380	162	393
10	340	465	320	360	e 224	e 238	1,520	1,060	380	340	156	2,010
11	302	e 418	320	340	320	340	1,140	910	302	340	682	1,760
12	380	e 402	360	360	248	284	910	e 582	266	302	862	570
13	e 342	575	340	e 199	302	780	910	840	230	266	324	367
14	e 252	500	302	284	213	2,160	e 819	720	248	e 161	276	452
15	360	500	e 272	340	124	3,160	910	2,050	780	230	335	1,530
16	320	465	e 252	320	360	4,850	1,060	1,720	e 523	247	223	750
17	302	535	360	266	e 224	e 2,700	1,230	1,830	435	217	184	530
18	380	e 482	1,420	465	320	2,160	1,140	1,140	320	203	114	550
19	780	435	1,940	1,830	302	1,420	1,060	e 1,510	380	262	169	440
20	e 740	780	910	e 900	205	1,620	1,060	2,160	284	262	168	371
21	e 324	575	575	780	320	1,320	e 1,840	1,320	535	e 126	170	321
22	405	465	405	500	302	1,940	2,050	1,140	670	e 180	162	200
23	405	360	e 390	405	230	2,890	1,830	840	e 400	180	182	262
24	435	e 324	e 370	435	e 224	e 2,210	1,830	780	500	205	185	272
25	535	e 284	e 360	302	320	3,160	2,520	1,420	575	233	108	241
26	435	405	340	320	266	2,280	5,890	e 945	465	247	162	211
27	e 392	266	405	e 326	302	2,050	6,340	780	340	196	143	180
28	e 326	340	360	465	284	1,520	e 3,400	575	360	104	162	146
29	465	e 302	360	266	-------	1,320	4,850	620	500	200	157	142
30	435	e 400	e 360	340	-------	1,060	6,110	e 700	e 374	174	158	207
31	340	-------	e 360	320	-------	e 994	-------	780	-------	176	129	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	780	192	362	1.18	1.36
November	780	266	424	1.38	1.54
December	1,940	224	467	1.52	1.75
January	1,830	199	437	1.42	1.64
February	405	124	276	.899	.94
March	4,850	213	1,410	4.59	5.29
April	6,340	819	2,160	7.04	7.86
May	3,160	575	1,460	4.76	5.49
June	780	230	416	1.36	1.52
July	535	104	266	.866	1.00
August	862	108	218	.710	.82
September	2,010	62	436	1.42	1.58
The year	6,340	62	695	2.26	30.79

e Estimated; gage-height record missing

OTTER CREEK AT MIDDLEBURY, VT.

LOCATION.—Chain gage on railroad bridge at Middlebury, Addison County, 3½ miles below Middlebury River.

DRAINAGE AREA.—628 square miles, revised determination.

RECORDS AVAILABLE.—April, 1903, to May, 1907; October, 1910, to January, 1920; October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,700 second-feet May 3 (gage height, 7.22 feet); minimum, 93 second-feet Mar. 5 (gage height, 1.58 feet). 1903–1907, 1910–1920, 1928–29: Maximum discharge, 10,100 second-feet (revised determination) Mar. 30, 1913 (gage height, 21.07 feet); minimum, 93 second-feet Mar. 5, 1929.

