UNITED STATES DEPARTMENT OF THE INTERIOR

SURFACE WATER SUPPLY *of the* UNITED STATES 1931

PART 4

ST. LAWRENCE RIVER BASIN

Prepared in cooperation with the States of
ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, NEW YORK
OHIO, VERMONT, AND WISCONSIN

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 714

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
GEOLOGICAL SURVEY
W. C. MENDENHALL, Director

Water-Supply Paper 714

SURFACE WATER SUPPLY *of the* UNITED STATES 1931

PART 4
ST. LAWRENCE RIVER BASIN

NATHAN C. GROVER, Chief Hydraulic Engineer
C. L. BATCHELDER, H. E. GROSBACH, A. W. HARRINGTON
BERKELEY JOHNSON, H. B. KINNISON, LASLEY LEE
J. H. MORGAN, and S. B. SOULÉ, District Engineers

Prepared in cooperation with the States of
ILLINOIS, INDIANA, MICHIGAN, MINNESOTA
NEW YORK, OHIO, VERMONT
AND WISCONSIN

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1933

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - Price 15 cents

CONTENTS

ILLUSTRATION

SURFACE WATER SUPPLY OF ST. LAWRENCE RIVER BASIN, 1931

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, 1931.

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, 1895–1932

1895	$12,500.00	1908–1910	$100,000.00	1926	$165,000.00
1896	24,500.00	1911–1917	150,000.00	1927	151,000.00
1897–1899	50,000.00	1918	175,000.00	1928	147,000.00
1900	70,000.00	1919	148,244.10	1929	270,500.00
1901–2	100,000.00	1920	175,000.00	1930	275,000.00
1903–1906	200,000.00	1921–1923	180,000.00	1931	565,000.00
1907	150,000.00	1924–25	170,000.00	1932	711,000.00

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 6,270 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1931, 2,660 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, 1930, and ending September 30, 1931. 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 the 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 methods outlined

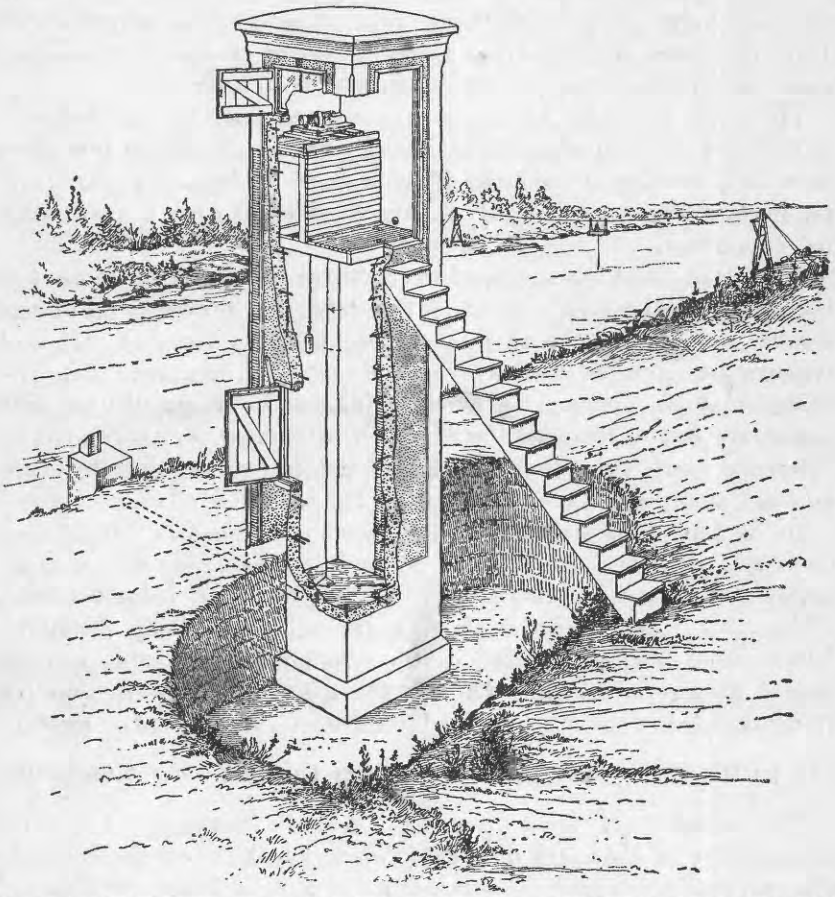

FIGURE 1.—Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

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.

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

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

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

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (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 noncontributing districts

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

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

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

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water powers, underground 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 1. North Atlantic slope basins (St. John River to York River).
2. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).
3. Ohio River Basin.
4. St. Lawrence River Basin.
5. Hudson Bay and upper Mississippi River Basins.
6. Missouri River Basin.
7. Lower Mississippi River Basin.
8. Western Gulf of Mexico Basins.
9. Colorado River Basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. North Pacific slope drainage basins, in three parts:
    A, Pacific slope basins in Washington and upper Columbia River Basin.
    B, Snake River Basin.
    C, Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

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

Augusta, Me., State House.
Boston, Mass., 2500 Customhouse.
Hartford, Conn., 318 State Office Building.
Albany, N. Y., 603 State Public Works Building.
Trenton, N. J., 710 Trenton Trust Building.
Harrisburg, Pa., Claster Building.
Charlottesville, Va., Brooks Museum, University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Asheville, 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.
Urbana, Ill., 302 University New Agricultural Building.
Madison, Wis., 337N State Capitol.
St. Paul, Minn., 202 Old State Capitol.
Topeka, Kans., 23 Federal Building.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Austin, Tex., State Capitol.
Santa Fe, N. Mex., State Capitol.
Tucson, Ariz., 210 Post Office Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 303 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Helena, Mont., 416 Power Block.
Tacoma, Wash., 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 751 South Figueroa Street, room 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 6,270 points in the United States, and the data obtained have been published in the reports tabulated on pages 7 and 8.

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

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to Sept., 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only.	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907–8.
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	1919–20.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.
W 621 to 634	do	1926.
W 641 to 654	do	1927.
W 661 to 674	do	1928.
W 681 to 694	do	1929.
W 696 to 709	do	1930.
W 711 to 724	do	1931.

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.

Number of water-supply papers containing results of stream measurements, 1899–1931

[For basins included, see p. 5]

Year	1	2	3	4	5	6	7	8	9	10	11	12-A	12-B	12-C
1899 [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
1930	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931	711	712	713	714	715	716	717	718	719	720	721	722	723	724

[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 4.
[b] James River only.
[c] Gallatin River.
[d] Green and Gunnison Rivers and Colorado 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 4.
[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 River 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] The Great Basin in California except Truckee and Carson River Basins.
[s] Below junction with Gila.
[t] Rogue, Umpqua, and Siletz Rivers only.

The preceding table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1931. The data for any particular station will as a rule be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part 3 are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

COOPERATION

The work in the several States was done under cooperative agreements as follows: In Illinois with the Department of Purchases and Construction, division of waterways, William F. Mulvihill, supervisor until January, 1931, Judge Benjamin H. Miller, supervisor thereafter; in Indiana with the Department of Conservation, Denzil Doggett, assistant State engineer; in Michigan with the Michigan Stream Control Commission, George R. Hogarth, chairman, the Michigan State College, Herman H. Halladay, secretary, and the city of Owosso, W. C. Seegmiller, mayor; in Minnesota with the Department of Drainage and Waters, E. V. Willard, commissioner; in New York with the Department of Public Works, Frederick Stuart Greene, superintendent, and the Black River Regulating District; in Ohio with the Ohio Cooperative Topographic Survey, C. E. Sherman, inspector; in Vermont with Stanley C. Wilson, governor; and in Wisconsin with the Railroad Commission of Wisconsin (name changed to Public Service Commission of Wisconsin, July 1, 1931), C. B. Hayden, chief engineer.

Acknowledgment is due also to the Corps of Engineers, United States Army, for financial assistance in collecting records published herein.

Assistance in collecting records was also rendered by the following municipalities, organizations, corporations, and individuals: In Illinois by the Sanitary District of Chicago; in Michigan by the cities of Allegan, Niles, Albion, Grand Rapids, Alma, Port Huron, Flint, and Dearborn, Michigan Highway Department, Fargo Engineering Co., Michigan Gas & Electric Co., and Consumers Power Co.; in New York by the city of Rochester, Northern New York Utilities (Inc.), International Paper Co., Utica Gas & Electric Co., Cornell University, Malone Light & Power Co., New York & Pennslyvania Co., Associated Gas & Electric System, Rochester Gas & Electric Corporation, Deer River Power Co., and Commission for Improvement of Oswegatchie River; in Vermont by the Green Mountain Power Co. and Newport Electric Light Co.; and in Wisconsin by the Wisconsin-Michigan Power Co., D. W. Mead, consulting engineer, Wisconsin Power & Light Co., and Wisconsin Public Service Corporation, A. G. Carson, chief engineer.

DIVISION OF WORK

The data for the stations in the several States were collected and prepared for publication as follows: In Minnesota by C. L. Batchelder, district engineer, assisted by C. E. Putz; in Wisconsin by S. B. Soulé, district engineer, assisted by C. C. Yonkers, Jacob Schmidt, and Walter T. Wilson; in Illinois by J. H. Morgan, district engineer, assisted by L. C. Crawford and C. L. Muntz; in Indiana by H. E. Grosbach, district engineer, assisted by F. L. Le Mert, W. D. Mitchell, W. P. Cross, R. L. Spencer, and Mrs. C. Perrin; in Michigan by Berkeley Johnson, district engineer, assisted by R. H. Brigham and E. L. Barrows except for stations on St. Joseph River at Mottville and on Kalamazoo River near Allegan, which were operated after June 30 and the data prepared for publication by H. E. Grosbach, district engineer, assisted by W. D. Mitchell and R. L. Spencer; in Ohio by Lasley Lee, district engineer, assisted by J. I. Perrey, C. V. Youngquist, L. Engstrom, C. L. Muntz, H. E. Cox, J. P. Bonner, and H. P. Brooks; in New York by A. W. Harrington, district engineer, assisted by J. L. Lamson, F. C. Christopherson, J. V. B. Wells, W. B. Hanlon, Kyle Forrest, R. H. Brigham, Miss Agnes D. Buchanan, and Miss Elizabeth L. Connors; in Vermont by H. B. Kinnison, district engineer, assisted by J. H. Foster, G. K. Wood, E. H. Curtis, A. A. Fischback, jr., G. R. Williams, L. Engstrom, and Miss T. V. Larson.

The manuscript was reviewed and assembled by F. L. Le Mert.

GAGING-STATION RECORDS

STREAM TRIBUTARY TO LAKE SUPERIOR

CROSS RIVER AT SCHROEDER, MINN.

LOCATION.—Staff gage in sec. 36, T. 59 N., R. 5 W., about half a mile above mouth, at Schroeder.

RECORDS AVAILABLE.—June to September, 1931.

EXTREMES.—Maximum discharge during period, 121 second-feet Sept. 26 (gage height, 2.82 feet); minimum, 3 second-feet Aug. 20, 21, Sept. 9–12.

REMARKS.—Records fair. Results of discharge measurements furnished by Duluth office of the Corps of Engineers, United States Army.

Daily and monthly discharge, in second-feet, 1931

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-------	62	16	4	16	-------	37	5	7
2	-------	57	16	4	17	-------	32	5	6
3	-------	48	16	4	18	-------	30	4	5
4	-------	48	14	4	19	-------	30	4	5
5	-------	57	11	4	20	-------	26	3	32
6	-------	52	10	4	21	-------	24	3	37
7	-------	52	10	4	22	-------	23	8	23
8	-------	48	12	4	23	-------	22	7	15
9	-------	48	11	3	24	-------	22	6	11
10	-------	44	10	3	25	-------	22	5	69
11	-------	39	10	3	26	-------	21	4	121
12	-------	48	8	3	27	-------	20	4	74
13	-------	48	7	13	28	79	19	4	59
14	-------	44	6	11	29	79	17	4	37
15	-------	39	6	7	30	67	15	5	26
					31	-------	15	5	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
June 28–30	79	67	75.0	August	16	3	7.71
July	62	15	35.8	September	121	3	20.1

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., 3 miles above mouth of Pine River and 3½ miles north of Iron Mountain.

DRAINAGE AREA.—1,790 square miles.

RECORDS AVAILABLE.—January, 1914, to September, 1931.

EXTREMES.—Maximum mean daily discharge during year, 2,270 second-feet Apr. 23, 25; minimum, 514 second-feet Aug. 25.

1914–1931: Maximum mean daily discharge, 16,700 second-feet Apr. 23, 24, 1916; minimum, 154 second-feet Aug. 9, 1925.

REMARKS.—Records good. Discharge determined from power-house records. Besides regulation by power plant at which station is located, flow is regulated by plant on Brule River about 5 miles above station, where drainage area is 58 per cent of that at station. Records of daily discharge furnished by Wisconsin-Michigan Power Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	826	935	768	866	862	924	1,040	1,530	1,340	1,040	591	554
2	855	928	753	738	781	937	1,030	1,770	1,170	1,260	649	535
3	865	993	774	704	878	969	1,010	1,380	1,110	1,190	652	540
4	830	944	776	861	927	902	964	1,620	1,110	1,310	756	583
5	867	930	833	718	955	913	1,020	1,620	1,110	1,260	773	541
6	817	917	861	745	896	877	1,110	1,520	1,140	1,320	810	617
7	958	883	972	747	829	807	1,490	1,470	1,060	1,320	946	608
8	1,080	867	962	785	833	882	1,610	1,340	1,130	1,430	1,130	527
9	1,430	888	1,000	849	826	827	1,770	1,590	989	1,400	1,160	536
10	1,540	915	1,010	835	816	860	1,680	1,300	1,180	1,140	1,120	543
11	1,550	926	1,030	771	829	797	1,790	1,310	1,760	1,170	1,040	573
12	944	921	1,040	896	847	789	1,640	1,860	1,750	1,110	932	608
13	987	921	914	924	812	782	2,180	1,980	1,750	1,110	891	603
14	972	896	836	857	830	772	2,060	1,830	1,740	1,010	792	519
15	932	862	901	889	818	827	1,770	1,680	1,780	1,020	751	557
16	981	894	899	892	791	854	1,710	1,360	1,760	1,010	713	561
17	951	1,190	920	909	805	818	1,520	1,200	1,600	1,040	786	689
18	959	1,310	826	882	838	840	1,340	1,260	1,240	965	698	685
19	862	1,300	871	823	840	834	1,350	1,300	1,180	1,040	681	639
20	990	1,310	889	843	812	843	2,020	1,420	1,310	920	597	1,400
21	961	1,330	763	854	318	833	2,250	1,320	1,290	883	618	1,980
22	979	1,160	871	826	920	928	2,260	1,400	1,330	867	680	2,170
23	970	975	881	812	785	909	2,270	1,350	1,350	817	615	2,050
24	905	1,140	843	811	825	1,050	2,260	1,320	1,780	783	548	1,800
25	858	1,110	948	777	795	1,110	2,270	1,280	2,070	726	514	1,620
26	808	1,030	859	816	832	1,140	2,100	1,350	1,770	768	600	1,750
27	902	854	768	801	935	1,080	1,730	1,400	1,370	674	560	1,320
28	893	826	866	781	977	1,070	2,200	1,820	1,340	652	532	1,550
29	938	795	770	781	-------	1,020	1,670	1,630	1,310	606	544	1,300
30	947	825	791	766	-------	1,040	1,420	1,340	1,100	595	603	1,330
31	945	-------	764	766	-------	1,030	-------	1,210	-------	627	553	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,550	808	977	0.546	0.63
November	1,330	795	992	.554	.62
December	1,040	753	870	.486	.56
January	924	704	817	.456	.53
February	977	781	847	.473	.49
March	1,140	772	912	.509	.59
April	2,270	964	1,680	.939	1.05
May	1,980	1,200	1,480	.827	.95
June	2,070	989	1,400	.782	.87
July	1,430	595	1,000	.559	.64
August	1,160	514	737	.412	.48
September	2,170	519	976	.545	.61
The year	2,270	514	1,060	.592	8.02

MENOMINEE RIVER BELOW KOSS, MICH.

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

DRAINAGE AREA.—3,790 square miles.

RECORDS AVAILABLE.—July, 1913, to September, 1931.

EXTREMES.—Maximum mean daily discharge during year, 4,060 second-feet Apr. 25; minimum, 162 second-feet Sept. 15.

1913–1931: Maximum mean daily discharge, 23,200 second-feet Apr. 23, 25, 1916; minimum, that of Sept. 15, 1931.