REMARKS.—Records fair. Slight diurnal regulation. Small seasonal storage in Chittenden Reservoir on East Creek.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	388	460	435	320	342	342	3,080	4,000	855	1,030	388	342
2	488	488	515	280	320	342	2,900	4,330	890	1,030	388	342
3	488	515	488	320	320	320	2,800	4,580	1,270	890	365	342
4	460	542	600	320	320	244	2,800	4,700	1,030	660	388	388
5	488	488	630	320	320	320	2,700	4,450	722	542	410	435
6	460	542	722	365	300	855	2,800	4,450	755	570	435	410
7	365	488	690	388	280	1,110	2,800	4,330	755	570	435	388
8	320	515	570	410	365	1,030	2,700	4,110	570	600	410	388
9	410	460	388	388	342	1,110	2,700	4,000	630	630	388	460
10	365	542	320	388	342	1,110	3,180	4,000	460	660	365	855
11	410	570	410	388	342	342	2,700	3,670	460	630	388	1,700
12	388	570	460	365	342	342	2,700	3,080	435	600	570	1,700
13	388	600	460	365	365	722	2,520	2,900	388	570	855	1,270
14	342	630	435	365	320	3,280	2,330	2,610	388	570	570	1,350
15	365	630	388	365	320	3,890	2,060	2,700	488	600	365	1,270
16	435	570	265	320	342	2,900	1,970	2,610	488	570	342	1,430
17	435	660	300	320	280	2,420	2,150	2,610	280	570	365	1,190
18	460	788	690	630	252	2,900	2,240	2,520	320	542	365	960
19	855	660	1,520	1,350	342	3,670	2,330	2,520	365	515	365	855
20	960	1,190	1,700	1,610	342	4,000	2,240	2,520	410	460	388	755
21	890	1,110	1,270	890	342	4,000	2,240	2,520	460	435	388	690
22	630	890	690	890	320	3,780	2,240	2,520	515	410	410	600
23	570	722	515	1,110	342	3,670	2,420	2,420	722	410	388	488
24	600	570	388	1,350	342	3,570	2,420	2,060	820	388	342	460
25	630	515	435	515	219	3,470	2,610	1,970	890	388	342	410
26	630	435	410	435	320	3,470	2,800	1,790	1,030	410	365	410
27	542	460	460	410	342	3,470	2,900	1,520	1,190	410	365	388
28	488	388	460	388	320	3,570	3,370	1,350	1,110	388	365	388
29	488	435	460	342	-------	3,570	3,370	1,190	1,030	342	365	342
30	570	410	435	365	-------	3,470	3,570	960	1,030	342	388	300
31	542	-------	342	320	-------	3,280	-------	820	-------	365	388	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	960	320	511	0.814	0.94
November	1,190	388	595	.947	1.06
December	1,700	300	579	.922	1.06
January	1,610	280	535	.852	.98
February	365	219	323	.514	.54
March	4,000	244	2,280	3.63	4.18
April	3,570	1,970	2,650	4.22	4.71
May	4,700	820	2,900	4.62	5.33
June	1,270	280	692	1.10	1.28
July	1,030	342	552	.879	1.01
August	855	342	408	.650	.75
September	1,700	300	710	1.13	1.26
The year	4,700	219	1,070	1.70	23.05

WINOOSKI RIVER AT MONTPELIER, VT.

LOCATION.—Water-stage recorder 1 mile downstream from Montpelier, Washington County, and three-eighths mile above Dog River. Zero of gage is 499. 97 feet above mean sea level.

DRAINAGE AREA.—420 square miles.

RECORDS AVAILABLE.—May, 1909, to September, 1923; August, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 9,730 second-feet Mar. 16 (gage height, 11.73 feet); minimum, 12 second-feet Sept. 30 (gage height, 2.67 feet).

1909–1923, 1928–29: Maximum discharge, 20,200 second-feet Apr. 7, 1912 (gage height, 17.31 feet); minimum, 6 second-feet Sept. 30, 1921 (gage height, 2.58 feet).

Maximum discharge known, 57,000 second-feet Nov. 3, 1927 (gage height, 27.1 feet).

REMARKS.—Records excellent except for discharge under 150 second-feet, periods of ice effect, Dec. 7–18 and Dec. 22 to Mar. 16, and period of estimate, Aug. 24 to Sept. 11.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	228	249	180	265	145	1,850	1,600	291	654	164	130
2	152	258	249	150	202	132	1,950	1,650	272	422	184	160
3	164	310	249	132	162	107	1,400	2,540	291	320	168	160
4	200	492	265	123	180	107	1,400	1,950	311	265	186	160
5	145	368	284	165	178	172	2,100	1,750	302	412	219	160
6	164	320	249	311	199	315	3,980	1,950	426	306	270	155
7	164	410	211	493	202	276	2,820	2,160	364	236	242	150
8	194	340	194	315	183	202	3,380	1,800	328	328	194	125
9	215	274	175	295	155	170	3,150	1,360	236	255	164	170
10	188	298	168	284	116	143	2,100	1,140	227	233	134	180
11	175	284	162	272	152	165	1,450	945	262	211	234	190
12	186	202	155	259	175	148	1,360	848	249	224	290	220
13	235	194	152	280	175	337	1,270	795	265	202	224	172
14	221	208	150	298	160	739	1,180	725	276	320	188	214
15	182	214	150	276	160	1,800	1,140	1,750	692	377	447	358
16	215	246	152	269	143	6,200	1,270	1,450	333	227	357	212
17	190	302	155	246	101	5,040	1,900	1,140	236	199	211	196
18	368	444	249	328	112	2,000	1,950	848	269	199	156	295
19	846	699	870	2,660	143	1,750	1,700	1,220	320	342	144	205
20	579	1,360	739	945	168	2,440	1,600	1,550	236	276	152	180
21	454	628	458	524	148	2,100	2,220	1,060	276	165	168	166
22	286	458	246	430	180	2,710	2,160	900	908	143	172	114
23	266	390	148	377	125	3,740	2,160	718	666	180	167	118
24	450	346	155	337	125	3,500	2,000	680	1,450	192	160	146
25	400	346	152	287	125	2,000	2,380	725	885	210	140	150
26	316	272	168	236	129	2,050	3,740	541	1,060	227	175	179
27	268	255	178	211	136	1,850	2,930	503	519	190	180	118
28	239	249	191	255	141	1,550	2,160	498	404	131	160	154
29	296	249	197	311	------	1,270	2,820	449	753	156	160	130
30	257	265	202	342	------	1,180	2,050	399	482	168	160	84
31	224	------	194	291	------	1,400	------	346	------	180	140	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	846	145	271	0.645	0.74
November	1,360	194	364	.867	.97
December	870	148	242	.576	.66
January	2,660	123	383	.912	1.05
February	265	101	159	.379	.39
March	6,200	107	1,480	3.52	4.06
April	3,980	1,140	2,120	5.05	5.63
May	2,540	346	1,160	2.76	3.18
June	1,450	227	453	1.08	1.20
July	654	131	256	.610	.70
August	447	134	197	.469	.54
September	358	84	172	.410	.46
The year	6,200	84	606	1.44	19.58

WINOOSKI RIVER NEAR ESSEX JUNCTION, VT.

LOCATION.—Water-stage recorder half a mile below Muddy Brook and 2 miles southwest of Essex Junction, Chittendon County.

DRAINAGE AREA.—1,070 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 20,400 second-feet Mar. 17 (gage height, 11.64 feet); minimum, 142 second-feet Sept. 30 (gage height 0.41 foot, possibly lower).

Maximum discharge known, 116,000 second-feet Nov. 4, 1927.

REMARKS.—Records good. Ice corrections applied Dec. 10–14, 21–24, and Dec. 30 to Mar. 16. Discharge estimated Aug. 27 to Sept. 10.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.
1	470	624	874	630	700	480	4,420	4,680	896	2,360	479	260
2	500	624	919	510	600	480	5,590	4,680	756	1,640	490	250
3	530	606	1,060	550	450	370	4,420	6,510	850	1,100	425	360
4	540	1,140	1,120	570	850	500	4,060	6,040	610	845	326	380
5	590	1,240	1,010	540	880	500	4,550	5,050	698	1,030	382	370
6	488	1,020	1,150	480	910	620	9,220	6,040	707	1,020	503	365
7	304	1,020	972	680	650	1,280	10,200	5,890	976	760	652	350
8	476	1,010	919	1,180	590	1,500	9,420	5,450	835	840	624	240
9	543	986	858	1,100	500	1,350	9,020	4,420	662	818	524	380
10	518	720	780	800	420	1,650	5,590	3,790	682	824	436	385
11	516	745	720	600	790	1,900	4,420	3,000	678	626	310	392
12	481	745	690	460	680	1,100	3,880	2,800	648	619	442	414
13	435	956	770	420	700	1,230	3,680	2,710	652	524	481	442
14	313	646	690	1,000	680	4,000	3,320	2,200	638	418	479	433
15	560	653	556	1,000	600	7,400	3,000	5,050	680	1,130	520	226
16	664	638	434	1,150	500	12,300	3,210	4,800	1,060	920	610	580
17	630	479	851	1,400	410	17,700	4,290	4,140	828	657	546	671
18	889	1,080	3,640	470	500	6,830	4,920	2,900	679	798	388	554
19	3,680	1,770	3,720	4,500	610	4,420	4,800	2,710	584	962	430	775
20	1,910	4,920	2,050	5,590	670	6,510	4,290	4,550	807	1,010	516	557
21	1,420	3,100	1,530	1,750	810	6,670	4,920	3,320	724	622	414	373
22	1,110	1,930	1,010	1,100	800	6,510	5,180	2,710	818	761	401	239
23	972	1,580	630	1,000	750	11,600	5,450	2,200	1,450	598	402	405
24	1,000	1,320	790	950	650	13,000	4,920	1,910	3,210	462	324	448
25	1,280	1,140	908	920	660	6,040	5,590	1,980	3,100	466	270	404
26	1,080	1,200	959	890	700	5,450	10,900	1,700	3,790	466	358	423
27	914	966	988	990	680	5,050	9,420	1,520	2,050	344	370	374
28	772	924	944	1,150	580	4,550	5,740	1,400	1,260	299	380	312
29	904	800	888	980	-------	3,970	8,060	1,260	1,580	464	375	259
30	884	924	867	840	-------	3,580	6,190	1,110	2,280	488	370	180
31	846	-------	719	730	-------	3,880	-------	1,010	-------	468	360	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,680	304	846	0.791	0.91
November	4,920	479	1,180	1.10	1.23
December	3,720	434	1,100	1.03	1.19
January	5,590	420	1,130	1.06	1.22
February	910	410	654	.611	.64
March	17,700	370	4,590	4.29	4.95
April	10,900	3,000	5,760	5.38	6.00
May	6,510	1,010	3,470	3.24	3.74
June	3,790	584	1,170	1.09	1.22
July	2,360	299	785	.734	.85
August	652	270	438	.409	.47
September	775	180	393	.367	.41
The year	17,700	180	1,800	1.68	22.83

DOG RIVER AT NORTHFIELD, VT.