REMARKS.—Records good. Discharge determined from power-house records. Flow regulated by six dams above station, which are used for developing power. Records of daily discharge furnished by Wisconsin Public Service Corporation.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,390	1,300	1,120	1,100	960	1,370	2,080	2,580	2,000	2,070	497	602
2	949	1,460	694	937	1,040	1,410	1,810	2,050	1,900	1,810	891	694
3	1,300	1,120	1,100	914	625	1,380	1,590	2,510	2,110	1,740	822	671
4	1,350	1,020	1,320	1,050	1,250	1,230	1,750	2,850	2,330	1,850	1,400	625
5	1,160	1,470	1,050	984	1,160	1,450	1,910	1,840	2,120	1,710	937	567
6	1,070	1,520	1,160	1,040	1,180	1,400	1,550	2,930	1,120	1,640	556	475
7	1,190	1,350	1,200	1,190	1,550	1,450	1,680	2,360	1,550	1,980	1,020	567
8	1,330	1,280	1,180	1,050	1,110	1,110	2,340	2,630	1,340	2,160	1,150	440
9	1,770	1,340	1,190	1,150	1,040	1,230	3,300	2,590	1,890	2,000	1,710	243
10	2,270	1,090	1,410	1,220	1,130	1,080	2,960	2,440	1,570	2,150	1,370	336
11	2,220	822	1,520	972	1,220	1,150	3,010	3,090	2,340	2,240	1,930	521
12	2,580	1,540	1,550	1,110	995	1,390	2,810	2,790	2,890	1,620	2,050	648
13	1,990	1,460	1,440	1,130	1,300	1,370	3,570	2,890	3,380	1,320	1,990	706
14	1,220	1,340	1,310	1,160	1,080	1,110	3,070	3,360	3,460	1,380	1,200	197
15	1,410	1,490	1,200	1,190	1,190	1,240	2,920	3,530	3,520	1,500	1,900	162
16	1,680	1,610	1,030	1,320	1,020	1,200	3,180	3,310	2,890	1,790	1,810	255
17	1,630	1,100	995	1,170	1,050	1,160	2,820	2,890	3,020	1,240	1,160	972
18	1,610	1,760	1,200	1,060	1,200	1,200	3,190	1,970	3,030	1,470	1,370	1,530
19	1,350	2,050	1,380	1,130	1,220	1,100	2,430	2,580	2,550	1,470	1,260	775
20	1,330	2,330	1,350	1,170	1,110	1,200	2,050	2,920	2,670	949	1,100	1,080
21	1,250	2,240	995	1,270	1,230	1,300	2,880	2,270	2,180	1,630	1,340	1,390
22	1,330	2,260	1,090	1,190	995	1,520	3,720	2,510	2,550	1,310	706	3,610
23	1,690	2,400	949	1,050	1,160	1,470	3,530	2,710	2,440	1,010	602	3,320
24	1,330	1,620	961	1,170	984	1,540	4,000	2,190	2,280	706	463	4,050
25	1,490	1,330	1,170	868	1,390	2,080	4,060	2,220	2,320	1,200	451	3,510
26	1,370	2,070	972	1,160	1,110	2,000	3,970	2,200	2,850	1,190	845	3,630
27	1,170	1,120	1,110	844	1,200	1,960	3,870	2,780	3,720	794	660	2,940
28	868	984	1,330	1,320	1,170	1,340	3,080	2,520	2,420	1,030	637	3,650
29	1,370	995	995	1,120	------	1,050	2,600	2,560	2,190	1,280	602	3,510
30	1,530	1,330	1,080	1,200	------	1,390	3,290	2,940	1,900	961	579	3,290
31	1,350	------	1,080	1,180	------	2,440	------	2,340	------	914	428	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,580	868	1,470	0.388	0.45
November	2,400	822	1,490	.393	.44
December	1,550	694	1,170	.309	.36
January	1,320	844	1,110	.293	.34
February	1,550	625	1,130	.298	.31
March	2,440	1,050	1,400	.369	.43
April	4,060	1,550	2,830	.747	.83
May	3,530	1,840	2,620	.691	.80
June	3,720	1,120	2,420	.639	.71
July	2,240	706	1,490	.393	.45
August	2,050	428	1,080	.285	.33
September	4,050	162	1,500	.396	.44
The year	4,060	162	1,640	.433	5.89

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

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

DRAINAGE AREA.—520 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1931; January, 1914, to September, 1923, at station 4 miles upstream.

EXTREMES.—Maximum mean daily discharge during year, 819 second-feet Sept. 28; no flow several times during year.

1923–1931: Maximum mean daily discharge, 4,380 second-feet Apr. 9, 1929; no flow in 1924, 1926, 1927, 1930, 1931.

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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	172	172	66	61	49	244	195	172	247	135	110
2	169	37	155	172	159	180	196	245	172	159	131	94
3	125	172	147	123	159	156	196	226	172	130	246	91
4	172	159	147	72	147	147	244	199	147	37	192	48
5	73	159	172	147	147	159	244	245	159	155	163	82
6	209	147	196	147	147	172	209	245	147	263	139	0
7	208	108	61	147	147	172	295	196	135	292	167	0
8	381	168	196	147	110	86	295	245	200	193	233	98
9	454	73	172	123	147	172	342	295	295	191	424	98
10	351	184	172	195	147	143	395	295	258	106	534	96
11	298	172	172	107	110	159	382	454	494	168	534	48
12	292	172	172	110	147	149	338	393	486	86	385	0
13	289	172	172	147	196	159	342	390	543	159	368	0
14	258	159	110	135	57	158	295	341	571	108	295	96
15	255	172	172	123	116	61	295	295	567	107	295	84
16	209	196	147	129	146	159	333	295	535	106	295	96
17	258	292	132	121	147	159	345	295	462	106	194	131
18	196	392	133	98	110	172	338	221	443	107	172	135
19	196	342	123	159	156	159	340	297	478	49	172	169
20	196	295	200	141	110	159	387	196	473	95	123	357
21	196	333	49	135	147	159	444	295	342	95	107	489
22	147	295	172	147	98	86	519	196	397	96	84	574
23	159	295	183	147	147	196	490	241	397	84	48	574
24	196	298	145	196	172	196	422	196	400	48	155	580
25	196	295	0	99	159	196	376	295	388	75	96	580
26	123	196	196	143	147	196	273	295	388	0	48	817
27	172	159	172	147	172	196	365	368	295	96	98	819
28	159	147	61	123	159	196	291	289	290	101	110	737
29	172	159	159	146	-------	98	282	287	287	95	98	652
30	172	110	147	143	-------	196	243	292	191	95	0	582
31	172	-------	147	147	-------	196	-------	245	-------	48	110	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	454	73	213	0.410	0.47
November	392	37	201	.387	.43
December	200	0	147	.283	.33
January	196	66	135	.260	.30
February	196	57	138	.265	.28
March	196	49	156	.300	.35
April	519	196	325	.625	.70
May	454	195	276	.531	.61
June	571	135	343	.660	.74
July	292	0	119	.229	.26
August	534	0	198	.381	.44
September	819	0	275	.529	.59
The year	819	0	210	.404	5.50

PIKE RIVER AT AMBERG, WIS.

LOCATION.—Chain gage in sec. 15, T. 35 N., R. 20 E., at Chicago, Milwaukee, St. Paul & Pacific Railroad bridge half a mile south of Amberg. Gage moved on May 23, 1931, to highway bridge at north edge of sec. 22, T. 35 N., R. 20 E., 3,000 feet east of railroad bridge.

DRAINAGE AREA.—240 square miles.

RECORDS AVAILABLE.—February, 1914, to September, 1931.

EXTREMES.—Maximum discharge during year, 331 second-feet May 11, 12, June 13, Sept. 27 (gage height, 2.46 feet); minimum, 75 second-feet Mar. 4.

1914–1931: Maximum discharge, 2,730 second-feet Apr. 10, 1922 (gage height, 7.68 feet); minimum, 26 second-feet Dec. 27, 1925 (gage height, 1.30 feet).

REMARKS.—Records good except those for period of ice effect, Nov. 27 to Mar. 17, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	114	120	140	110	110	90	148	157	114	103	98	94
2	114	114	140	110	110	95	148	157	108	98	103	94
3	120	114	150	105	110	100	169	169	108	98	148	94
4	120	120	170	115	105	75	148	181	103	98	120	90
5	126	126	170	115	105	95	157	181	103	120	103	86
6	126	132	150	100	100	95	169	181	103	148	94	86
7	132	120	150	100	105	90	169	169	103	148	103	86
8	169	139	155	100	105	90	169	139	103	126	126	86
9	181	120	150	105	105	85	194	157	103	114	132	86
10	181	120	140	105	95	80	206	259	206	108	169	82
11	148	120	130	115	95	105	194	331	287	103	148	79
12	139	120	125	115	115	110	181	331	316	98	132	79
13	132	120	120	120	110	110	169	302	331	98	114	79
14	126	120	120	105	105	120	169	273	287	94	103	76
15	126	126	115	105	110	115	169	206	259	94	98	82
16	126	194	100	100	115	115	169	181	246	97	98	114
17	139	259	100	110	110	115	181	157	246	88	98	120
18	132	259	100	110	105	126	194	157	232	94	98	108
19	126	246	100	110	100	126	194	259	219	98	98	103
20	126	232	105	105	100	126	194	181	219	108	103	259
21	126	219	100	100	100	126	273	181	219	98	98	316
22	120	194	105	100	95	126	287	169	206	94	94	259
23	120	169	100	105	90	132	273	148	181	90	94	206
24	120	169	105	110	95	139	232	148	169	90	94	148
25	114	148	110	110	95	157	194	194	148	88	90	206
26	120	148	125	105	90	148	181	206	148	83	90	316
27	126	140	125	100	90	148	181	181	139	90	86	331
28	126	140	105	100	95	148	169	148	126	90	86	232
29	120	140	110	95	------	120	181	132	120	83	86	194
30	120	140	110	95	------	181	169	126	114	83	86	157
31	120	------	115	105	------	139	------	120	------	88	86	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	181	114	130	0.542	0.62
November	259	114	154	.642	.72
December	170	100	124	.517	.60
January	120	95	106	.442	.51
February	115	90	102	.425	.44
March	181	75	117	.488	.56
April	287	148	188	.783	.87
May	331	120	190	.792	.91
June	331	103	179	.746	.83
July	148	86	100	.417	.48
August	169	86	106	.442	.51
September	331	76	145	.604	.67
The year	331	75	137	.571	7.72

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.—585 square miles (revised).

RECORDS AVAILABLE.—August, 1912, to September, 1931.

EXTREMES.—Maximum mean daily discharge during year, 905 second-feet Nov. 20; minimum, 2 second-feet about once a week.

1912–1931: Maximum discharge, 3,860 second-feet Apr. 11, 1922 (gage height, 7.80 feet); no flow on several days during 1925, 1928 1929.

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

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	157	56	195	119	2	2	270	497	234	365	89	168
2	320	2	250	354	357	252	366	500	489	336	407	235
3	366	147	115	145	167	228	66	2	285	343	162	227
4	236	241	293	2	47	262	172	653	193	22	176	105
5	2	94	294	298	276	205	2	505	224	221	134	181
6	135	69	384	91	252	335	398	251	70	357	182	61
7	468	2	2	192	341	541	234	607	38	406	284	49
8	98	604	178	308	59	2	316	271	200	2	302	195
9	59	2	245	99	137	285	527	65	273	346	2	78
10	59	390	176	220	211	340	250	117	300	205	2	236
11	2	708	218	275	121	280	2	376	348	105	159	236
12	56	493	347	222	275	2	59	338	675	79	272	330
13	104	118	426	352	299	178	363	438	537	507	250	118
14	512	230	2	56	383	268	563	388	2	4	423	135
15	399	274	334	210	52	2	256	394	419	344	529	223
16	531	269	281	234	532	550	311	184	646	169	61	214
17	494	224	285	291	99	281	394	46	723	76	362	379
18	250	189	292	2	157	437	227	547	310	2	240	283
19	2	381	230	95	172	221	2	754	520	14	210	594
20	492	905	210	199	94	179	643	309	389	161	39	60
21	266	341	60	191	465	242	546	467	140	2	34	588
22	32	174	363	171	60	60	471	636	554	110	268	659
23	146	483	227	260	253	222	624	502	374	48	110	360
24	200	286	376	326	329	215	420	115	520	8	242	493
25	191	346	2	2	160	240	181	544	482	2	334	867
26	2	549	43	148	260	313	108	512	547	2	67	418
27	452	175	336	215	364	335	621	242	329	150	2	2
28	357	316	58	157	462	454	485	201	60	54	2	537
29	330	89	244	387	-------	190	566	304	287	139	13	690
30	240	2	234	92	-------	641	506	2	676	113	2	515
31	274	-------	123	70	-------	215	-------	2	-------	254	131	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	531	2	233	0.398	0.46
November	905	2	272	.465	.52
December	426	2	220	.376	.43
January	387	2	187	.320	.37
February	532	2	228	.390	.41
March	641	2	257	.440	.51
April	643	2	332	.568	.63
May	754	2	347	.593	.68
June	723	2	361	.617	.69
July	507	2	160	.274	.32
August	529	2	177	.303	.35
September	867	2	308	.526	.59
The year	905	2	256	.438	5.96

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, 1931.

EXTREMES.—Maximum discharge during year, 710 second-feet Oct. 9 (gage height, 1.77 feet); minimum, 190 second-feet July 30 to Aug. 1, Aug. 27 to Sept. 1.

1906–1909, 1914–1931: 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, 6, 1907 (gage height, 0.1 foot).

REMARKS.—Records good except those for period of ice effect, Nov. 25 to Mar. 19, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	217	330	295	278	246	246	387	363	295	450	190	190
2	232	330	278	278	262	246	387	348	278	408	204	204
3	262	330	278	278	262	246	387	348	278	312	204	204
4	312	330	278	278	262	246	363	330	262	312	232	217
5	363	330	278	278	262	246	387	312	278	312	232	217
6	363	330	278	278	262	246	387	312	278	312	232	204
7	387	312	278	278	262	246	387	330	278	312	232	204
8	660	312	278	278	246	262	387	348	295	295	246	217
9	710	312	295	295	232	278	363	348	295	295	262	217
0	428	330	295	278	217	312	387	348	312	295	262	217
11	428	330	295	278	217	363	363	348	312	278	246	217
12	428	330	295	278	232	363	363	348	387	278	246	217
13	450	330	295	278	246	387	363	348	450	278	232	217
14	450	330	278	262	246	387	363	348	450	278	232	232
15	450	348	295	262	232	387	363	348	450	278	217	246
16	428	387	295	262	246	408	330	363	450	262	217	246
17	450	387	278	246	262	408	348	363	450	262	217	246
18	450	387	278	246	262	428	363	363	471	246	217	262
19	450	387	278	246	262	387	363	387	471	232	217	278
20	428	387	278	246	262	330	363	408	494	232	217	295
21	428	408	278	278	262	348	408	408	471	232	204	330
22	408	408	278	262	262	348	428	428	494	217	217	363
23	408	428	278	217	262	348	387	428	450	217	217	363
24	408	428	278	232	262	363	387	408	428	217	204	363
25	387	387	278	246	262	387	408	408	387	217	204	387
26	428	363	278	246	262	387	408	363	408	204	204	387
27	387	348	295	246	262	387	428	363	471	204	190	387
28	387	330	278	246	262	408	387	348	471	204	190	363
29	363	312	278	246	-------	387	363	312	450	204	190	363
30	363	295	278	262	-------	408	363	295	450	190	190	348
31	348	-------	295	262	-------	408	-------	295	-------	190	190	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	710	217	408	0.602	0.69
November	428	295	352	.519	.58
December	295	278	283	.417	.48
January	295	217	263	.388	.45
February	262	217	253	.373	.39
March	428	246	342	.504	.58
April	428	330	379	.559	.62
May	428	295	357	.527	.61
June	494	262	390	.575	.64
July	450	190	265	.391	.45
August	262	190	218	.322	.37
September	387	190	273	.402	.45
The year	710	190	315	.465	6.31

FOX RIVER AT BERLIN, WIS.

LOCATION.—Staff gage in sec. 16, T. 17 N., R. 13 E., at Government lock and dam 2⅓ miles upstream from Berlin.
DRAINAGE AREA.—1,430 square miles.
RECORDS AVAILABLE.—January, 1898, to September, 1931.
EXTREMES.—Maximum mean daily discharge during year, 1,140 second-feet Apr. 5, 8; minimum, 430 second-feet Dec. 2, 3.
1898–1931: Maximum mean daily discharge, 6,620 second-feet Mar. 21, 23, 1929; minimum, 250 second-feet Feb. 1–4, 1900.
REMARKS.—Open water records good; winter records fair. Daily discharge records furnished by United States Army Engineers.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	675	735	447	488	674	800	975	830	645	615	510	560
2	675	735	430	518	680	765	975	830	645	615	510	560
3	675	705	430	518	685	765	1,060	765	675	590	510	615
4	675	705	455	518	718	765	1,100	800	675	590	510	615
5	705	715	480	518	723	765	1,140	800	645	560	560	590
6	675	695	480	548	730	765	1,100	800	645	560	535	590
7	745	675	505	548	735	765	1,100	800	615	560	535	590
8	800	675	505	548	693	865	1,140	800	615	560	535	590
9	765	675	535	518	711	800	1,100	765	705	560	535	560
10	765	675	535	548	701	905	1,060	800	705	560	535	560
11	800	675	565	548	631	800	1,060	800	675	560	535	560
12	800	675	565	578	620	765	1,020	765	675	560	535	590
13	800	675	565	578	639	765	1,020	765	675	560	510	560
14	800	675	583	518	587	735	975	765	705	560	510	590
15	841	695	552	515	545	735	940	765	675	535	510	675
16	865	735	480	513	603	735	905	735	675	535	510	705
17	865	735	480	541	615	735	905	615	675	535	510	735
18	865	735	515	569	623	765	865	615	645	535	535	735
19	853	705	535	597	692	735	865	675	645	560	510	735
20	820	705	545	594	704	735	830	705	645	560	535	765
21	765	705	547	562	714	765	830	735	645	535	510	765
22	700	705	547	560	751	765	865	735	615	535	510	800
23	710	705	547	590	788	765	830	705	615	535	510	800
24	800	705	517	593	820	800	865	705	645	535	510	765
25	800	615	487	626	830	765	865	675	675	535	510	830
26	800	518	527	629	867	830	830	645	615	510	510	865
27	800	470	547	632	865	865	765	645	615	510	490	865
28	755	480	547	635	830	645	800	645	590	510	510	865
29	735	475	547	638	------	510	830	645	615	510	510	865
30	735	447	500	668	------	800	830	615	590	510	510	830
31	705	------	455	670	------	940	------	645	------	510	535	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	865	675	767	0.536	0.62
November	735	447	661	.462	.52
December	583	430	515	.360	.42
January	670	488	569	.398	.46
February	867	545	706	.494	.51
March	940	510	771	.539	.62
April	1,140	765	948	.663	.74
May	830	615	729	.510	.59
June	705	590	649	.454	.51
July	615	510	549	.384	.44
August	560	490	519	.363	.42
September	865	560	691	.483	.54
The year	1,140	430	672	.470	6.39

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 above Wrightstown.

DRAINAGE AREA.—6,150 square miles.