LOCATION.—Water-stage recorder at highway bridge at Norwich University, Northfield, Washington County, 1 mile above Union Brook.

DRAINAGE AREA.—52 square miles, revised.

RECORDS AVAILABLE.—May, 1909, to October, 1920; October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,440 second-feet Mar. 24 (gage height, 5.66 feet); minimum (estimated), 2 second-feet several times during August and September.

1910–1920, 1928–29: Maximum discharge, 3,400 second-feet Mar. 25, 1913 (gage height, 8.50 feet); minimum, that of August and September, 1929.

Maximum known discharge, 8,000 second-feet Nov. 3, 1927 (gage height, 10.9 feet).

REMARKS.—Records good except those for periods of ice effect, Dec. 10, 11, Jan. 4, 5, 9–17, and periods of estimate, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	28	45	e 38	e 45	e 43	340	253	47	54	13	e 3
2	25	28	45	e 37	e 42	e 45	e 342	230	42	37	e 13	e 4
3	24	e 38	43	e 36	e 40	e 49	e 271	334	42	30	e 4	e 2
4	22	e 60	46	36	e 38	e 56	e 250	240	40	30	e 13	e 2
5	22	e 46	49	36	e 36	e 66	e 609	263	42	34	e 20	e 2
6	28	e 40	42	109	e 38	73	e 735	240	52	27	e 23	e 2
7	27	e 52	41	111	e 36	50	e 649	276	38	27	e 18	e 2
8	24	e 42	41	75	e 38	e 45	e 535	220	37	36	e 16	e 2
9	24	e 34	41	56	e 38	e 43	451	178	31	27	e 15	e 4
10	24	e 36	40	49	e 41	e 43	297	156	29	21	e 20	e 4
11	23	e 32	41	49	e 43	e 43	218	134	28	20	e 21	e 6
12	23	e 25	46	45	e 38	e 46	200	120	24	15	e 10	10
13	28	e 24	40	41	e 35	e 86	183	108	22	15	e 7	8
14	30	e 26	38	40	e 32	202	165	110	40	28	e 5	19
15	25	e 27	34	40	e 32	308	158	238	85	e 30	e 4	40
16	23	28	40	38	e 35	735	158	174	37	e 24	e 4	18
17	27	41	48	42	e 43	e 501	190	139	26	e 14	e 3	16
18	31	46	215	139	e 56	e 292	192	114	23	e 20	e 2	18
19	56	62	125	609	e 53	e 345	176	192	48	e 20	e 2	13
20	49	192	92	190	e 40	348	200	183	26	e 19	e 2	10
21	38	92	66	e 123	e 37	329	292	139	42	e 17	e 2	8
22	35	71	52	e 107	e 35	691	330	120	34	e 16	e 3	e 7
23	30	62	50	e 96	e 32	761	337	102	62	e 17	e 4	e 6
24	37	53	48	e 90	e 31	751	363	102	76	e 20	e 5	e 4
25	32	53	55	e 83	e 28	354	493	98	55	22	e 10	e 3
26	28	46	52	e 75	e 30	375	735	84	58	21	e 13	e 2
27	28	46	48	e 71	e 36	302	420	76	37	17	e 12	e 3
28	29	41	49	e 64	e 42	258	326	67	38	16	e 5	e 3
29	29	49	48	e 60	------	208	592	62	72	20	e 4	e 4
30	27	41	41	e 55	------	188	321	54	48	15	e 2	e 9
31	26	------	40	e 50	------	225	------	49	------	13	e 2	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	56	22	29.0	0.558	0.64
November	192	24	48.7	.937	1.05
December	215	34	54.9	1.06	1.22
January	609	36	86.8	1.67	1.92
February	56	28	38.2	.735	.77
March	761	43	254	4.88	5.63
April	735	158	351	6.75	7.53
May	334	49	157	3.02	3.48
June	85	22	42.7	.821	.92
July	54	13	23.3	.448	.52
August	23	2	8.9	.171	.20
September	40	2	7.8	.150	.17
The year	761	2	92.0	1.77	24.05

e Estimated; gage-height record missing.

MAD RIVER NEAR MORETOWN, VT.

LOCATION.—Chain gage at highway bridge 2.4 miles north of Moretown, Washington County.

DRAINAGE AREA.—131 square miles.

RECORDS AVAILABLE.—November, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,200 second-feet Mar. 15 (gage height, 8.08 feet); minimum, 2.4 second-feet Aug. 20 and 23 (gage height, 1.76 feet).

Maximum known stage, about 20.5 feet Nov. 3 and 4, 1927.

REMARKS.—Records good. Ice corrections applied Dec. 7–15, 21–31, Jan. 1–17, and Jan. 22 to Mar. 15. Slight diurnal regulation.

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

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		176	56	111	153	642	675	95	308	13	13
2		169	52	106	156	675	522	97	172	12	13
3		156	50	97	160	522	1,130	103	131	12	8.6
4		150	56	95	172	493	890	106	119	32	5.2
5		156	111	92	214	815	852	90	138	85	6.2
6		182	144	95	271	2,460	1,050	182	92	79	5.2
7		172	176	92	239	2,010	890	114	85	56	5.2
8		156	150	95	203	1,310	675	100	88	56	5.2
9		147	131	92	189	675	402	79	97	52	16
10		134	114	103	182	745	422	77	74	57	14
11		119	106	111	182	493	383	72	57	63	46
12		108	106	95	210	443	383	68	52	56	49
13		103	88	88	289	402	364	79	56	30	33
14		103	85	83	930	364	364	79	81	23	48
15		108	100	65	2,980	345	1,220	182	88	16	156
16		134	111	46	3,400	383	550	83	65	8.6	74
17		468	163	20	970	443	364	65	49	7.1	77
18		1,610	1,610	18	522	468	383	61	56	2.9	134
19		1,130	2,220	52	493	402	402	74	56	4.8	144
20	710	308	468	92	780	402	402	63	52	2.9	79
21	345	192	308	116	580	780	383	52	48	3.4	46
22	326	134	271	119	852	610	383	74	46	4.8	35
23	253	128	242	122	2,460	675	289	224	52	6.2	36
24	210	128	221	114	2,580	710	271	468	43	24	31
25	189	125	203	103	1,130	1,130	289	203	40	36	24
26	147	125	186	119	1,010	1,910	249	493	35	46	9.8
27	182	125	176	153	675	1,610	231	176	36	48	8.6
28	182	119	163	150	522	970	189	131	36	16	8.6
29	203	97	150		402	2,220	160	179	59	12	14
30	246	85	141		443	890	150	253	46	6.6	38
31		70	128		550		114		29	6.2	

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
November 20–30	710	147	272	2.08	0.85
December	1,610	70	230	1.76	2.03
January	2,220	50	267	2.04	2.35
February	153	18	94.4	.721	.75
March	3,400	153	771	5.89	6.79
April	2,460	345	867	6.62	7.39
May	1,220	114	485	3.70	4.27
June	493	52	137	1.05	1.17
July	308	29	77.0	.588	.68
August	85	2.9	28.3	.216	.25
September	156	5.2	39.4	.301	.34

LAMOILLE RIVER AT JOHNSON, VT.

LOCATION.—Water-stage recorder at falls 0.9 mile above bridge in Johnson, Lamoille County, and 1⅛ miles above Gihon River.

DRAINAGE AREA.—289 square miles.

RECORDS AVAILABLE.—April, 1912, to December, 1913; and September, 1928, to September, 1929.

EXTREMES.—Maximum discharge during period Sept. 1, 1928, to Sept. 30, 1929, 4,640 second-feet Apr. 6 (gage height, 9.72 feet); minimum, 19 second-feet Sept. 29, 30.

1912–13, 1928–29: Maximum discharge, about 8,500 second-feet Mar. 27, 1913 (gage height, 13.0 feet); minimum, that of Sept. 29, 30, 1929.

REMARKS.—Records good. Ice corrections applied Dec. 8–16, 22–31, Jan. 1–19, and Jan. 24 to Mar. 16. Discharge estimated Aug. 31 to Sept. 11.