RECORDS AVAILABLE.—March, 1896, to September, 1931.

EXTREMES.—Maximum mean daily discharge during year, 3,100 second-feet Dec. 2; minimum, 530 second-feet Aug. 30.

1918–1931: Maximum mean daily discharge, 20,600 second-feet Apr. 4, 1929; minimum, that of Aug. 30, 1931.

REMARKS.—Records good. Flow regulated by storage in Lake Winnebago. Daily-discharge records furnished by United States Army Engineers.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	966	907	2,520	2,690	2,130	2,140	2,290	1,600	1,290	1,090	991	968
2	1,120	897	3,100	2,650	2,450	2,170	2,430	795	1,220	1,190	945	977
3	1,050	1,070	2,920	2,450	2,790	2,630	2,400	1,040	1,160	1,000	976	786
4	781	1,190	2,650	1,860	2,490	2,590	2,180	1,300	1,240	649	910	941
5	589	1,090	2,400	2,810	2,460	2,510	1,640	1,040	1,240	910	1,040	1,060
6	990	1,020	2,270	2,600	2,450	2,040	2,200	1,380	1,070	1,080	875	891
7	1,260	1,290	1,680	2,490	2,390	2,050	2,700	1,240	817	916	953	644
8	1,150	1,130	2,740	2,690	1,950	2,120	2,710	1,290	1,170	968	1,100	1,090
9	1,150	1,000	3,080	2,680	2,070	2,270	2,560	1,240	1,200	988	690	945
10	1,090	1,210	2,900	1,990	2,930	2,710	2,700	1,040	1,270	1,020	994	876
11	1,000	1,070	2,450	2,140	2,650	2,570	1,970	1,280	1,010	1,020	946	851
12	642	1,080	2,520	2,790	2,730	2,590	1,930	1,180	1,060	855	824	938
13	1,050	1,260	2,300	2,520	2,490	2,430	2,310	1,320	1,140	1,120	751	919
14	1,120	1,160	1,550	2,560	2,340	2,320	2,680	1,370	1,040	1,050	872	1,560
15	1,130	991	2,570	2,620	2,140	2,030	2,880	1,290	1,220	1,110	1,050	1,160
16	1,130	993	2,520	2,360	2,050	2,500	2,840	1,180	1,220	1,300	845	1,190
17	1,240	1,230	2,800	2,300	2,730	2,630	2,780	1,150	1,180	1,160	869	998
18	978	1,040	2,730	2,100	2,450	2,760	2,140	1,520	1,130	998	889	1,030
19	724	1,360	2,640	2,650	2,470	2,470	1,130	1,370	1,270	870	866	1,310
20	1,130	1,920	2,500	2,600	2,670	2,490	2,140	1,120	1,010	1,040	910	1,070
21	1,140	1,710	1,430	2,550	2,220	2,600	1,950	1,230	743	906	972	1,100
22	1,020	1,200	2,450	2,570	1,930	1,680	1,810	1,210	897	881	862	1,250
23	1,160	1,440	2,730	2,490	2,350	2,310	1,990	1,460	850	926	873	1,020
24	1,180	1,330	1,940	2,330	2,610	2,560	2,000	1,240	1,150	858	1,250	1,230
25	1,110	1,660	2,260	2,180	2,470	2,500	1,860	1,460	919	810	980	1,400
26	1,690	1,250	2,150	2,450	2,520	2,700	1,380	1,230	1,140	828	880	992
27	1,560	979	2,410	2,520	2,430	2,420	2,100	1,730	1,030	1,070	767	1,110
28	1,100	969	2,300	2,610	2,330	2,210	2,040	1,330	1,090	1,180	1,020	1,020
29	1,000	1,360	2,800	2,670	------	1,960	2,230	1,260	1,150	823	856	1,250
30	1,100	2,440	2,220	2,570	------	2,120	2,030	966	999	845	530	1,610
31	1,140	------	2,110	2,230	------	2,480	------	1,210	------	1,020	1,070	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,690	589	1,080	0.176	0.20
November	2,440	897	1,240	.202	.23
December	3,100	1,430	2,440	.397	.46
January	2,810	1,860	2,470	.402	.46
February	2,930	1,930	2,420	.393	.41
March	2,760	1,680	2,370	.385	.44
April	2,880	1,130	2,200	.358	.40
May	1,730	795	1,260	.205	.24
June	1,290	743	1,100	.179	.20
July	1,300	649	983	.160	.18
August	1,250	530	915	.149	.17
September	1,610	644	1,070	.174	.19
The year	3,100	530	1,630	.265	3.58

WOLF RIVER ABOVE WEST BRANCH OF WOLF RIVER, WI

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.

DRAINAGE AREA.—633 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,350 second-feet June 14, 15 (gage height, 4.00 feet); minimum, 259 second-feet July 30 (gage height, 1.56 feet).

1928–1931: Maximum discharge, 2,580 second-feet Apr. 8, 1929 (gage height, 6.10 feet); minimum, 201 second-feet Nov. 21, 1929 (gage height, 1.35 feet).

REMARKS.—Records excellent except those for period of ice effect, Nov. 27 to Mar. 29, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	321	354	370	305	337	290	439	439	370	632	305	404
2	404	370	337	337	354	305	422	439	370	632	337	354
3	439	354	274	321	337	404	404	404	370	550	337	346
4	422	354	337	354	337	321	422	354	387	550	321	337
5	387	354	337	387	354	354	457	354	439	632	321	321
6	387	321	370	387	321	354	475	354	404	632	305	305
7	475	321	370	354	354	354	475	354	404	590	305	305
8	590	321	387	354	337	354	475	354	457	550	337	305
9	590	387	354	354	337	321	512	370	439	512	370	305
10	550	354	370	354	274	337	512	404	550	439	387	305
11	512	354	370	354	354	387	512	422	1,020	387	387	305
12	475	354	370	354	321	439	512	422	1,290	354	370	290
13	457	354	370	337	337	404	475	404	1,240	354	370	290
14	422	354	354	321	305	404	475	387	1,350	337	354	290
15	422	404	337	321	305	387	475	370	1,350	337	337	290
16	422	475	337	337	337	354	512	354	1,290	321	370	321
17	422	550	354	354	354	354	512	354	1,180	321	370	404
18	404	512	354	337	337	354	512	422	1,130	305	354	404
19	404	512	337	354	354	337	512	387	1,020	305	337	404
20	370	512	321	337	354	354	590	354	1,130	290	321	475
21	370	550	337	337	354	370	632	370	970	290	321	550
22	387	512	337	337	354	387	632	354	920	290	305	512
23	387	475	337	321	370	354	590	354	818	290	290	475
24	370	475	337	321	370	370	550	354	769	290	305	475
25	370	475	354	321	370	354	512	370	722	274	305	512
26	370	321	337	321	354	337	512	370	920	274	290	590
27	370	290	354	337	387	370	475	370	970	274	290	590
28	370	321	354	321	337	354	475	354	870	274	305	550
29	370	370	321	337	------	337	457	404	769	274	305	550
30	370	370	321	337	------	354	439	404	676	259	305	512
31	354	------	321	354	------	590	------	387	------	274	305	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	590	321	418	0.660	0.76
November	550	290	401	.633	.71
December	387	274	346	.547	.63
January	387	305	341	.539	.62
February	387	274	343	.542	.56
March	590	290	366	.578	.67
April	632	404	498	.787	.88
May	439	354	380	.600	.69
June	1,350	370	820	1.30	1.45
July	632	259	390	.616	.71
August	387	290	330	.521	.60
September	590	290	403	.637	.71
The year	1,350	259	419	.662	8.99

WOLF RIVER AT KESHENA FALLS, WIS.

LOCATION.—Water-stage recorder in E. ½ sec. 22, T. 28 N., R. 15 E., 500 feet below Keshena Falls.

DRAINAGE AREA.—812 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1931. May, 1907, to March, 1909. February, 1911, to March, 1928, at station 1½ miles downstream, at Keshena.

EXTREMES.—Maximum discharge during year, 1,530 second-feet June 14–16; minimum, 361 second-feet July 26–31, Aug. 23.

1928–1931: Maximum discharge, 4,100 second-feet Apr. 8, 1929; minimum, 311 second-feet Nov. 21–22, 1929.

REMARKS.—Records good except those for period of ice effect, Nov. 28 to Mar. 21, and periods when water-stage recorder was not working satisfactorily, July 1–6 and Sept. 10–15, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	444	482	565	454	429	429	576	576	482	764	415	531
2	565	509	565	454	429	454	576	565	482	786	454	465
3	594	482	593	454	454	454	594	554	482	696	444	454
4	565	482	565	429	454	454	599	548	509	696	415	444
5	520	476	537	405	429	454	594	526	554	810	415	430
6	531	465	537	429	405	454	594	498	509	827	396	405
7	669	476	537	405	405	481	599	487	520	773	405	420
8	801	444	509	454	405	429	605	476	576	694	444	415
9	801	509	509	429	405	454	611	470	565	652	476	405
10	713	492	537	405	405	481	605	487	707	576	498	406
11	657	476	509	383	383	509	599	526	1,140	509	498	456
12	611	482	481	405	383	565	599	531	1,430	476	476	391
13	594	482	481	429	383	537	594	526	1,430	465	465	391
14	565	492	481	481	405	537	594	520	1,530	454	454	397
15	565	537	509	429	405	593	588	515	1,530	444	434	391
16	565	669	509	405	405	593	594	476	1,530	430	476	415
17	565	773	481	405	405	537	594	476	1,330	425	476	531
18	543	669	481	405	405	537	594	576	1,280	415	444	509
19	543	669	481	405	405	537	582	537	1,140	415	434	520
20	509	669	481	383	454	565	616	476	1,430	396	415	611
21	498	611	481	383	454	537	707	509	1,230	392	405	576
22	515	732	509	405	454	594	752	492	1,140	392	396	622
23	515	713	509	429	454	622	752	476	986	383	370	588
24	498	694	509	429	454	605	732	482	922	379	396	588
25	487	669	481	429	454	599	700	492	860	374	392	657
26	509	628	509	429	454	605	669	487	1,180	370	383	745
27	498	526	481	429	454	594	657	487	1,230	370	379	732
28	492	537	509	429	454	588	634	470	1,050	370	396	681
29	509	509	454	454	-------	576	616	520	938	361	405	669
30	509	509	454	429	-------	582	594	526	801	353	387	622
31	482	-------	429	429	-------	588	-------	509	-------	361	415	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	801	444	562	0.692	0.80
November	773	444	562	.692	.77
December	593	429	506	.623	.72
January	481	383	423	.521	.60
February	454	383	424	.522	.54
March	622	429	534	.658	.76
April	752	576	624	.768	.86
May	576	470	510	.628	.72
June	1,530	482	983	1.21	1.35
July	827	353	510	.628	.72
August	498	370	428	.527	.61
September	745	391	516	.635	.71
The year	1,530	353	548	.675	9.16

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, 1931.

EXTREMES.—Maximum discharge during year, 2,160 second-feet June 25, 26 (gage height, 4.3 feet); minimum, 358 second-feet Aug. 27 (gage height, −0.5 foot).

1913–1931: Maximum discharge, 15,500 second-feet Apr. 13, 1922 (gage height, 11.4 feet); minimum, that of Aug. 27, 1931.

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

REMARKS.—Records good except those for period of ice effect, Nov. 26 to Mar. 17, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	606	764	830	700	700	896	1,140	1,070	797	1,620	517	576
2	700	797	830	700	700	896	1,100	1,030	764	1,480	517	546
3	732	797	830	606	700	863	1,170	964	797	1,280	546	546
4	668	764	830	606	732	797	1,170	896	797	1,170	517	732
5	764	764	830	637	764	863	1,140	863	797	1,140	546	732
6	830	764	830	668	764	863	1,100	863	797	1,140	576	732
7	830	830	830	668	732	930	1,140	863	764	1,140	576	700
8	896	797	830	700	732	863	1,140	797	700	1,140	576	668
9	964	764	863	700	732	863	1,140	797	700	1,170	576	606
10	1,070	732	830	700	700	863	1,100	830	764	1,170	606	546
11	1,210	700	830	700	637	896	1,140	863	863	1,100	546	637
12	1,210	700	896	700	576	964	1,140	863	896	1,000	576	606
13	1,140	797	930	700	637	1,030	1,140	930	930	896	637	517
14	1,070	863	1,000	668	637	1,070	1,100	964	1,070	797	606	488
15	1,070	863	1,000	700	606	1,000	1,100	930	1,280	797	606	517
16	1,030	896	964	700	606	896	1,100	896	1,440	797	576	606
17	964	930	830	668	637	896	1,140	863	1,480	700	576	764
18	930	1,000	797	668	637	896	1,140	830	1,530	668	546	797
19	863	1,140	797	668	700	896	1,100	830	1,530	606	517	797
20	797	1,170	797	668	732	930	1,100	930	1,580	546	546	797
21	797	1,210	797	637	700	930	1,100	1,070	1,860	546	606	797
22	830	1,170	797	606	700	1,000	1,140	1,030	1,620	546	606	830
23	863	1,140	764	637	700	1,030	1,240	1,000	1,910	576	576	863
24	797	1,070	764	637	700	1,070	1,400	964	2,060	546	576	863
25	764	1,030	764	637	732	1,070	1,360	896	2,160	546	488	896
26	764	964	764	637	764	1,100	1,280	863	2,160	517	382	930
27	830	830	700	637	797	1,140	1,210	863	2,010	517	358	964
28	797	830	668	637	896	1,140	1,170	896	1,860	517	606	964
29	797	830	668	637	-------	1,100	1,170	863	1,910	488	576	1,000
30	863	830	668	700	-------	1,070	1,100	830	1,660	606	546	1,030
31	830	-------	668	732	-------	1,210	-------	797	-------	668	517	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,210	606	880	0.393	0.45
November	1,210	700	891	.398	.44
December	1,000	668	813	.363	.42
January	732	606	666	.297	.34
February	896	576	702	.313	.33
March	1,210	797	969	.433	.50
April	1,400	1,100	1,160	.518	.58
May	1,070	797	901	.402	.46
June	2,160	700	1,320	.589	.66
July	1,620	488	853	.381	.44
August	637	358	552	.246	.28
September	1,030	488	735	.328	.37
The year	2,160	358	869	.388	5.27

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 November, 1931, when station was discontinued.

EXTREMES.—Maximum discharge during period Oct. 1, 1930, to Nov. 12, 1931, 249 second-feet Mar. 28, June 26 (gage height, 4.70 feet); minimum, 36 second-feet Oct. 31, 1931 (gage height, 3.28 feet).

1928–1931: Maximum discharge, 1,260 second-feet Apr. 8, 1929 (gage height, 8.60 feet); minimum, that of Oct. 31, 1931.

REMARKS.—Records excellent except those for period of ice effect, Nov. 25 to Mar. 22, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	117	117	117	97	110	110	131	124	110	124	103	124	124	124
2	154	124	110	117	110	117	139	124	110	146	110	103	110	117
3	146	124	124	103	110	61	131	117	110	139	103	103	105	110
4	139	124	117	103	97	117	131	110	117	139	90	103	105	38
5	131	117	117	110	97	124	124	110	110	170	90	103	110	124
6	139	139	117	103	90	124	124	117	103	187	90	97	117	131
7	187	154	124	103	103	110	139	117	110	154	97	110	146	139
8	206	117	124	103	117	103	146	117	110	139	103	103	146	110
9	206	117	117	103	97	139	146	131	117	131	97	97	139	84
10	154	131	117	84	80	117	139	154	146	131	103	97	131	74
11	139	117	117	103	103	103	139	131	131	110	97	146	216	72
12	131	124	117	90	97	117	131	131	154	117	97	97	227	90
13	131	124	110	97	97	117	131	131	206	117	90	97	206	------
14	139	131	117	97	90	117	124	124	124	103	90	103	187	------
15	139	131	84	90	110	124	131	124	124	103	90	97	196	------
16	139	178	84	97	103	117	124	110	154	103	97	90	170	------
17	139	216	90	103	103	117	124	110	146	97	97	117	154	------
18	131	146	103	110	103	117	117	146	139	103	82	103	90	------
19	131	146	110	103	103	124	124	146	139	103	90	110	146	------
20	131	146	103	103	103	124	162	117	227	103	90	124	110	------
21	124	154	117	97	97	117	178	131	216	97	84	124	139	------
22	124	131	117	97	110	117	178	131	187	97	84	110	139	------
23	124	131	103	110	117	131	139	117	154	90	84	110	139	------
24	124	110	103	103	110	146	139	124	139	90	90	110	131	------
25	117	110	110	110	131	146	139	117	131	90	84	139	124	------
26	131	124	124	97	131	146	131	110	249	90	90	162	110	------
27	124	84	110	103	146	139	110	110	238	90	84	139	110	------
28	117	131	110	110	139	249	124	110	170	90	90	124	131	------
29	124	110	110	110	------	206	124	110	139	90	97	110	124	------
30	124	110	97	110	------	124	117	117	124	90	79	110	117	------
31	124	------	97	110	------	131	------	110	------	97	110	------	36	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1930–31					
October	206	117	138	0.812	0.94
November	216	84	131	.771	.86
December	124	84	110	.647	.75
January	117	84	102	.600	.69
February	146	80	107	.629	.66
March	249	61	127	.747	.86
April	178	110	135	.794	.89
May	154	110	122	.718	.83
June	249	103	148	.871	.97
July	187	90	114	.671	.77
August	110	79	93.0	.547	.63
September	162	90	112	.659	.74
The year	249	61	120	.706	9.59
1931					
October	227	36	137	.806	.93
November 1–12	139	38	101	.594	.27

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, 1931.

EXTREMES.—Maximum discharge during year, 800 second-feet June 24 (gage height, 4.50 feet); minimum, 23 second-feet Aug. 3, 6, 7 (gage height, 2.32 feet).

1919–1931: Maximum discharge, 6,760 second-feet Apr. 10, 1922 (gage height, 11.5 feet); minimum, that of Aug. 3, 6, 7, 1931.