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

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	263	224	263	250	212	263	1,350	1,300	209	1,280	154	102
2	98	212	189	237	250	189	263	1,730	1,300	181	820	162	98
3	125	212	263	290	237	144	166	1,220	2,100	180	544	182	154
4	166	224	480	290	237	263	250	1,150	1,850	146	370	128	154
5	178	178	396	304	212	224	263	1,780	1,620	243	568	174	155
6	189	189	319	364	189	224	334	3,770	2,100	266	456	251	146
7	212	125	334	276	364	224	396	3,060	1,970	265	302	258	127
8	224	134	276	237	349	166	463	3,370	1,790	189	351	190	80
9	75	166	237	212	319	166	396	3,690	1,200	49	214	170	140
10	144	125	212	212	290	125	364	2,430	866	139	184	184	150
11	224	178	212	200	263	250	429	1,400	684	156	214	89	153
12	304	125	200	189	237	224	349	1,180	503	137	186	174	156
13	349	166	250	189	200	237	516	1,030	663	169	164	175	137
14	554	107	212	189	237	212	1,260	935	560	165	98	168	134
15	463	237	166	189	250	200	1,650	889	1,250	820	364	234	68
16	429	212	155	189	224	212	2,780	958	1,180	480	282	200	174
17	380	429	178	276	224	166	2,570	1,300	1,010	300	184	168	265
18	304	885	593	1,560	276	276	1,560	1,620	706	256	188	106	405
19	237	1,500	885	1,210	1,950	319	1,280	1,400	751	211	660	200	301
20	276	843	2,070	675	1,560	349	1,790	1,200	1,150	176	478	194	209
21	237	480	1,020	463	843	349	2,030	1,620	751	214	270	172	163
22	189	200	593	290	554	349	2,160	1,560	600	352	259	114	75
23	166	276	463	212	429	334	3,060	1,730	459	807	186	166	144
24	189	554	396	212	349	276	3,060	1,350	441	3,480	170	141	162
25	178	480	349	224	304	364	1,850	1,790	503	1,660	191	122	166
26	224	349	319	237	276	349	1,620	3,370	431	2,580	184	194	144
27	125	290	263	224	237	319	1,450	2,710	342	982	176	179	152
28	155	250	290	212	237	290	1,300	1,730	317	563	90	134	130
29	334	290	263	200	224	-------	982	2,500	293	751	208	142	62
30	237	250	290	189	263	-------	866	1,970	252	710	181	134	144
31	-------	237	-------	212	189	-------	982	-------	232	-------	163	122	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1928					
September	554	75	238	0.824	0.92
1928–29					
October	1,500	107	328	1.13	1.30
November	2,070	155	403	1.39	1.55
December	1,560	189	330	1.14	1.31
January	1,950	189	388	1.34	1.54
February	364	125	250	.865	.90
March	3,060	166	1,180	4.08	4.70
April	3,770	889	1,860	6.44	7.18
May	2,100	232	941	3.26	3.76
June	3,480	49	561	1.94	2.16
July	1,280	90	322	1.11	1.28
August	258	89	167	.578	.67
September	405	62	155	.536	.60
The year	3,770	49	575	1.99	26.95

GREEN RIVER AT GARFIELD, VT.

LOCATION.—Staff gage in pool at dam at Garfield, Lamoille County. Zero of gage is at 1,100.60 feet above mean sea level.

DRAINAGE AREA.—18 square miles.

RECORDS AVAILABLE.—January, 1915, to March, 1921; and December, 1922, to September, 1929.

EXTREMES.—Maximum discharge during year, 408 second-feet June 24 (gage height, 3.16 feet); minimum, 6.5 second-feet Sept. 6–9, (gage height, 0.09 foot).

1915–1929: Maximum gage height, 7.6 feet Nov. 3, 1927 (discharge not known); minimum, 2.2 second-feet Aug. 11, 12, 1923, and Sept. 6, 1925.