REMARKS.—Records excellent except those for period of ice effect, Nov. 26 to Dec. 11 and Dec. 15 to Feb. 23, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	109	139	83	77	111	123	185	126	298	32	70
2	81	109	145	96	65	117	128	182	109	298	30	62
3	96	101	131	108	77	117	175	153	104	262	24	60
4	128	93	115	103	79	104	175	131	96	185	30	109
5	120	93	108	85	81	88	114	106	81	226	29	79
6	146	91	65	103	98	93	131	104	86	298	24	73
7	172	73	92	96	108	93	131	117	81	244	24	64
8	199	75	83	89	101	81	126	117	86	189	28	73
9	262	70	87	85	113	88	114	159	88	169	56	81
10	244	96	69	87	103	126	117	189	104	137	51	73
11	226	104	96	101	110	126	109	169	114	126	47	68
12	209	101	123	83	118	81	156	134	109	101	51	68
13	209	101	120	75	131	96	140	146	101	96	60	64
14	162	101	118	94	126	96	143	149	101	98	53	64
15	126	106	123	101	131	91	137	128	128	96	46	62
16	104	209	123	103	105	96	128	146	172	106	44	77
17	96	244	123	96	110	98	126	185	195	93	46	93
18	106	226	110	87	118	88	131	209	226	96	49	104
19	109	226	110	101	105	98	140	226	226	93	54	140
20	109	165	98	89	92	91	146	209	336	64	54	140
21	111	143	94	87	89	91	146	165	355	81	51	140
22	93	146	98	83	105	88	206	153	605	79	53	117
23	96	205	87	87	98	88	169	131	750	88	49	109
24	96	202	96	71	104	93	209	123	800	73	46	114
25	98	209	96	77	114	134	206	114	750	70	49	128
26	88	228	83	65	114	109	192	120	700	66	51	140
27	81	217	81	87	106	91	189	137	538	175	51	146
28	123	207	73	98	98	98	175	117	394	128	51	137
29	106	156	79	98	------	86	162	117	317	75	53	134
30	104	159	85	96	------	86	189	126	298	64	49	98
31	106	------	89	94	------	109	------	126	------	38	44	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	262	81	132	0.334	0.39
November	244	70	146	.370	.41
December	145	65	101	.256	.30
January	108	65	90.6	.229	.26
February	131	65	103	.261	.27
March	134	81	98.5	.249	.29
April	209	109	151	.382	.43
May	226	104	148	.375	.43
June	800	81	273	.691	.77
July	298	38	136	.344	.40
August	60	24	44.5	.113	.13
September	146	60	96.2	.244	.27
The year	800	24	126	.319	4.35

LITTLE WOLF RIVER AT ROYALTON, WIS.

LOCATION.—Vertical staff gage in sec. 1, T. 22 N., R. 13 E., at Royalton.
DRAINAGE AREA.—485 square miles.
RECORDS AVAILABLE.—January, 1914, to September, 1931.
EXTREMES.—Maximum discharge during year, 642 second-feet June 23 (gage height, 2.23 feet); minimum (estimated), 81 second-feet July 20 (gage height, 0.83 foot).
1914–1931: Maximum discharge, 5,780 second-feet Apr. 10, 11, 1922 (gage height, 6.92 feet); minimum, that of July 20, 1931.
REMARKS.—Records fair except those for period of ice effect, Nov. 26 to Feb. 25, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	167	195	170	125	135	196	274	214	196	204	118	214
2	160	186	170	125	160	204	305	190	214	233	104	186
3	160	172	160	120	170	214	328	214	204	233	98	155
4	167	160	185	125	220	214	305	180	204	221	107	155
5	167	152	200	120	255	225	328	180	158	283	104	142
6	208	167	185	125	200	190	328	180	137	233	104	125
7	273	167	170	120	185	225	328	190	118	221	118	142
8	358	152	160	110	135	225	328	196	150	241	118	129
9	406	167	145	125	120	274	328	225	142	204	118	125
10	382	160	160	125	135	305	328	253	180	196	118	125
11	406	167	160	120	160	283	283	204	170	186	125	137
12	358	160	145	125	170	253	253	180	241	180	142	142
13	314	167	160	125	145	196	274	190	296	142	170	129
14	235	160	160	135	145	204	274	190	328	155	164	118
15	228	152	145	110	170	214	296	164	305	129	142	134
16	235	178	145	120	200	214	283	196	296	129	164	155
17	208	201	160	120	200	190	241	180	352	142	180	214
18	228	218	145	120	170	204	241	204	352	137	142	204
19	228	208	160	125	160	214	265	274	328	90	107	170
20	235	228	135	125	145	204	296	352	328	90	125	186
21	235	228	145	120	170	253	352	352	296	104	129	186
22	201	201	135	125	200	241	376	328	531	107	114	180
23	195	218	135	135	160	241	452	274	613	114	129	186
24	201	228	145	120	170	241	426	241	586	107	125	221
25	201	228	125	125	160	274	401	265	504	98	114	261
26	218	210	125	135	164	265	352	265	452	98	104	283
27	235	235	120	135	164	352	376	274	426	107	114	204
28	228	200	135	160	180	376	376	265	328	104	114	196
29	218	185	125	145	------	328	352	253	225	98	114	196
30	218	185	120	145	------	305	283	274	225	104	129	186
31	235	------	125	160	------	283	------	214	------	107	155	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	406	160	242	0.499	0.58
November	235	152	188	.388	.43
December	200	120	150	.309	.36
January	160	110	127	.262	.30
February	255	120	170	.351	.37
March	376	190	245	.505	.58
April	452	241	321	.662	.74
May	352	164	231	.476	.55
June	613	118	296	.610	.68
July	283	90	155	.320	.37
August	180	98	126	.260	.30
September	283	118	173	.357	.40
The year	613	90	202	.416	5.66

WAUPACA RIVER NEAR WAUPACA, WIS.

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

DRAINAGE AREA.—305 square miles.

RECORDS AVAILABLE.—October, 1917, to September, 1931; June, 1916, to October, 1917, at station 1 mile below present site.

EXTREMES.—Maximum discharge during year, 306 second-feet Oct. 8 (gage height, 2.04 feet); minimum, 94 second-feet July 29 (gage height, 1.01 feet). 1917–1931: Maximum discharge, 2,600 second-feet Mar. 17, 1919 (gage height, 5.6 feet); minimum (estimated), 35 second-feet Jan. 22, 28, 1926.

REMARKS.—Records fair except those for period of ice effect, Nov. 25 to Feb. 19, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	220	207	220	143	172	183	220	172	162	172	152	195
2	162	233	220	162	183	195	207	183	183	195	135	207
3	172	183	220	207	220	207	195	195	152	172	162	135
4	220	233	220	195	233	195	220	152	162	152	143	207
5	183	220	220	195	207	220	207	172	152	172	127	152
6	207	207	220	207	172	207	207	172	143	143	172	172
7	207	220	220	220	162	172	195	162	143	152	114	143
8	306	207	220	261	152	152	207	162	172	162	162	152
9	261	220	220	195	195	291	207	172	195	162	152	183
10	261	207	220	220	195	195	207	195	195	195	162	135
11	247	207	220	220	220	207	195	172	162	172	152	114
12	247	220	220	172	183	195	207	172	162	143	152	162
13	220	207	220	152	183	195	183	172	162	183	172	152
14	261	220	220	135	94	172	195	183	195	172	172	120
15	261	247	220	108	114	183	195	172	183	127	143	162
16	233	247	220	120	183	195	195	172	207	162	162	233
17	195	220	220	183	195	183	183	195	162	162	143	247
18	233	233	220	220	195	183	183	183	172	127	172	162
19	183	183	220	183	276	183	172	195	172	135	152	207
20	220	220	195	172	220	195	207	195	195	135	108	195
21	183	233	233	172	207	183	183	183	183	152	114	183
22	172	207	195	135	195	183	220	172	183	135	152	172
23	207	220	162	162	207	195	207	172	233	152	120	183
24	220	220	195	195	220	207	162	183	220	135	120	152
25	233	220	183	233	195	233	172	172	172	152	172	233
26	220	220	207	152	183	220	195	162	183	98	183	233
27	183	220	172	220	207	195	183	172	195	127	152	143
28	233	220	162	183	220	189	195	162	172	152	155	152
29	207	220	152	195	-------	183	183	172	172	94	159	207
30	233	220	135	172	-------	207	162	162	143	98	162	143
31	195	-------	127	183	-------	220	-------	152	-------	152	108	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	306	162	219	0.718	0.83
November	247	183	218	.715	.80
December	233	127	203	.666	.77
January	261	108	183	.600	.69
February	276	94	192	.630	.66
March	291	152	198	.649	.75
April	220	162	195	.639	.71
May	195	152	175	.574	.66
June	233	143	176	.577	.64
July	195	94	150	.492	.57
August	183	108	149	.489	.56
September	247	114	175	.574	.64
The year	306	94	186	.610	8.28

MILWAUKEE RIVER NEAR MILWAUKEE, WIS.

LOCATION.—Chain gage in sec. 5, T. 7 N., R. 22 E., at Port Washington highway bridge near the north limits of Milwaukee.

DRAINAGE AREA.—661 square miles.

RECORDS AVAILABLE.—April, 1914, to September, 1931.

EXTREMES.—Maximum discharge during year, 830 second-feet Apr. 6, 7 (gage height, 1.9 feet); minimum, 20 second-feet Aug. 21, 22 (gage height, 0.49 foot).

1914–1931: Maximum discharge, 15,100 second-feet Mar. 20, 1918 (gage height, 9.00 feet); minimum, that of Aug. 21, 22, 1931.

REMARKS.—Records good except those for period of ice effect, Nov. 26 to Feb 15, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	94	60	85	85	440	252	134	77	52	41	38
2	88	94	60	100	75	598	284	126	77	61	61	38
3	61	88	65	70	75	126	440	134	77	65	41	36
4	57	88	65	35	85	153	526	126	88	77	33	30
5	61	110	85	85	85	134	715	134	94	77	33	33
6	126	126	95	110	75	110	830	153	126	88	88	33
7	231	110	130	85	85	110	830	134	134	77	77	30
8	221	126	140	95	85	118	440	94	126	77	71	57
9	202	126	140	85	75	94	423	153	134	65	41	61
10	202	110	130	85	85	153	327	134	126	77	41	48
11	231	110	140	85	110	153	341	110	126	61	77	30
12	65	110	110	70	90	172	284	94	172	65	110	33
13	94	126	110	65	85	172	252	94	134	77	88	38
14	94	110	110	65	90	172	231	134	182	77	61	27
15	110	118	50	95	100	182	231	126	163	88	48	28
16	88	65	90	85	110	172	172	134	126	77	61	77
17	94	61	55	50	94	211	252	126	88	44	25	52
18	110	110	50	70	153	211	252	88	88	44	33	158
19	94	110	55	85	153	182	231	172	77	52	27	231
20	61	102	70	100	153	202	172	134	102	44	30	153
21	65	134	75	105	134	202	172	126	54	41	20	126
22	88	126	75	100	153	221	221	134	44	36	20	172
23	94	126	85	60	134	172	231	153	126	36	28	202
24	126	153	75	50	153	172	231	134	273	36	33	211
25	118	77	60	60	134	182	231	126	221	30	33	284
26	94	70	55	85	153	252	182	126	182	61	28	341
27	88	60	50	60	153	355	172	134	126	41	28	284
28	110	60	60	70	134	252	126	126	110	88	83	312
29	110	45	85	70	-------	252	172	134	126	61	48	231
30	110	50	60	85	-------	202	110	126	110	88	33	172
31	94	-------	55	85	-------	202	-------	88	-------	77	33	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	231	41	111	0.168	0.19
November	153	45	100	.151	.17
December	140	50	82.1	.124	.14
January	110	35	78.5	.119	.14
February	153	75	111	.168	.17
March	598	94	204	.309	.36
April	830	110	311	.470	.52
May	172	88	127	.192	.22
June	273	44	123	.186	.21
July	88	30	62.6	.0947	.11
August	110	20	47.5	.0719	.08
September	341	27	119	.180	.20
The year	830	20	123	.186	2.51

CEDAR CREEK NEAR CEDARBURG, WIS.

LOCATION.—Chain gage on south line of sec. 14, T. 10 N., R. 21 E., at bridge on State trunk highway 60, 2 miles north of Cedarburg.

DRAINAGE AREA.—122 square miles.

RECORDS AVAILABLE.—August, 1930, to September, 1931.

EXTREMES.—Maximum discharge during period, 161 second-feet June 23 (gage height, 5.82 feet); minimum, 0.8 second-foot Aug. 22, 1931 (gage height, 4.70 feet).

REMARKS.—Records fair except those for period of ice effect, Nov. 28 to Mar. 21, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	6.1	9.3	11	5	6	52	35	59	13	9.3	6.8	1.2	3.2
2	------	8.0	8.0	11	5	12	35	4	89	16	11	16	3.2	2.8
3	------	8.0	8.0	11	14	5	32	26	125	13	8.0	85	2.4	3.2
4	------	13	11	12	17	12	29	12	133	13	11	63	2.8	3.7
5	------	11	9.3	12	17	8	30	7	147	13	11	29	3.2	3.2
6	------	9.3	9.3	13	17	8	30	6	125	16	12	18	4.4	2.8
7	------	6.8	21	12	23	7	24	10	105	16	21	12	5.1	2.8
8	------	6.1	23	11	23	6	14	6	81	18	16	11	3.7	2.4
9	------	6.8	36	11	17	7	24	6	77	18	16	9.3	3.7	1.9
10	------	6.1	23	9.3	17	7	20	8	73	18	16	6.8	2.8	1.9
11	------	6.8	18	12	12	6	15	15	66	21	18	6.8	2.8	1.9
12	------	6.8	13	12	10	6	23	17	59	18	16	6.1	2.4	1.9
13	------	6.1	13	11	9.0	6	42	17	45	16	13	6.8	2.8	1.5
14	8.0	6.8	13	9.3	9.0	4	26	32	42	13	12	6.1	2.8	2.4
15	6.8	6.8	12	11	6.0	5	30	32	32	12	12	6.1	2.4	2.4
16	6.8	6.8	21	13	5.0	5	33	26	36	11	11	6.1	1.9	3.7
17	6.1	6.8	16	13	6.0	6	43	23	39	9.3	9.3	6.8	1.5	3.2
18	5.4	6.1	16	13	9.0	8	43	21	29	18	6.8	6.1	1.2	5.1
19	6.1	5.4	13	12	8.0	13	40	30	32	21	6.1	4.8	1.5	5.1
20	5.4	6.1	9.3	12	13	15	42	24	23	29	5.4	3.7	1.2	7.4
21	4.8	5.4	13	13	8.0	13	42	30	42	23	4.8	3.2	1.0	12
22	4.8	5.4	11	12	6.0	10	42	45	63	18	4.8	2.8	.8	8.7
23	5.4	8.0	12	11	9.0	17	38	39	49	16	157	2.4	1.2	8.7
24	4.8	6.8	12	12	10	17	35	45	42	13	109	2.4	1.0	8.7
25	4.8	6.8	12	9.3	10	23	43	59	32	13	59	2.4	1.5	17
26	5.4	16	12	8.0	8.0	40	24	59	29	13	29	1.9	1.2	28
27	4.8	13	11	6.8	9.0	33	27	45	23	13	13	1.9	1.5	28
28	6.1	13	13	5	8.0	40	21	59	23	11	11	1.9	1.9	9.9
29	6.1	12	13	4	9.0	36	------	56	16	9.3	9.3	1.5	1.5	9.9
30	5.4	9.3	13	4	8.0	43	------	59	21	11	6.8	1.5	1.9	7.4
31	5.4	------	13	------	8.0	66	------	66	------	9.3	------	1.5	1.9	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1930					
August 14–31	8.0	4.8	5.69	0.047	0.03
September	16	5.4	8.05	.066	.07
1930–31					
October	36	8.0	14.1	.116	.13
November	13	4	10.6	.087	.10
December	23	5	10.8	.088	.10
January	66	4	15.8	.130	.15
February	52	14	32.1	.263	.27
March	66	4	29.6	.243	.28
April	147	16	58.6	.480	.54
May	29	9.3	15.2	.125	.14
June	157	4.8	21.5	.176	.20
July	85	1.5	11.0	.090	.10
August	5.1	.8	2.21	.018	.02
September	28	1.5	6.69	.055	.06
The year	157	.8	18.8	.154	2.09

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, 1931.

EXTREMES.—Maximum discharge during year, 940 second-feet May 20 (gage height, 5.77 feet); minimum, 14 second-feet Oct. 1.

1916–1931: Maximum discharge, 3,750 second-feet Mar. 18, 1919 (gage height, 10.28 feet); minimum, 9.0 second-feet Aug. 4, 1930 (gage height, 2.64 feet).

Maximum stage known, 13.4 feet Mar. 6, 1908.

REMARKS.—Records good. 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	23	225	22	32	20	138	55	110	49	16	60
2	16	20	67	22	34	20	125	50	95	37	34	78
3	18	20	50	22	22	19	114	45	81	31	31	87
4	17	20	34	22	22	19	127	40	74	33	23	64
5	22	18	22	22	34	22	120	39	60	28	22	49
6	18	21	34	22	34	25	107	63	110	27	18	41
7	32	27	34	22	34	27	90	114	225	25	16	36
8	74	22	34	22	34	36	78	143	376	24	16	31
9	46	22	34	22	22	34	67	505	280	21	16	30
10	33	22	22	22	22	29	99	575	187	23	16	31
11	27	18	22	22	22	31	132	505	142	23	163	32
12	23	18	22	22	34	38	109	540	119	25	93	31
13	22	21	22	22	34	45	88	390	98	27	63	29
14	22	22	22	22	22	51	71	281	87	27	25	29
15	22	22	22	22	22	73	69	212	78	24	36	80
16	27	20	22	22	34	92	67	150	72	25	42	52
17	34	20	22	22	34	109	65	120	64	27	46	33
18	27	17	22	22	34	125	60	107	66	25	43	26
19	22	18	22	22	34	138	55	150	49	27	46	23
20	22	22	22	22	34	145	50	850	46	36	43	25
21	21	22	22	22	22	150	138	666	46	37	43	25
22	23	22	22	26	22	162	266	358	43	38	43	18
23	27	20	22	26	22	143	212	238	175	25	37	17
24	29	19	22	27	20	123	150	175	212	20	36	17
25	32	22	22	33	20	116	134	152	163	17	33	25
26	26	20	22	34	22	105	114	124	106	16	33	57
27	18	20	22	34	22	94	94	103	86	17	36	29
28	20	20	22	32	21	266	78	92	70	16	66	21
29	20	225	22	34	------	342	69	78	57	15	54	18
30	25	225	22	38	------	238	63	87	52	16	54	16
31	26	------	22	34	------	162	------	119	------	16	52	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	74	15	26.0	May	850	39	230
November	225	17	34.3	June	376	43	114
December	225	22	32.8	July	49	15	25.7
January	38	22	25.2	August	163	16	41.8
February	34	20	27.3	September	87	16	37.0
March	342	19	96.7				
April	266	50	105	The year	850	15	66.6

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, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 2,420 second-feet June 8 (gage height, 0.90 foot); minimum, 35 second-feet Aug. 27–29 (gage-height, −1.80 feet).

1923–1931: Maximum discharge, 8,250 second-feet Apr. 20, 1926 (gage height, 4.4 feet); minimum, 20 second-feet Sept. 7, 1930 (gage height, −1.88 feet).

REMARKS.—Records good except those for November and December, 1930, June and July, 1931, which are fair. Gage-height record furnished by Michigan Gas & Electric Co.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929–30												
1	615	1,140	685	1,140	2,570	4,400	1,730	1,610	1,140	760	580	360
2	580	1,060	985	1,850	2,120	3,890	1,730	1,500	1,310	835	448	348
3	580	685	1,060	1,850	2,570	3,890	1,980	1,400	1,220	760	409	292
4	760	1,060	985	1,980	2,270	3,550	1,730	1,310	1,140	545	580	545
5	615	1,140	722	2,120	2,120	3,380	1,730	1,850	948	512	378	331
6	281	948	948	2,420	1,850	3,210	1,500	1,610	985	480	722	448
7	685	985	872	3,050	1,730	3,210	1,850	1,500	1,140	650	545	403
8	685	1,140	580	3,210	1,850	2,890	1,500	1,610	615	760	448	378
9	615	760	985	3,380	1,610	2,420	1,400	1,310	910	760	512	337
10	650	650	985	2,890	1,980	2,420	1,400	1,310	872	798	480	480
11	760	1,140	985	2,420	1,610	2,120	1,500	1,060	910	685	512	480
12	480	1,220	985	3,210	1,610	2,270	1,400	1,310	722	615	448	448
13	512	1,140	910	3,050	1,730	2,120	1,310	1,310	798	409	545	244
14	722	1,140	1,060	3,720	1,850	2,120	1,400	1,310	910	580	580	249
15	835	1,220	760	4,060	1,850	2,120	1,500	1,220	615	545	580	343
16	685	1,060	1,400	3,890	1,610	1,610	1,500	1,400	722	650	545	297
17	545	985	1,140	4,060	2,420	1,980	1,610	1,140	872	580	448	448
18	480	1,310	1,060	3,550	2,120	1,850	2,270	1,400	910	545	270	448
19	348	1,310	1,140	3,380	2,120	1,610	2,270	1,500	798	512	276	397
20	397	1,220	985	2,890	2,730	1,730	2,120	1,400	835	415	297	326
21	650	1,220	948	2,890	3,550	1,850	2,730	1,730	985	580	303	303
22	872	1,140	722	3,720	4,230	1,730	2,270	1,730	760	685	249	354
23	910	1,060	1,060	4,400	4,230	1,730	1,980	1,850	910	545	265	580
24	1,060	948	1,220	4,580	4,940	1,850	1,980	1,400	910	512	265	480
25	1,140	948	985	4,230	4,940	1,850	1,850	1,310	872	580	297	320
26	1,060	1,060	1,500	3,890	4,940	1,500	1,850	1,730	910	480	354	615
27	985	1,140	1,500	3,720	4,580	1,730	1,310	1,500	835	448	448	480
28	1,060	985	1,220	3,380	4,400	1,730	1,850	1,400	948	545	397	378
29	1,220	948	1,140	3,210	-------	1,730	1,730	1,310	580	545	512	366
30	985	872	1,400	3,210	-------	1,500	1,500	985	650	545	480	545
31	1,060	-------	1,400	2,890	-------	1,850	-------	1,140	-------	615	337	------

Daily and monthly discharge, in second-feet, of St. Joseph River at Mottville, Mich., 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	448	615	835	650	722	798	1,220	798	835	872	448	448
2	448	512	872	685	798	685	1,140	798	760	910	343	360
3	448	545	835	910	910	872	985	650	722	872	685	360
4	448	722	1,060	615	835	948	985	835	685	798	760	403
5	512	760	872	798	650	722	798	910	835	650	545	348
6	391	512	872	948	760	872	1,140	910	985	798	545	448
7	512	722	580	872	910	798	1,140	948	835	835	545	480
8	615	615	835	798	798	722	948	872	1,730	685	512	512
9	480	580	985	650	872	760	1,060	760	1,400	760	366	314
10	512	480	948	948	948	722	948	545	1,310	798	580	320
11	545	685	948	722	650	760	910	948	1,400	760	580	255
12	512	685	948	650	760	910	722	910	1,220	372	615	331
13	403	650	798	910	872	872	910	760	1,220	512	480	331
14	722	580	722	835	798	835	872	872	985	760	448	409
15	615	615	872	872	685	798	835	760	1,220	835	331	512
16	650	448	910	722	872	872	835	722	1,060	798	297	650
17	480	480	615	798	910	985	760	512	1,060	650	480	580
18	650	685	722	512	910	948	760	872	835	545	580	910
19	545	545	685	685	872	985	545	760	872	397	580	580
20	512	545	722	872	835	910	835	872	722	872	331	403
21	722	580	615	835	835	985	985	835	650	835	480	397
22	615	415	835	685	722	650	948	798	910	985	265	615
23	615	348	872	835	985	910	835	722	985	760	292	545
24	580	480	835	650	872	1,140	798	650	835	760	448	448
25	512	760	722	545	872	1,140	798	722	872	650	308	910
26	480	615	722	835	872	1,220	685	910	685	480	448	650
27	545	580	835	948	910	1,060	948	798	798	615	403	580
28	480	448	722	872	835	1,220	948	835	448	545	415	480
29	480	448	835	722	-------	1,060	948	872	872	580	448	580
30	615	722	798	872	-------	1,060	872	580	798	760	448	615
31	760	-------	798	910	-------	1,140	-------	615	-------	760	448	-------

Month	1929–30			1930–31		
	Maximum	Minimum	Mean	Maximum	Minimum	Mean
October	1,220	281	737	760	391	544
November	1,310	650	1,050	760	348	579
December	1,500	580	1,040	1,060	580	814
January	4,580	1,140	3,170	948	512	779
February	4,940	1,610	2,720	985	650	831
March	4,400	1,500	2,320	1,220	650	915
April	2,730	1,310	1,750	1,220	545	904
May	1,850	985	1,420	948	512	786
June	1,310	580	891	1,730	448	951
July	835	409	596	985	372	716
August	722	249	436	760	265	466
September	615	244	401	910	255	492
The year	4,940	244	1,370	1,730	255	731

ST. JOSEPH RIVER AT NILES, MICH.

LOCATION.—Water-stage recorder in sec. 26, T. 7 S., R. 17 W., at Niles, 1 mile above Dowagiac Creek. Staff gage used prior to July 1. Gage heights are referred to mean sea level.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,220 second-feet Mar. 30; maximum gage height, 638.67 feet June 9; minimum discharge, 244 second-feet Aug. 30; minimum gage height, 636.64 feet May 16.

REMARKS.—Records fair except those for October and September, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		[a] 775	1,730	[a] 900	[a]1,600	[a]1,400	2,590	1,860	1,520	1,220	750	1,010
2		[a] 725	1,270	700	1,520	1,860	2,740	1,110	1,520	1,400	920	965
3		660	1,270	825	1,800	1,520	2,550	[a]1,500	1,460	1,220	1,160	920
4		[a] 750	1,160	[a]1,150	1,660	1,860	2,440	1,860	1,400	1,010	1,010	1,010
5		[a] 825	1,730	1,460	1,730	1,720	[a]2,440	1,660	1,400	965	1,060	965
6		[a] 900	1,460	1,160	1,330	1,520	2,440	2,000	1,590	1,400	1,110	830
7	[a]1,100	[a] 975	[a]1,800	1,460	1,220	1,860	2,590	1,860	[a]2,000	1,400	1,060	965
8		1,060	2,100	1,390	[a]1,500	[a]1,860	3,060	1,860	2,590	1,340	1,110	1,160
9		[a]1,150	2,250	1,110	1,800	1,860	2,440	1,280	2,900	1,160	1,010	1,060
10		[a]1,250	1,730	915	1,950	1,460	2,590	1,280	2,440	875	1,280	1,060
11		1,330	1,460	[a]1,250	1,330	1,720	1,520	1,860	2,290	1,110	1,160	
12		1,270	1,590	1,590	1,660	1,720	[a]1,800	2,000	1,660	1,110	1,060	
13		[a]1,100	1,160	1,270	1,720	1,860	2,140	2,000	1,660	1,460	965	
14		960	[a]1,300	1,330	1,590	1,280	2,290	1,720	[a]1,900	1,400	1,060	
15	1,010	915	1,390	1,330	[a]1,700	[a]1,500	2,740	2,000	2,140	1,220	1,010	
16	1,460	[a]1,050	1,520	1,270	1,860	1,720	2,140	750	1,660	1,280	875	
17	[a]1,350	1,160	1,460	660	1,860	2,000	2,140	[a]1,200	1,590	965	965	
18	[a]1,200	1,060	1,270	[a] 950	1,860	2,140	920	1,660	1,400	1,220	965	
19	[a]1,100	1,010	1,270	1,270	2,290	2,140	[a]1,500	1,590	1,220	1,010	1,010	
20	960	960	1,110	1,270	1,660	2,140	2,140	2,000	920	1,460	965	
21	1,270	915	[a]1,150	1,330	1,400	1,340	2,440	1,460	[a]1,200	1,400	750	[a]1,500
22	1,220	[a]1,050	1,220	1,270	[a]1,500	[a]2,050	2,140	1,720	1,460	1,520	830	
23	1,270	[a]1,150	1,110	1,330	[a]1,600	2,740	2,000	1,160	1,280	1,860	750	
24	1,330	1,270	1,350	700	1,720	2,440	2,000	[a]1,500	1,400	1,340	920	
25	1,330	1,110	[a]1,300	[a]1,150	1,520	2,440	1,160	1,860	1,400	1,220	1,010	
26	[a]1,100	1,590	1,270	1,590	1,460	2,590	[a]1,650	1,160	1,340	1,060	920	
27	915	[a]1,600	1,330	1,800	1,660	2,900	2,140	1,340	920	1,400	920	
28	1,110	[a]1,650	[a]1,250	1,660	1,010	2,590	2,000	1,400	[a]1,200	1,460	920	
29	915	[a]1,650	1,160	1,520	-------	[a]2,800	2,140	1,400	1,460	1,280	875	
30	915	[a]1,700	1,220	1,330	-------	3,060	2,000	[a]1,450	1,060	1,220	420	
31	825	-------	1,160	1,660	-------	2,590	-------	[a]1,450	-------	875	965	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	-------	825	1,120	May	2,000	750	1,580
November	1,700	660	1,120	June	2,900	920	1,600
December	2,250	1,110	1,410	July	1,860	875	1,250
January	1,800	660	1,250	August	1,280	420	961
February	2,290	1,010	1,630	September	-------	830	1,330
March	3,060	1,280	2,020				
April	3,060	920	2,160	The year	3,060	420	1,450

[a] Estimated.

ELKHART RIVER AT GOSHEN, IND.

LOCATION.—Chain gage in sec. 9, T. 36 N., R. 6 E., at River Avenue Bridge in Goshen.
DRAINAGE AREA.—530 square miles.
RECORDS AVAILABLE.—April to September, 1931.
EXTREMES.—Maximum discharge during period, 505 second-feet Sept. 16 (gage height, 3.16 feet); minimum, 73 second-feet Apr. 23 (gage height, 1.?2 feet).
REMARKS.—Records poor. Some regulation at three hydroelectric plants above gage.

Daily and monthly discharge, in second-feet, 1931

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	------	149	222	122	96	102	16	237	222	149	122	91	288
2	------	149	130	108	96	237	17	159	149	122	102	108	400
3	------	270	139	170	108	170	18	222	170	102	102	115	254
4	------	182	139	130	102	170	19	149	139	91	96	139	130
5	440	139	170	108	102	170	20	208	195	108	149	130	108
6	305	182	237	102	102	96	21	159	237	96	122	122	322
7	340	288	440	102	108	182	22	270	237	122	149	108	270
8	322	237	322	122	96	182	23	149	170	115	130	96	149
9	322	254	305	102	108	77	24	208	102	139	108	102	108
10	322	254	195	86	149	115	25	159	195	102	102	108	130
11	322	222	149	115	130	91	26	322	139	91	115	115	400
12	288	305	170	115	115	96	27	159	91	91	108	122	322
13	237	270	130	122	108	108	28	322	96	96	96	149	305
14	159	288	139	130	102	139	29	159	96	102	96	159	254
15	322	237	130	139	91	96	30	208	108	159	96	139	254
							31	------	208	------	96	108	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
April 5–30	440	149	249	0.470	0.45
May	305	91	193	.364	.42
June	440	91	157	.296	.33
July	170	86	115	.217	.25
August	159	91	114	.215	.25
September	400	77	191	.360	.40

KALAMAZOO RIVER NEAR ALBION, MICH.

LOCATION.—Chain gage on line between secs. 29 and 32, T. 2 S., R. 4 W., 3 miles west of Albion. Zero of gage is 919.44 feet above mean sea level.
RECORDS AVAILABLE.—October, 1930, to July, 1931.
EXTREMES.—Maximum discharge during period, 368 second-feet June 6 (gage height, 2.94 feet); minimum, 38 second-feet May 2 (gage height, 1.43 feet).
REMARKS.—Records fair except those for Jan. 2, 11, 19–24, Feb. 21–23, June 14–30, which were estimated. Flow regulated by power plant and gristmill at Albion. Gage-height record furnished by city of Albion.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	------	54	149	54	135	72	149	75	63	------
2	------	62	64	50	62	71	105	52	71	------
3	------	140	56	71	149	68	159	59	98	------
4	------	140	63	64	70	70	135	78	126	------
5	------	131	67	64	81	75	102	77	294	------
6	------	135	54	78	59	49	94	75	368	[a] 180
7	------	122	60	59	126	62	131	84	338	------
8	70	78	64	64	53	70	131	71	338	------
9	80	54	78	70	71	52	52	78	338	------
10	59	54	62	62	67	102	105	70	294	------
11	81	75	64	60	65	179	70	74	213	------
12	70	75	54	62	169	75	75	105	210	------
13	52	72	56	59	57	62	75	71	251	------
14	80	80	65	57	68	64	70	59	150	------
15	126	78	140	68	62	64	62	149		------
16	64	64	67	67	83	72	120	83		------
17	75	62	67	71	64	117	75	64		------
18	71	137	75	72	67	81	107	78		------
19	65	78	70		70	94	91	67	100	------
20	64	64	67		71	81	145	78		[a] 84
21	64	59	74	75		154	80	70		------
22	122	65	59		110	91	70	80		------
23	62	64	57			81	75	64		------
24	60	67	59		81	81	84	71	75	------
25	149	67	67	67	81	91	169	64		------
26	57	64	58	68	145	91	75	57		------
27	64	56	64	70	75	91	159	64		------
28	68	122	57	71	77	102	91	59	90	------
29	80	67	78	152	------	109	75	62		------
30	54	63	68	126	------	265	75	72		------
31	78	------	59	72	------	159	------	77	------	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October 8–31	149	52	75.6	March	265	49	93.4
November	140	54	81.6	April	169	52	100
December	149	54	69.1	May	149	52	73.8
January	152	50	71.9	June	368	------	155
February	169	53	87.1				

[a] Result of discharge measurement.

KALAMAZOO RIVER AT COMSTOCK, MICH.

LOCATION.—Staff gage in NE. ¼ sec. 19, T. 2 S., R. 10 W., 95 feet below county highway bridge at Comstock.
RECORDS AVAILABLE.—April to August, 1931.
EXTREMES.—Maximum discharge during period, 1,380 second-feet June 7 (gage height, 2.20 feet); minimum, 272 second-feet May 4 (gage height, 0.56 foot).
REMARKS.—Records fair. Flow regulated by several power plants above station.

Daily and monthly discharge, in second-feet, 1931

Day	Apr.	May	June	July	Aug.	Day	Apr.	May	June	July	Aug.
1	------	425	310	475	------	16	------	425	510	------	------
2	------	425	375	510	------	17	------	425	510	------	------
3	------	425	425	------	------	18	------	400	425	------	------
4	------	272	810	------	------	19	------	330	425	------	------
5	------	352	1,260	------	------	20	------	352	452	------	------
6	------	425	1,160	------	------	21	------	540	375	------	------
7	------	452	1,380	------	------	22	------	400	375	------	------
8	------	480	1,380	------	------	23	------	375	352	------	------
9	------	480	1,200	------	------	24	510	425	352	------	------
10	------	480	1,120	------	------	25	480	375	375	------	------
11	------	452	1,040	------	------	26	480	400	375	------	------
12	------	330	810	------	------	27	480	375	352	------	[a] 220
13	------	452	740	------	------	28	480	310	400	------	------
14	------	452	670	------	------	29	452	310	425	------	------
15	------	425	572	------	------	30	425	375	452	------	------
						31	------	425	------	------	------

Month	Maximum	Minimum	Mean
April 24–30	510	425	472
May	540	272	405
June	1,380	310	645

[a] Result of discharge measurement.