REMARKS.—Records good.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	12	15	11	13	8.2	75	95	10	71	6.7	6.9
2	11	14	15	11	12	8.2	109	95	9.1	42	6.7	6.9
3	9.1	16	15	11	12	8.2	88	109	10	19	6.7	6.7
4	8.6	40	15	11	11	8.2	95	147	10	18	8.2	6.7
5	8.6	24	16	11	11	8.2	155	147	10	34	13	6.7
6	8.6	22	13	12	11	9.6	246	131	15	24	21	6.5
7	8.6	22	15	13	11	9.3	370	109	15	18	17	6.5
8	8.2	17	13	12	10	8.6	280	131	13	15	11	6.5
9	8.8	15	12	12	10	8.6	334	80	10	12	9.1	6.7
10	8.8	13	11	11	9.8	8.6	229	48	9.1	10	8.6	11
11	9.6	12	11	11	9.6	8.6	109	34	8.0	8.6	8.6	17
12	9.8	11	11	11	9.3	8.8	82	36	7.3	8.2	8.6	9.6
13	19	11	11	11	9.3	15	54	44	19	8.2	8.6	8.6
14	55	10	10	10	9.1	18	48	28	29	16	8.6	9.1
15	21	10	10	9.8	8.8	24	38	116	95	20	9.1	13
16	15	11	11	9.6	8.6	52	28	131	24	11	8.6	10
17	23	16	13	9.3	8.6	116	25	52	14	9.1	8.6	21
18	67	60	83	10	8.6	116	40	32	9.3	8.4	8.2	70
19	163	102	109	75	8.6	102	40	32	8.8	38	8.2	22
20	85	163	65	62	8.6	102	45	63	8.6	24	8.0	12
21	32	95	25	42	8.4	88	62	39	8.2	14	7.8	9.3
22	22	43	20	28	8.4	116	102	27	15	10	7.8	9.3
23	18	24	17	23	8.4	163	116	22	70	8.6	7.8	9.1
24	28	22	16	20	8.2	229	109	20	388	8.4	9.1	8.8
25	26	21	15	16	8.2	171	179	22	280	8.2	8.6	8.6
26	19	18	15	15	8.2	109	298	20	298	7.8	8.2	8.2
27	16	17	14	14	8.2	179	229	19	102	7.1	8.0	7.8
28	16	16	15	14	8.2	155	139	15	45	8.2	7.8	8.0
29	14	16	13	14	-------	85	171	13	83	8.6	7.5	8.0
30	13	16	13	13	-------	58	147	12	70	8.4	7.1	7.8
31	12	-------	13	13	-------	43	-------	11	-------	7.1	7.1	-------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	163	8.2	25.1	1.39	1.60
November	163	10	29.6	1.64	1.83
December	109	10	21.0	1.17	1.35
January	75	9.3	17.6	.978	1.13
February	13	8.2	9.50	.528	.55
March	229	8.2	65.9	3.66	4.22
April	370	25	135	7.50	8.37
May	147	11	60.6	3.37	3.88
June	388	7.3	56.4	3.13	3.49
July	71	7.1	16.5	.917	1.06
August	21	6.7	9.03	.502	.58
September	70	6.5	11.6	.644	.72
The year	388	6.5	38.2	2.12	28.78

MISSISQUOI RIVER NEAR RICHFORD, VT.

LOCATION.—Chain gage at bridge 1¾ miles above Trout River and 3¼ miles south of Richford, Franklin County.

DRAINAGE AREA.—445 square miles.

RECORDS AVAILABLE.—June, 1911, to September, 1923; and October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,080 second-feet Mar. 22; minimum, 83 second-feet Sept. 4 (gage height, 1.76 feet).

1911–1923, 1928–29: Maximum discharge, 16,000 second-feet (revised determination) Apr. 7, 1923 (gage height, 14.38 feet); minimum, 8 second-feet July, 1911.

Maximum discharge known, 45,000 second-feet, flood of November, 1927.

REMARKS.—Records good except those for period of ice effect and estimate, Dec. 6 to Mar. 21, which are fair. Some diurnal regulation at low stages.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	454	508	620	380	268	343	2,060	2,230	526	4,020	123	111
2	372	494	717	380	262	288	2,910	3,250	418	2,570	123	121
3	316	445	615	357	262	262	2,480	4,020	400	1,420	130	125
4	278	1,030	726	310	256	336	2,230	3,500	463	904	186	109
5	259	912	802	278	254	490	2,910	3,160	418	1,010	221	189
6	304	630	644	571	248	665	3,680	3,420	896	785	234	153
7	357	896	580	512	240	620	4,520	3,250	853	544	213	118
8	316	742	512	454	256	400	5,540	3,160	644	530	196	136
9	297	585	476	414	262	326	6,560	2,320	490	440	146	125
10	380	504	454	372	262	294	4,950	1,640	384	357	114	203
11	440	440	472	343	256	278	3,080	1,250	343	310	121	376
12	708	414	476	313	248	278	2,060	1,550	304	275	170	320
13	2,910	380	481	304	234	1,720	1,800	1,850	329	256	198	237
14	3,250	364	486	297	224	3,250	1,590	1,300	323	450	184	278
15	1,760	360	490	288	224	5,460	1,420	2,570	562	422	522	357
16	1,210	392	558	278	234	6,310	1,550	2,740	422	304	595	353
17	2,400	700	1,720	278	278	5,800	2,660	2,140	310	231	316	313
18	4,950	2,570	3,500	336	558	5,540	3,080	1,380	265	208	248	418
19	5,720	3,250	3,000	1,800	400	5,120	2,740	1,300	291	206	206	353
20	4,780	4,780	1,760	1,640	360	5,290	2,480	1,590	310	364	194	262
21	2,820	3,680	1,100	700	353	6,140	2,820	1,170	251	251	189	224
22	1,680	2,230	630	499	336	6,900	2,480	853	224	194	104	208
23	1,170	1,590	468	440	336	6,060	2,740	651	360	189	114	179
24	1,550	1,250	432	372	336	4,780	2,320	742	615	172	189	172
25	1,340	1,080	436	350	336	4,180	2,570	938	1,460	144	203	153
26	1,010	870	468	326	336	3,840	4,270	700	1,680	159	184	157
27	751	726	436	313	336	3,250	4,100	544	1,030	130	161	153
28	651	776	400	307	336	2,570	3,160	476	566	146	155	148
29	751	768	388	294	------	1,930	3,420	404	2,060	136	112	111
30	576	742	384	281	------	1,760	3,250	658	2,480	136	138	138
31	517	------	384	275	------	1,930	------	828	------	130	148	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5,720	259	1,430	3.21	3.70
November	4,780	360	1,140	2.56	2.86
December	3,500	384	794	1.78	2.05
January	1,800	275	454	1.02	1.18
February	558	224	296	.665	.69
March	6,900	262	2,790	6.27	7.23
April	6,560	1,420	3,050	6.85	7.64
May	4,020	404	1,790	4.02	4.64
June	2,480	224	656	1.47	1.64
July	4,020	130	561	1.26	1.45
August	595	104	198	.445	.51
September	418	109	210	.472	.53
The year	6,900	104	1,120	2.52	34.12