KALAMAZOO RIVER NEAR ALLEGAN, MICH.

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

DRAINAGE AREA.—1,540 square miles.

RECORDS AVAILABLE.—April, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,140 second-feet June 7 (gage height, 601.25 feet); minimum, 164 second-feet Aug. 23 (gage height, 595.25 feet).

1929–1931: Maximum discharge, 3,580 second-feet Jan. 8, 1930 (gage height, 603.82 feet); minimum, 157 second-feet July 29, 1930.

REMARKS.—Records good except those for estimated periods, which are fair. Flow regulated by power plant in Allegan. Gage-height record furnished by city of Allegan.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	624	661		625	939	817	1,210	938	610	700	322	456
2	612	630	[a]1500	[a]674	928	904	1,100	1,030	706	657	385	499
3	617	674		723	839	884	1,180	369	712	665	398	462
4	575	678		703	860	902	959	655	874	624	500	475
5	465	724	921	891	956	793	995	752	752	708	517	498
6	637	744	1,080	805	836	692	979	668	1,550	643	525	346
7	607	793	1,090	951	887	878	886	676	1,940	625	441	
8	750	672	1,080	864	855	816	951	700	1,980	639	425	
9	645	610	1,040	790	912	805	878	894	1,860	583	280	
10	659	687	1,090	665	727	894	795	875	1,860	610	502	[a]400
11	584	620	1,050	709	867	899	917	777	1,760	552	517	
12	632	900	925	766	898	880	829	899	1,570	365	528	
13	639	874	1,020	842	868	708	862	907	1,310	472	422	
14	597	672	983	850	822	774	870	833	1,290	534	310	609
15	722	612	964	719	856	829	873	778	1,120	465	435	489
16	721	516	934	724	829	983	693	705	963	534	886	369
17	767	759	[a]929	836	896	894	942	576	982	521	923	534
18		680	[a]717	635	950	1,030	996	908	848	532	481	595
19		772	668	799	942	1,020	729	798	830	313	254	573
20	[a]750	760	808	879	942	931	563	660	785	434	236	482
21		724	890	[a]828	958	936	813	631	694	508	185	500
22	674	687	853	777	885	1,030	733	676	720	455	173	467
23	796	452	868	720	954	1,030	804	718	774	562	164	506
24	737	742	908	670	887	953	906	801	651	516	322	500
25	666	739	772	748	936	1,100	971	600	748	350	467	393
26	455	808	739	776	976	1,020	789	728	663	282	468	445
27	626		712	1,010	839	1,140	873	771	684	440	467	535
28	754	[a]800	951	994	889	1,420	859	622	588	499	383	581
29	819		694	857	------	1,320	919	567	663	501	321	570
30	773		822	797	------	1,280	827	548	649	483	263	504
31	679	------	882	800	------	1,200	------	561	------	347	398	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	------	------	672	0.436	0.50
November	900	452	713	.464	.52
December	------	668	980	.636	.73
January	1,010	625	788	.512	.59
February	976	727	890	.578	.60
March	1,420	692	960	.623	.72
April	1,210	563	890	.578	.64
May	1,030	369	730	.474	.55
June	1,980	588	1,040	.675	.75
July	708	282	520	.338	.39
August	923	164	416	.270	.31
September	609	------	473	.307	.34
The year	1,980	164	755	.490	6.64

[a] Estimated.

BATTLE CREEK AT BATTLE CREEK, MICH.

LOCATION.—Staff gage in sec. 5, T. 2 S., R. 7 W., 350 feet above Verona Street Bridge, in Battle Creek.
DRAINAGE AREA.—241 square miles.
RECORDS AVAILABLE.—October, 1930, to July, 1931.
EXTREMES.—Maximum discharge during period, 339 second-feet June 7, 8 (gage height, 1.24 feet); minimum, 1 second-foot Jan. 22 (gage height, 0.40 foot).
REMARKS.—Records good. Discharge estimated for Nov. 28, June 28 to July 5.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1		59	74	92	78	78	120	68	74	63
2		59	74	81	92	78	133	68	74	61
3		59	92	92	96	81	111	68	71	60
4		59	92	92	96	85	115	68	315	59
5		59	92	92	92	85	111	68	304	57
6		59	74	92	74	89	111	68	327	56
7		59	74	74	74	81	104	71	339	
8		59	111	74	92	74	96	74	339	
9		59	111	74	74	74	89	78	333	
10		59	111	74	74	74	92	81	333	
11		59	111	92	71	71	81	89	111	
12		59	92	92	74	74	81	85	104	
13		59	74	111	92	81	74	85	104	
14		59	74	92	92	85	81	78	111	
15		59	74	59	92	92	78	74	111	
16		59	74	59	74	92	78	74	96	
17		59	92	53	74	92	78	71	96	
18		59	92	42	81	96	74	68	96	
19		59	92	34	81	96	71	65	96	
20		59	92	20	81	92	78	65	96	
21		59	92	10	85	89	120	68	96	
22		59	92	1	92	85	111	65	96	
23		59	92	7	92	89	107	62	96	
24		62	92	10	89	78	100	62	68	
25		62	74	92	89	111	96	62	68	
26		44	92	85	85	85	92	62	68	
27		20	74	92	81	92	89	62	68	
28		66	111	92	78	92	85	62	67	
29		111	92	85		104	81	59	65	
30	59	92	92	78		111	74	59	64	
31	59		92	74		111		68		

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 30–31	59	59	59.0	0.245	0.02
November	111	20	60.5	.251	.28
December	111	74	89.3	.371	.43
January	111	1	68.3	.283	.33
February	96	71	83.8	.348	.36
March	111	71	87.6	.363	.42
April	133	71	93.7	.389	.43
May	89	59	69.6	.289	.33
June	339	64	143	.593	.66
July 1–6	63	56	59.3	.246	.06

GRAND RIVER AT IONIA, MICH.

LOCATION.—Chain gage in sec. 20, T. 7 N., R. 6 W., on State highway bridge 1 mile below Prairie Creek, at Iona.

RECORDS AVAILABLE.—March to September, 1931.

EXTREMES.—Maximum discharge during period, 1,660 second-feet Mar. 29 (gage height, 4.48 feet); minimum recorded, 123 second-feet Sept. 24 (gage height, 1.44 feet).

REMARKS.—Records fair. Regulation at Wagner Dam and power plant above station.

Daily and monthly discharge, in second-feet, 1931

Day	Mar.	Apr.	May	June	July	Sept.	Day	Mar.	Apr.	May	June	July	Sept.
1	-------	1,240	584	484	-------	-------	16	-------	435	842	789	-------	-------
2	-------	1,090	559	584	-------	-------	17	-------	460	635	460	-------	-------
3	-------	1,090	534	584	-------	-------	18	-------	509	534	686	-------	-------
4	-------	1,040	559	386	-------	-------	19	635	559	610	635	-------	-------
5	-------	1,040	484	559	-------	-------	20	435	534	435	534	-------	-------
6	-------	940	509	840	-------	-------	21	738	460	534	376	-------	-------
7	-------	789	271	1,290	-------	-------	22	509	584	534	338	-------	-------
8	-------	610	484	1,040	[a] 440	-------	23	940	610	484	319	-------	-------
9	-------	534	534	990	-------	-------	24	789	584	534	435	-------	[a] 139
10	-------	686	584	1,040	-------	-------	25	1,140	738	789	243	-------	-------
11	-------	890	635	990	-------	-------	26	990	789	610	559	-------	-------
12	-------	840	635	789	-------	-------	27	1,140	686	635	789	-------	-------
13	-------	559	559	890	-------	-------	28	990	484	534	686	-------	-------
14	-------	610	610	738	-------	-------	29	1,390	509	584	559	-------	-------
15	-------	610	840	559	-------	-------	30	1,290	559	484	262	-------	-------
							31	890	-------	410	-------	-------	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
March 19–31	1,390	435	914	May	840	271	567
April	1,240	435	702	June	1,290	243	648

[a] Result of discharge measurement.

NOTE.—Gage not read after June 30, 1931.

GRAND RIVER NEAR MARNE, MICH.

LOCATION.—Staff gage in sec. 20, T. 7 N., R. 13 W., at West Bridge Street Bridge, 5 miles southwest of Marne.
RECORDS AVAILABLE.—February to June, 1931.
EXTREMES.—Maximum discharge during period, 5,220 second-feet Mar. 29, 31; maximum gage height, 4.70 feet June 9; minimum discharge, 690 second-feet June 2, 3; minimum gage height, 2.12 feet June 1, 2.
REMARKS.—Records good between 1,600 and 2,200 second-feet; others fair.

Daily and monthly discharge, in second-feet, 1931

Day	Feb.	Mar.	Apr.	May	June	Day	Feb.	Mar.	Apr.	May	June
1		3,930	4,420	1,560	738	16	1,950	1,870	1,640	2,030	1,790
2		2,280	4,420	1,560	690	17	2,460	1,950	1,420	2,030	1,420
3		2,200	3,930	1,560	690	18	2,840	2,200	1,420	1,720	1,160
4		2,370	3,470	1,560	1,350	19	2,840	2,110	1,490	1,720	938
5		2,200	3,250	1,560	1,870	20	2,840	2,110	1,420	1,790	990
6		2,110	2,650	1,560	1,950	21	2,460	2,110	1,640	1,790	1,100
7		1,790	2,370	1,490	3,470	22	2,370	2,370	2,110	1,640	835
8		2,110	2,460	1,560	4,170	23	2,560	2,280	1,790	1,560	885
9		1,950	2,560	1,560	4,420	24	2,650	2,280	1,790	1,420	990
10		1,560	1,870	1,950	3,040	25	2,650	2,840	1,950	1,350	938
11		1,870	2,110	1,870	2,840	26	2,370	3,250	2,110	1,490	990
12		1,640	2,280	2,110	2,370	27	2,560	3,040	1,640	1,560	1,040
13		1,490	1,640	2,370	1,720	28	2,460	3,470	1,560	1,100	1,280
14		1,720	1,790	2,110	1,950	29		5,220	1,640	990	1,350
15		2,110	1,560	2,110	1,790	30		4,950	1,640	885	1,220
						31		5,220		1,040	

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
February 16–28	2,840	1,950	2,540	May	2,370	990	1,630
March	5,220	1,490	2,540	June	4,420	690	1,670
April	4,420	1,420	2,200				

CEDAR RIVER AT EAST LANSING, MICH.[1]

LOCATION.—Water-stage recorder in sec. 18, T. 4 N., R. 1 W., 4 miles above mouth at East Lansing. Zero of gage is 824.96 feet above mean sea level.

RECORDS AVAILABLE.—March to September, 1931. August, 1902, to December, 1903, at a site three-fourths mile downstream.

EXTREMES.—Maximum discharge during period, 222 second-feet June 30 (gage height, 3.40 feet); minimum (estimated), 3 second-feet July 31 (gage height, 0.99 foot).

1902–3, 1931: Maximum mean daily discharge, 2,700 second-feet Apr. 15, 1903 (gage height, 10.07 feet, old datum); minimum discharge, that of July 31, 1931.

Maximum stage known, about 14.5 feet during the flood of 1921 (discharge not determined).

REMARKS.—Records excellent except those estimated for Mar. 2–4, July 20–31, Aug. 2–9, 26, 27, which are poor. Gage-height record and results of several discharge measurements furnished by Michigan State College.

Daily and monthly discharge, in second-feet, 1931

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	107	60	72	123	3.8	15
2	84	91	54	54	72		16
3	78	86	50	47	52		18
4	73	82	58	49	42		20
5	68	74	44	86	40	8	25
6	60	70	35	91	104		31
7	60	64	40	132	96		31
8	42	66	45	150	62		31
9	45	60	50	129	44		32
10	35	58	62	104	35	18	31
11	40	58	72	86	31	18	30
12	45	56	89	68	28	18	32
13	49	56	86	62	28	16	35
14	52	54	74	74	30	16	38
15	60	50	66	70	32	17	52
16	64	49	54	60	35	21	66
17	66	49	50	40	34	20	44
18	62	47	45	32	31	23	25
19	64	47	42	28	32	21	25
20	66	45	44	25		19	25
21	74	50	45	25		18	22
22	99	60	45	23		20	20
23	135	62	40	23		19	19
24	141	62	38	23	30	16	18
25	144	62	47	21		13	21
26	144	66	54	22		12	28
27	126	66	47	32		12	32
28	123	60	44	34		13	27
29	144	56	38	126	15	15	26
30	150	56	40	197	15	18	25
31	126	------	82	-------	3	15	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
March	150	35	84.1	July	123	3	40.5
April	107	45	62.3	August	23	3.8	14.4
May	89	35	52.9	September	66	15	28.7
June	197	21	66.2				

[1] Formerly published as Red Cedar River at Agricultural College, Michigan.

THORNAPPLE RIVER NEAR CALEDONIA, MICH.

LOCATION.—Staff gage in sec. 22, T. 5 N., R. 10 W., in tailrace of LaBarge power plant, 2½ miles northeast of Caledonia. Gage heights are referred to mean sea level datum.

DRAINAGE AREA.—773 square miles.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum mean daily discharge during year, 1,330 second-feet June 7 (gage height, 681.5 feet); minimum, 138 second-feet Aug. 11 (gage height, 679.7 feet).

REMARKS.—Records fair. Flow regulated by storage at LaBarge power plant. Gage-height record furnished by Consumers Power Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	260	260	260	260	260	350	260	260	260	187	151
2	260	260	260	260	260	260	300	260	260	260	187	151
3	260	260	260	300	260	260	260	260	300	260	172	160
4	260	260	260	260	260	260	260	260	350	260	172	151
5	260	260	260	260	260	260	260	260	350	260	187	151
6	260	260	260	260	230	260	260	260	490	260	187	151
7	260	260	260	260	260	260	260	260	1,330	260	160	144
8	260	260	260	260	260	260	260	260	1,150	260	151	144
9	260	300	260	260	260	260	260	260	840	260	187	151
10	260	260	260	260	260	260	260	260	490	260	144	151
11	260	260	260	260	260	260	260	260	350	260	138	144
12	260	260	260	260	260	260	260	260	300	260	144	151
13	260	260	260	260	260	260	260	260	260	260	144	151
14	260	260	260	260	260	260	260	260	300	260	144	151
15	260	260	260	260	260	260	260	260	260	260	144	230
16	260	260	260	260	260	260	260	260	260	260	144	187
17	260	260	260	260	260	260	260	260	260	260	151	206
18	260	260	260	260	300	260	260	260	260	260	151	187
19	260	260	260	260	260	260	260	260	260	260	144	160
20	260	260	260	260	260	260	260	260	260	260	144	160
21	260	260	230	260	260	260	260	260	260	260	144	151
22	260	260	260	260	260	260	260	260	260	260	144	151
23	260	260	260	260	260	260	260	260	260	260	144	151
24	260	260	260	260	260	300	260	260	260	260	151	160
25	260	260	260	260	260	300	260	260	260	260	144	187
26	260	260	260	260	260	300	260	260	260	260	144	172
27	260	260	230	260	260	260	260	260	260	260	144	172
28	260	260	260	260	260	300	260	260	260	260	151	172
29	260	260	260	260	------	410	260	260	260	260	144	187
30	260	260	260	260	------	410	260	260	260	260	151	160
31	260	------	260	260	------	350	------	260	------	260	151	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	260	260	260	May	260	260	260
November	300	260	261	June	1,330	260	373
December	260	230	258	July	260	260	260
January	300	260	261	August	187	138	155
February	300	230	260	September	230	144	163
March	410	260	278				
April	350	260	264	The year	1,330	138	254

MUSKEGON RIVER AT EVART, MICH.

LOCATION.—Chain gage in sec. 34, T. 18 N., R. 8 W., on highway bridge at east edge of Evart.

DRAINAGE AREA.—1,450 square miles.

RECORDS AVAILABLE.—November, 1930, to June, 1931.

EXTREMES.—Maximum discharge during period, 1,680 second-feet May 11 (gage height, 8.9 feet); minimum, 350 second-feet Dec. 16, 17 (gage height, 6.8 feet).

REMARKS.—Records poor. Discharge estimated because of ice effect Nov. 27 to Dec. 9, Dec. 23 to Jan. 10, Jan. 12 to Feb. 19.

Daily and monthly discharge, in second-feet, 1930-31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		460	470	450	735	892	795	735
2		460	460	450	620	925	765	705
3		470	460	450	592	960	705	705
4		480	460	450	592	995	675	705
5		500	460	450	565	995	648	705
6		520	450	450	565	995	648	705
7		530	450	450	565	995	795	705
8		540	440	450	515	995	892	675
9		550	440	450	470	995	1,060	675
10		565	440	440	425	1,060	1,520	648
11		592	446	420	425	1,060	1,680	620
12		592	450	440	592	995	1,600	592
13		565	450	440	592	995	1,520	565
14		565	450	420	620	995	1,360	565
15		470	450	420	620	960	1,280	540
16		368	450	440	592	925	1,210	515
17	540	368	450	460	565	925	1,060	492
18	515	515	440	480	565	925	995	492
19	540	515	420	500	540	860	925	492
20	540	565	380	515	565	860	1,210	492
21	540	515	390	540	592	1,140	1,440	470
22	492	515	400	620	592	1,280	1,440	448
23	515	500	430	592	620	1,280	1,360	448
24	540	480	450	620	705	1,280	1,280	448
25	492	460	460	675	795	1,210	1,280	448
26	515	440	460	675	765	1,140	1,210	492
27	500	480	440	735	765	1,060	1,140	515
28	490	480	420	648	795	960	995	470
29	480	480	400		795	925	925	470
30	460	480	410		795	860	860	470
31		470	430		828		795	

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 17-30	540	460	511	0.352	0.18
December	592	368	500	.345	.40
January	470	380	439	.303	.35
February	735	420	505	.348	.36
March	828	425	625	.431	.50
April	1,280	860	1,010	.697	.78
May	1,680	648	1,100	.759	.88
June	735	448	567	.391	.44

MUSKEGON RIVER AT NEWAYGO, MICH.

LOCATION.—Staff gage in sec. 24, T. 12 N., R. 13 W., in tailrace of power plant operated by Consumers Power Co. at Newaygo.

RECORDS AVAILABLE.—October, 1930, to September, 1931. June, 1901, to December, 1906, at a site above Newago.

EXTREMES.—Maximum discharge during year, 2,830 second-feet May 28 (gage height, 48.6 feet); minimum, 495 second-feet Feb. 27, Mar. 22, Apr. 1, Aug. 8, Sept. 13 (gage height, 46.4 feet).

1901–1906, 1930–31: Maximum mean daily discharge, 7,120 second-feet June 7, 1905; minimum discharge, that of 1931.

REMARKS.—Records fair. Flow regulated at Croton Dam, 18 miles upstream and by power plant at Newago. Gage-height record furnished by Consumers Power Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,040	1,040	960	1,040	680	615	495	745	1,320	1,430	680	615
2	960	1,120	1,120	555	680	555	555	1,800	1,320	1,550	680	615
3	1,040	885	885	745	680	615	555	1,430	1,120	960	885	745
4	960	885	1,120	1,120	680	615	680	680	1,220	680	1,040	745
5	885	1,220	1,220	1,120	680	555	615	815	1,930	680	815	615
6	1,040	1,320	1,430	1,120	680	555	555	1,120	1,930	680	815	680
7	1,040	1,040	1,320	1,040	680	555	555	1,120	1,930	680	680	680
8	1,430	1,220	1,120	1,040	745	555	555	1,120	2,360	745	495	615
9	1,550	960	1,550	1,040	680	615	555	1,320	2,360	815	615	815
10	1,550	885	1,120	1,040	680	615	555	1,120	1,930	745	615	555
11	1,320	885	1,800	745	680	680	680	1,550	1,930	745	615	680
12	815	960	1,120	745	680	615	885	2,210	1,670	615	745	555
13	1,120	1,040	1,220	745	680	615	745	2,070	1,120	885	680	495
14	1,040	1,040	1,120	680	680	815	680	2,070	960	1,120	745	1,120
15	1,120	1,040	1,320	680	680	615	615	2,070	815	885	745	1,930
16	960	960	745	680	680	615	615	1,120	815	885	615	1,550
17	960	1,120	615	680	680	555	615	1,120	680	745	745	1,550
18	1,220	1,040	885	745	615	555	615	1,800	615	680	680	1,220
19	680	1,120	745	680	615	555	615	2,360	680	615	815	1,220
20	1,320	960	1,220	555	680	555	615	1,930	680	615	815	745
21	1,120	1,220	960	615	615	555	680	2,360	680	680	615	885
22	885	1,430	1,040	615	555	495	615	2,670	615	815	555	885
23	885	815	1,040	680	680	555	615	1,670	615	885	615	885
24	960	885	1,040	745	615	615	555	1,220	615	815	615	885
25	960	1,040	680	815	615	555	555	2,070	615	745	615	885
26	1,040	1,220	1,220	745	615	615	555	2,070	615	615	615	885
27	1,120	1,120	1,120	680	495	555	615	2,210	555	680	615	1,120
28	1,220	885	1,120	680	555	745	615	2,510	555	815	555	1,670
29	1,040	885	1,040	745	-------	555	615	1,930	680	815	555	1,550
30	1,120	885	1,040	745	-------	555	615	1,430	815	680	555	1,120
31	960	-------	885	745	-------	615	-------	1,320	-------	960	615	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	1,550	680	1,080	May	2,670	680	1,650
November	1,430	815	1,040	June	2,360	555	1,120
December	1,300	615	1,090	July	1,550	615	815
January	1,120	555	794	August	1,040	495	679
February	745	495	653	September	1,930	495	950
March	815	495	595				
April	885	495	613	The year	2,670	495	925

LITTLE MANISTEE RIVER NEAR STRONACH, MICH.

LOCATION.—Staff gage in sec. 21, T. 21 N., R. 16 W., 1¾ miles above Manistee Lake and 1½ miles east of Stronach.
DRAINAGE AREA.—233 square miles.
RECORDS AVAILABLE.—November, 1930, to June, 1931.
EXTREMES.—Maximum discharge during period, 249 second-feet Apr. 7–11 (gage height, 2.16 feet); minimum, 167 second-feet at times in November, December, January, February, and March.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		206	195	167	184	220	184	184
2		220	195	176	176	233	184	195
3		206	206	176	184	233	184	195
4		195	176	176	184	233	184	195
5		184	176	176	184	233	184	195
6		184	176	176	176	233	184	195
7		184	176	176	176	249	184	195
8		184	167	167	176	249	195	195
9		195	176	176	184	249	206	195
10		195	167	176	184	249	220	195
11		184	167	184	176	249	220	195
12		184	167	176	176	233	233	195
13		184	167	184	167	220	220	195
14	176	184	176	195	167	220	206	184
15	176	195	167	167	167	206	195	184
16	176	184	167	167	167	206	195	184
17	184	184	167	176	167	195	184	184
18	176	206	167	176	167	195	184	176
19	176	195	176	184	176	195	195	176
20	167	195	176	184	176	206	206	176
21	176	206	184	176	167	206	220	176
22	176	195	184	167	176	220	233	176
23	176	206	176	176	184	206	233	176
24	184	206	176	176	195	206	220	176
25	184	195	167	176	220	195	220	176
26	206	195	176	184	233	206	206	176
27	220	167	176	184	220	195	206	184
28	233	167	176	184	220	184	195	184
29	220	176	176	-------	233	184	195	195
30	206	176	176	-------	233	184	195	184
31	-------	184	176	-------	220	-------	184	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 14–30	233	167	189	0.811	0.51
December	220	167	191	.820	.95
January	206	167	176	.755	.87
February	195	167	177	.760	.79
March	233	167	188	.807	.93
April	249	184	216	.927	1.03
May	233	184	202	.867	1.00
June	195	176	186	.798	.89

MANISTEE RIVER NEAR SHERMAN, MICH.

LOCATION.—Chain gage on line between sec. 36, T. 24 N., R. 12 W., and sec. 31, T. 24 N., R. 11 W., 150 feet above mouth of Wheeler Creek and three-quarters of a mile north of Sherman.

DRAINAGE AREA.—900 square miles.

RECORDS AVAILABLE.—July, 1903, to May, 1916; November, 1930, to June, 1931.

EXTREMES.—Maximum discharge during period, 1,590 second-feet Apr. 10, 11; maximum gage height, 10.70 feet Jan. 22; minimum discharge, 825 second-feet Feb. 11, 15 (gage height, 7.82 feet).

1903–1916, 1930–31: Maximum discharge, 3,500 second-feet Mar. 25, 1913 (gage height, 7.0 feet, former datum); minimum, 580 second-feet Jan. 17, 1916 (gage height, 1.00 foot, former datum).

REMARKS.—Records poor. Discharge estimated for periods Nov. 28 to Dec. 5, Dec. 17–26, Jan. 2–4, 22–26.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		920	968	918	918	1,020	996	1,020
2		920	960	896	918	1,060	996	1,020
3		970	960	918	918	1,150	996	1,020
4		1,010	960	896	918	1,150	968	1,060
5		1,070	968	896	896	1,220	968	1,020
6		1,120	918	896	896	1,260	968	968
7		1,250	896	896	896	1,300	1,020	968
8		1,120	896	896	896	1,380	1,120	968
9		1,080	918	896	896	1,460	1,180	942
10		1,060	942	918	1,180	1,590	1,300	918
11		1,060	918	858	1,060	1,590	1,380	942
12		1,020	918	896	876	1,540	1,380	918
13	968	1,020	918	918	896	1,500	1,300	896
14	968	1,020	896	876	896	1,420	1,220	918
15	968	968	858	841	896	1,380	1,150	918
16	996	968	876	918	918	1,300	1,120	896
17	1,020		918	918	896	1,260	1,060	896
18	1,020		918	918	896	1,220	1,020	896
19	996		918	896	896	1,180	1,060	876
20	996		918	896	896	1,150	1,260	876
21	996	980	896	896	896	1,180	1,340	896
22	996		900	896	918	1,260	1,300	896
23	968		905	918	942	1,300	1,220	896
24	996		905	896	996	1,260	1,150	918
25	996		910	918	1,020	1,220	1,120	918
26	996		915	918	1,020	1,150	1,080	918
27	996	996	918	918	1,020	1,120	1,060	918
28	980	942	896	918	1,020	1,080	1,020	896
29	950	968	896	-------	1,020	1,060	1,020	896
30	920	968	918	-------	1,020	1,020	996	896
31	-------	918	896	-------	1,020	-------	1,020	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 13-30	1,020	920	985	1.09	0.73
December	1,250	918	1,010	1.12	1.29
January	968	858	916	1.02	1.18
February	918	841	901	1.00	1.04
March	1,180	876	947	1.05	1.21
April	1,590	1,020	1,260	1.40	1.56
May	1,380	968	1,120	1.24	1.43
June	1,060	876	933	1.04	1.16

STREAMS TRIBUTARY TO LAKE HURON

AU SABLE RIVER NEAR RED OAK, MICH.

LOCATION.—Chain gage on line between secs. 2 and 3, T. 26 N., R. 1 E., 5 miles below mouth of North Branch of Au Sable River and 1½ miles south of Red Oak post office.

RECORDS AVAILABLE.—December, 1930, to June, 1931.

EXTREMES.—Maximum discharge during period, 1,380 second-feet June 29 (gage height, 7.43 feet); minimum, 525 second-feet Jan. 28 (gage height, 5.84 feet).

REMARKS.—Records good. Discharge estimated for Dec. 4, 19 because of ice and interpolated for Mar. 5.

Daily and monthly discharge, in second-feet, 1930–31

Day	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	-------	630	590	630	725	775	830
2	-------	630	590	630	775	775	830
3	-------	630	590	630	830	775	830
4	675	630	590	630	830	675	775
5	675	630	590	610	885	775	775
6	675	630	630	590	885	725	775
7	675	590	555	590	885	1,000	725
8	675	725	630	630	940	1,120	725
9	675	675	555	590	940	1,180	725
10	675	590	630	590	1,120	1,240	725
11	675	590	675	590	1,060	1,180	725
12	675	630	630	630	1,000	1,120	675
13	675	630	630	590	1,000	1,060	675
14	630	630	590	590	1,000	1,000	675
15	630	630	725	630	885	885	675
16	630	675	675	630	885	885	675
17	725	630	630	590	885	830	630
18	630	590	590	630	885	830	630
19	630	630	630	590	830	830	630
20	630	630	630	590	775	1,310	630
21	590	555	630	630	1,120	1,240	675
22	675	630	630	630	1,180	1,120	675
23	630	725	590	675	1,120	1,000	725
24	630	675	630	675	1,060	1,000	675
25	725	630	630	725	1,000	1,000	675
26	630	630	630	725	940	940	675
27	630	590	630	675	885	885	675
28	630	525	630	725	885	830	1,060
29	630	725	-------	725	775	830	1,310
30	630	630	-------	725	775	885	1,120
31	630	590	-------	725	-------	885	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
December 4–31	725	590	653	April	1,180	725	925
January	725	525	630	May	1,310	675	954
February	725	555	620	June	1,310	630	753
March	725	590	639				

SHIAWASSEE RIVER AT OWOSSO, MICH.

LOCATION.—Water-stage recorder in sec. 13, T. 7 N., R. 2 E., 90 feet upstream from Shiawassee Street Bridge, in Owosso. Zero of gage is 713.2? feet above mean sea level.

RECORDS AVAILABLE.—March to September, 1931.

EXTREMES.—Maximum discharge during period, 294 second-feet Mar. 31 (gage height, 4.10 feet); minimum discharge, 3.2 second-feet July 27; minimum gage height, 2.67 feet Aug. 31.

Maximum stage known, 726 feet above mean sea level during an ice jam in 1918.

REMARKS.—Records good. Flow regulated by power plant at Shiawasseetown. Gage-height record after July 1 furnished by city of Owosso.

Daily and monthly discharge, in second-feet, 1931

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1		251	111	118	46	9.0	10
2		248	116	116	33	7.2	13
3		237	130	121	55	7.8	16
4		235	121	71	26	10	37
5		232	104	98	42	9.6	19
6		230	86	109	63	10	26
7		235	84	128	63	9.6	7.8
8		188	123	128	30	10	21
9		153	102	134	34	13	15
10		183	109	123	29	21	10
11		144	134	109	78	16	24
12		153	156	104	15	22	11
13		146	161	93	48	20	15
14		139	153	102	26	13	24
15		146	141	95	20	29	16
16		163	132	98	29	14	51
17	123	118	134	95	28	16	63
18	144	109	121	128	24	14	44
19	178	116	121	98	24	14	41
20	166	118	130	67	25	26	13
21	156	139	125	39	28	26	28
22	161	141	132	69	25	15	33
23	211	166	125	71	8.4	8.4	29
24	237	114	121	57	8.4	11	16
25	237	130	130	39	28	8.4	31
26	214	158	125	61	9.6	9.6	36
27	227	100	128	34	11	9.6	13
28	237	114	118	24	19	8.4	31
29	278	130	104	41	11	9.0	34
30	262	132	107	51	13	8.4	21
31	286		104		14	5.6	

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
March 17-31	286	123	208	July	78	8.4	29.5
April	251	100	162	August	29	5.6	13.2
May	161	84	122	September	63	7.8	25.0
June	134	24	87.4				

FLINT RIVER AT GENESEE, MICH.

LOCATION.—Wire gage in sec. 10, T. 8 N., R. 7 E., on highway bridge a quarter of a mile below Genesee. Zero of gage is 695.325 feet above mean sea level.
RECORDS AVAILABLE.—March to September, 1931.
EXTREMES.—Maximum discharge during period, 302 second-feet Mar. 27–31; maximum gage height, 14.87 feet Mar. 27; minimum discharge, 19 second-feet Aug. 22–24, 26 (gage height, 12.62 feet).
REMARKS.—Records good. Diversions below station for municipal use at Flint.

Daily and monthly discharge, in second-feet, 1931

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1		271	142	82	59	24	21
2		234	136	81	56	27	22
3		218	122	79	56	31	21
4		197	110	82	54	29	23
5		183	104	81	53	27	25
6		169	100	97	48	25	24
7		162	98	122	45	22	24
8		162	104	148	41	22	25
9		162	110	148	39	28	28
10		148	129	136	36	29	27
11		142	155	122	34	37	28
12		148	169	102	31	37	26
13		148	169	93	33	[a] 35	24
14		129	162	84	38	[a] 35	31
15		129	169	76	36	[a] 35	50
16		122	162	68	35	[a] 32	64
17		122	142	64	33	[a] 30	64
18	169	116	129	62	33	27	48
19	169	110	116	56	33	25	44
20	176	110	104	52	31	24	43
21	190	110	99	52	33	21	41
22	211	129	104	48	31	19	41
23	234	155	97	46	36	19	39
24	241	176	92	45	35	19	39
25	256	162	91	45	35	21	45
26	286	155	88	46	34	19	46
27	302	148	84	59	33	21	48
28	302	155	81	64	30	23	48
29	302	155	74	72	26	21	48
30	302	142	79	68	24	21	46
31	302		93		24	21	

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
March 18–31	302	169	246	July	59	24	37.6
April	271	110	156	August	37	19	26.0
May	169	74	117	September	64	21	36.8
June	148	45	79.3				

[a] Estimated.

PINE RIVER AT ALMA, MICH.

LOCATION.—Staff gage in sec. 34, T. 12 N., R. 3 W., 70 feet below highway bridge in Alma.

DRAINAGE AREA.—401 square miles.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during period, 336 second-feet Mar. 30, 31, Apr. 1; maximum gage height, 2.78 feet Apr. 1; minimum discharge, 30 second-feet July 29; minimum gage height, 0.40 foot Sept. 1.

REMARKS.—Records good. Discharge affected by ice Jan. 7, 8, 21, 22, 28, Feb. 10. Gage-height record furnished by city of Alma.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	81		a 86	100	288	336	81	72	61	32	32
2	-------	81		81	86	198	272	81	72	58	33	34
3	-------	81		81	90	164	212	86	68	95	38	43
4	-------	81		86	100	150	212	76	68	76	34	41
5	-------	81	a 100	81	100	144	144	76	72	62	32	40
6	-------	81		86	90	132	81	72	81	62	48	39
7	-------	81		a 80	90	126	86	76	90	62	32	41
8	-------	a 81		a 80	100	110	116	90	100	55	31	41
9	-------	81		76	81	76	116	110	121	49	37	41
10	-------	77	116	81	a 90	90	164	a 147	90	46	36	40
11	-------	a 82	110	86	105	100	150	184	81	43	35	40
12	-------	86	116	86	81	132	170	227	72	42	36	40
13	-------	a 84	105	86	110	144	157	227	76	41	36	40
14	-------	81	105	90	150	a 144	121	212	61	45	36	46
15	-------	86	105	81	121	144	110	184	60	48	36	51
16	-------	77	76	86	100	138	105	132	68	48	34	58
17	-------	77	72	a 84	184	132	90	100	63	52	34	58
18	-------	86	81	81	184	126	90	90	62	41	34	62
19	-------	95	81	105	184	126	90	81	57	40	35	63
20	-------	86	a 85	81	157	126	90	86	52	38	36	62
21	81	86	90	a 80	150	132	95	90	52	39	34	63
22	a 81	a 84	86	a 80	164	164	100	90	51	37	34	62
23	a 81	81	90	81	170	198	144	90	50	37	34	62
24	81	86	90	90	170	212	144	95	50	37	34	47
25	81	86	86	100	184	242	144	81	50	34	34	47
26	81	a 86	81	95	198	242	110	81	72	35	36	48
27	81	86	86	100	212	242	100	86	60	34	34	55
28	86	81	90	a 95	257	242	95	81	61	31	35	64
29	90	77	105	90	-------	320	90	68	90	30	36	64
30	90	a 80	100	100	-------	336	86	76	62	31	32	52
31	a 85	-------	90	95	-------	336	-------	72	-------	31	32	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 21-31	90	81	83.5	0.208	0.09
November	95	77	82.6	.206	.23
December	----------	72	95.0	.237	.27
January	105	76	86.8	.218	.25
February	257	81	136	.339	.35
March	336	76	176	.439	.51
April	336	81	134	.334	.37
May	227	68	107	.267	.31
June	121	50	69.5	.173	.19
July	95	30	46.5	.116	.13
August	48	31	34.8	.087	.10
September	64	32	49.2	.123	.14

a Estimated.