CLYDE RIVER AT NEWPORT, VT.[1]

LOCATION.—Water-stage recorder just below plant of Newport Electric Light Co., Newport, Orleans County, 1¾ miles above mouth.

DRAINAGE AREA.—150 square miles.

RECORDS AVAILABLE.—May, 1909, to September, 1924; November, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,330 second-feet Apr. 10 (gage height, 4.10 feet); minimum, 21 second-feet Sept. 2 (gage height, 1.75 feet).

1909–1924, 1928–29: Maximum discharge, 4,500 second-feet (revised determination) Mar. 25–30, 1913 (gage height, 5.8 feet); minimum discharge practically zero at various times when water was held back by dams.

REMARKS.—Records poor.

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

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	e 250	209	e 154	126	415	e 1,130	267	330	e 114	86
2	------	e 248	209	142	123	427	e 1,130	251	336	e 112	96
3	------	246	214	131	117	446	e 1,130	240	336	e 110	100
4	------	246	184	123	e 120	452	1,140	229	342	109	102
5	------	246	162	126	e 130	491	1,240	219	324	109	102
6	------	240	204	114	e 145	577	1,250	224	307	112	86
7	------	235	240	142	e 190	629	1,180	219	290	114	120
8	------	209	256	128	e 178	789	1,120	240	256	123	73
9	------	194	235	131	162	1,050	1,050	235	229	123	120
10	------	189	229	120	109	1,280	963	e 214	209	106	e 100
11	------	184	235	120	150	1,270	860	e 204	170	90	e 102
12	------	179	199	114	138	1,160	789	174	158	104	e 103
13	------	174	179	114	154	1,030	e 754	e 199	146	114	e 104
14	------	174	154	120	179	888	e 720	e 189	138	131	106
15	------	179	158	126	256	780	e 694	224	131	138	117
16	174	189	146	131	427	720	e 660	219	128	138	123
17	199	251	154	109	537	720	e 629	240	128	128	128
18	313	324	166	123	557	728	629	235	134	102	e 140
19	360	378	336	114	557	702	645	251	146	123	e 180
20	446	427	324	114	557	668	629	235	134	112	e 188
21	452	446	554	114	564	677	598	162	120	114	170
22	458	446	324	123	598	652	564	e 224	128	104	138
23	471	396	313	120	668	668	537	e 262	142	106	128
24	484	336	295	106	694	660	504	e 262	134	112	123
25	e 415	319	284	126	668	720	452	e 262	126	100	e 120
26	e 360	307	240	123	637	906	427	e 267	120	98	e 130
27	e 330	290	209	126	590	1,070	415	e 267	e 113	106	e 140
28	e 305	290	189	126	557	e 1,160	372	e 267	e 108	106	134
29	e 280	262	e 184	------	504	e 1,150	360	278	e 114	e 100	70
30	e 265	251	e 166	------	446	e 1,140	354	307	e 119	e 103	106
31	------	229	e 158	------	427	------	e 313	------	e 117	106	------

Month	Discharge in second-feet				Run-off in Inches
	Maximum	Minimum	Mean	Per square mile	
November 16–30	484	174	354	2.36	1.32
December	446	174	269	1.79	2.06
January	354	146	223	1.49	1.72
February	154	106	124	.827	.86
March	694	109	363	2.42	2.79
April	1,280	415	801	5.34	5.96
May	1,250	313	750	5.00	5.76
June	307	162	236	1.57	1.75
July	342	108	184	1.23	1.42
August	138	90	112	.747	.86
September	188	70	118	.787	.88

e Estimated.

[1] Formerly published as "at West Derby."

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Wrightstown, Wis., Fox River near 18

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