CHIPPEWA RIVER NEAR MOUNT PLEASANT, MICH.

LOCATION.—Chain gage on line between secs. 7 and 8, T. 14 N., R. 3 W., 4 miles northeast of Mount Pleasant.
DRAINAGE AREA.—345 square miles.
RECORDS AVAILABLE.—October, 1930, to July, 1931.
EXTREMES.—Maximum discharge during period, 493 second-feet Mar. 29; maximum gage height, 4.77 feet Feb. 17; minimum discharge, 88 second-feet Nov. 9 (gage height, 3.22 feet).
REMARKS.—Records poor. Discharge estimated because of ice effect Nov. 27 to Mar. 18 and interpolated for Nov. 15, June 1, 2, 9.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1		197	140	130	170	150	342	184	185	
2		148	140	130	170	150	323	181	177	
3		190	150	130	170	150	307	174	168	
4		190	170	130	170	150	256	171	162	
5		203	190	120	170	150	248	171	174	
6		256	200	120	170	140	263	171	200	
7		156	210	120	170	130	263	194	200	
8		171	220	122	180	130	259	217	194	
9		88	210	120	190	140	256	311	180	
10		207	200	120	200	150	307	471	165	
11		168	189	120	200	170	315	471	162	
12		162	150	120	210	201	270	471	171	
13		162	140	120	210	200	263	407	139	
14		171	120	120	210	190	227	366	145	
15		166	100	130	220	190	224	311	136	
16		162	100	130	220	190	174	274	129	
17		156	110	130	230	190	200	241	126	
18		165	120	130	250	190	210	227	126	
19		197	120	120	240	190	200	217	151	
20		181	130	110	230	197	200	256	122	
21		165	130	120	200	210	207	366	132	
22		162	120	130	150	256	307	342	129	
23	156	162	120	130	140	245	366	307	148	
24	151	174	110	140	150	263	346	256	142	
25	203	171	110	140	150	292	285	252	132	
26	148	171	120	150	160	292	266	238	112	
27	156	160	130	150	160	292	227	227	124	
28	171	150	130	160	160	296	224	203	151	[a] 114
29	197	150	130	160		493	197	187	156	
30	156	140	130	170		471	220	181	136	
31	187		130	170		407		194		

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 23–31	203	148	169	0.490	0.16
November	256	88	170	.493	.55
December	220	100	144	.417	.48
January	170	110	132	.383	.44
February	250	140	188	.545	.57
March	493	130	221	.641	.74
April	366	174	258	.748	.83
May	471	171	266	.771	.89
June	200	112	152	.441	.49

[a] Result of discharge measurement.

STREAMS TRIBUTARY TO LAKE ERIE

RIVER ROUGE AT DETROIT, MICH.

LOCATION.—Chain gage on line between secs. 33 and 34, T. 1 S., R. 10 E., in Detroit. Zero of gage is 579.90 feet above mean sea level.
DRAINAGE AREA.—194 square miles.
RECORDS AVAILABLE.—November, 1930, to September, 1931.
EXTREMES.—Maximum discharge during period, 222 second-feet Mar. 28; maximum gage height, 6.46 feet Feb. 18; minimum discharge, 3.9 second-feet Aug. 2 (gage height, 3.61 feet).
REMARKS.—Records good except those above 50 second-feet and those estimated for periods of ice effect, Nov. 26 to Dec. 10, Dec. 15 to Jan. 7, Jan. 9 to Feb. 9, Feb. 11–28, Mar. 8–11, which are poor. Gage-height record and results of some discharge measurements furnished by city of Dearborn.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		26	20	23	45	142	37	64	45	4.1	5.3
2		23	20	23	41	111	34	40	17	3.9	5.8
3		20	20	23	45	99	30	25	12	5.3	5.8
4		20	20	24	43	99	28	21	9.0	5.5	6.3
5		20	20	24	44	87	24	18	9.3	6.6	5.5
6		21	20	24	35	59	23	19	16	5.8	4.9
7		23	20	25	11	55	26	123	20	5.5	5.1
8		25	19	22	10	58	43	93	10	5.3	4.9
9		27	19	29	12	56	58	64	8.6	6.8	6.3
10		30	19	28	10	70	123	44	7.9	7.4	8.6
11		32	19	29	9	81	99	34	8.2	5.8	4.9
12		33	19	30	9.3	64	117	25	7.4	5.8	5.1
13		26	19	50	20	57	81	18	6.3	4.9	5.1
14		24	19	85	76	43	59	22	6.6	4.9	6.3
15		23	19	50	87	33	38	18	6.8	4.5	7.1
16		22	19	35	93	28	32	14	6.8	5.3	7.9
17		21	19	45	93	34	29	13	6.8	4.9	7.4
18		20	19	58	87	28	18	12	42	4.9	8.6
19		20	19	68	87	24	16	11	18	4.9	7.9
20		20	19	52	76	25	25	11	11	4.9	7.4
21		20	19	46	99	26	42	10	11	4.9	7.4
22		20	19	43	93	76	26	11	11	4.9	7.4
23		20	19	43	87	93	22	9.3	8.2	5.3	6.3
24	16	20	19	44	87	64	19	9.7	7.7	5.1	5.5
25	17	20	20	39	194	54	33	7.4	6.6	4.9	11
26	17	20	22	46	168	99	40	9.7	7.4	12	12
27	17	20	43	45	117	99	32	12	6.8	9.3	12
28	17	20	27	46	222	76	19	16	7.4	4.9	9.3
29	18	20	26	------	208	57	17	14	8.6	4.9	7.4
30	27	20	27	------	194	44	17	70	5.3	4.9	6.3
31	------	20	23	------	142	------	81	------	5.3	4.9	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 24-30	27	16	18.4	0.095	0.02
December	33	20	22.5	.116	.13
January	43	19	21.0	.108	.12
February	85	22	39.2	.202	.21
March	222	9	82.1	.423	.49
April	142	24	64.7	.334	.37
May	123	16	41.5	.214	.25
June	123	7.4	28.6	.147	.16
July	45	5.3	11.6	.060	.07
August	12	3.9	5.58	.029	.03
September	12	4.9	7.03	.036	.04

MIDDLE RIVER ROUGE AT DETROIT, MICH.

LOCATION.—Staff gage in sec. 9, T. 2 S., R. 10 E., 1 mile above mouth at Detroit. Zero of gage is 583.47 feet above mean sea level.
DRAINAGE AREA.—99 square miles.
RECORDS AVAILABLE.—November, 1930, to September, 1931.
EXTREMES.—Maximum discharge during period, 76 second-feet Mar. 29, May 11; maximum gage height, 3.52 feet Feb. 14; minimum discharge, 1.4 second-feet Aug. 21, 24, 28, Sept. 21 (gage height, 1.42 feet).
REMARKS.—Records good except those above 60 second-feet and those for periods of ice effect, Nov. 27 to Dec. 10, Dec. 16 to Jan. 7, Jan. 9 to Feb. 9, Feb. 11–27, which are poor. Gage-height record and results of some discharge measurements furnished by city of Dearborn.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		19	18	23	35	60	16	44	24	5.3	4.1
2		18	18	24	29	49	22	23	24	6.7	4.4
3		17	18	25	22	48	24	19	8.2	2.3	3.0
4		16	18	25	23	48	28	18	8.2	3.6	3.6
5		17	18	26	22	50	17	19	6.1	4.7	3.8
6		18	18	26	22	39	20	19	9.4	14	2.5
7		20	18	28	24	33	20	51	16	3.6	3.3
8		21	18	26	25	30	19	64	18	14	3.3
9		22	18	30	33	24	26	33	14	6.7	2.7
10		22	18	32	37	29	51	26	3.9	3.1	8.2
11		22	18	32	40	37	76	21	4.7	4.7	3.0
12		19	18	40	51	38	52	23	4.1	16	2.2
13		28	18	60	23	31	44	14	3.5	5.0	3.5
14		27	18	70	40	26	28	23	3.3	11	2.1
15		24	18	40	39	20	28	19	5.6	6.1	3.3
16		24	18	30	42	18	25	17	5.3	6.4	9.0
17		23	18	35	39	17	23	12	6.1	1.8	12
18		22	18	45	37	24	20	12	7.8	4.4	5.0
19		21	18	55	40	14	18	7.0	7.8	4.1	6.4
20		20	18	50	44	21	26	3.6	7.4	3.3	3.8
21	17	20	18	47	47	25	21	3.8	16	1.4	1.4
22	8.6	20	18	46	52	24	23	5.0	14	8.2	2.7
23	9.0	19	18	47	45	35	22	4.7	9.8	5.6	2.7
24	14	19	18	47	36	33	22	5.0	4.1	1.4	3.1
25	24	19	20	45	60	33	25	4.7	5.6	3.5	6.7
26	25	19	22	50	68	49	30	7.4	5.3	5.6	5.6
27	20	19	30	48	53	44	24	9.8	4.7	4.4	7.4
28	8	18	28	49	72	31	19	9.8	3.9	1.4	8.6
29	14	18	26		76	29	17	9.4	6.1	9.0	9.8
30	20	18	27		72	20	16	43	14	5.6	12
31		18	23		64		31		5.6	2.0	

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 21–30	25	8	16.0	0.162	0.06
December	28	16	20.2	.204	.24
January	30	18	19.6	.198	.23
February	70	23	39.3	.397	.41
March	76	22	42.3	.427	.49
April	60	14	32.6	.329	.37
May	76	16	26.9	.272	.31
June	64	3.6	19.0	.192	.21
July	24	3.3	8.85	.089	.10
August	16	1.4	5.64	.057	.07
September	12	1.4	4.97	.050	.06

LOWER RIVER ROUGE AT DEARBORN, MICH.

LOCATION.—Staff gage in sec. 22, T. 2 S., R. 10 E., at Ford Park, 1 mile above confluence with Rouge River at Dearborn. Zero of gage is 576.875 feet above mean sea level.

DRAINAGE AREA.—96 square miles.

RECORDS AVAILABLE.—November, 1930, to September, 1931.

EXTREMES.—Maximum discharge during period, 178 second-feet June 30 (gage height, 4.00 feet); minimum, 1.8 second-feet July 10 (gage height, 1.30 feet).

REMARKS.—Records fair except those above 15 second-feet, which are poor. Gage-height record and results of some discharge measurements furnished by city of Dearborn.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		10	3.2	4.5	13	72	11	7.0	135	7.4	4.5
2		8	3.1	6.3	13	57	10	7.0	43	7.7	4.9
3		6.3	3.5	6.3	11	46	7.9	5.6	17	16	4.3
4		3.6	3.2	5.0	9.8	46	6.8	5.3	10	8.5	4.2
5		3.4	3.6	5.5	8.2	41	5.6	4.6	5.5	7.9	3.9
6		4.5	3.7	4.9	7.7	28	5.3	20	13	6.5	3.9
7		4.5	3.8	7.0	7.2	25	7.0	7.9	6.1	4.5	3.7
8		7.2	4.0	3.8	6.1	20	7.9	54	5.0	4.3	3.6
9		5.5	3.6	9.1	9.4	19	9.8	33	4.2	4.5	3.6
10		5.3	3.7	8.5	7.4	23	43	17	1.8	5.8	4.3
11		4.1	3.2	7.7	6.5	24	68	11	4.0	5.3	3.8
12		4.0	[a]3	10	5.2	24	88	7.9	3.8	3.7	3.8
13		4.1	[a]3	27	5.6	16	57	6.5	4.0	4.1	3.6
14		3.9	[a]3	64	10	11	38	14	4.2	4.1	10
15		4.0	[a]3	30	24	9.1	24	7.9	4.0	4.1	4.8
16		3.3	3.1	8.8	35	7.4	15	5.3	4.2	3.5	4.6
17		3.2	3.5	16	40	7.4	11	5.3	4.5	3.8	4.2
18		3.2	3.1	29	46	6.1	11	5.2	5.6	3.8	4.0
19		3.0	3.9	42	46	6.3	11	4.9	4.0	4.0	4.0
20		3.1	3.9	27	46	6.8	12	4.6	7.7	3.8	3.7
21	3.4	3.3	3.5	20	60	9.8	9.1	4.5	5.3	4.0	3.7
22	3.9	3.2	3.4	18	64	16	7.4	4.5	4.2	4.1	3.0
23	3.4	3.2	3.4	16	50	17	7.0	4.8	4.0	3.7	3.9
24	3.4	3.3	3.1	18	54	15	7.0	4.2	4.6	4.0	4.0
25	3.6	3.4	5.2	11	102	13	10	4.5	3.9	3.8	9.1
26	3.2	3.4	6.3	17	30	50	10	7.0	3.8	4.0	5.6
27	3.3	3.4	26	16	60	46	10	7.4	4.0	3.8	4.0
28	2.9	3.3	13	17	88	33	7.0	6.5	4.6	3.7	3.8
29	3.4	3.2	8.5	-------	84	21	5.6	5.2	5.0	3.8	3.6
30	13	3.3	10	-------	80	14	5.6	178	3.9	3.5	3.8
31	-------	3.3	6.1	-------	76	-------	6.8	-------	4.3	3.6	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 21-30	13	2.9	4.35	0.045	0.02
December	10	3.0	4.21	.044	.05
January	26	3	5.05	.053	.06
February	64	3.8	16.3	.170	.18
March	102	5.2	35.6	.371	.43
April	72	6.1	24.3	.253	.28
May	88	5.3	17.3	.180	.21
June	178	4.2	15.4	.160	.18
July	135	1.8	10.8	.112	.13
August	16	3.5	5.01	.052	.06
September	10	3.0	4.40	.046	.05

[a] Estimated.

RAISIN RIVER NEAR ADRIAN, MICH.

LOCATION.—Chain gage on line between secs. 29 and 32, T. 6 S., R. 4 E., half a mile below South Branch of the Raisin River and 3 miles northeast of Adrian.
RECORDS AVAILABLE.—October, 1930, to August, 1931.
EXTREMES.—Maximum discharge during period, 447 second-feet June 8 (gage height, 8.37 feet); minimum recorded, 23 second-feet Aug. 20 (gage height, 4.34 feet).
REMARKS.—Records good except those above 200 second-feet and those for periods of ice effect, Nov. 27 to Dec. 4, Dec. 16 to Jan. 8, Jan. 10–25, Feb. 9, 10, 12–15, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Aug.
1		70			152	182	236	132	61	
2		123	75	90	123	152	225	110	83	
3		53			114	152	192	87	83	
4		83			110	152	192	110	152	
5		87	110		132	142	203	110	142	
6		110	114	60	123	142	203	105	142	
7		100	162		132	142	192	123	258	
8		57	123		132	270	162	123	447	
9		87	132	88	100	123	162	123	306	
10	83	69	123			92	162	132	306	
11	83	83	123		78	114	162	114	162	
12	123	96	123			110	152	142	162	
13	142	79	123		120	142	123	142	96	
14	114	66	92			172	132	152	96	
15	96	105	67			182	123	132	96	
16	92	96		75	142	132	123	123	96	
17	162	110			162	182	132	100	132	
18	105	142			142	182	132	63	92	
19	79	100			162	203	142	105	54	
20	48	67			182	172	54	105	100	[a] 23
21	100	79			172	192	114	69	87	
22	100	100			172	225	142	75	62	
23	61	79	70		182	247	123	110	64	
24	96	44		120	162	225	132	87	71	
25	87	123			152	214	110	63	79	
26	83	100		152	142	270	132	105	70	
27	43			162	152	236	152	105	79	
28	105	75		152	162	270	162	57	96	
29	105			142		294	162	55	75	
30	87			132		306	142	92	123	
31	46			142		282		110		

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October 10–31	162	43	92.7	March	306	92	190
November	142	44	86.9	April	236	54	152
December	162		87.5	May	152	55	105
January	162		92.7	June	447	54	129
February	182		138				

[a] Result of discharge measurement.

NOTE.—Gage not read after June 30, 1931.

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, William County, and 1 mile above mouth of Bear Creek.

DRAINAGE AREA.—369 square miles.

RECORDS AVAILABLE.—August, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,090 second-feet June 9 (gage height, 7.32 feet); minimum, 16 second-feet Aug. 25, Sept. 24 (gage height, 1.16 feet).

1926–1931: Maximum discharge, 5,210 second-feet Dec. 1, 1927 (gage height, 14.8 feet); minimum, 13 second-feet Aug. 13, 1930.

REMARKS.—Records good except those for periods of ice effect, Dec. 8, 21–31, Jan. 1–5, Feb. 10, 11, Mar. 8, 12, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	32	81		104	72	259	72	43	244	31	19
2	24	33	90		94	72	244	72	43	215	54	25
3	49	34	86	50	91	68	229	68	42	180	101	49
4	36	32	81		86	68	244	59	59	121	67	36
5	30	31	76		72	63	244	53	468	92	67	28
6	27	31	72	63	68	59	215	55	666	83	54	25
7	26	33	76	68	72	63	180	59	832	75	42	23
8	36	31	74	68	72	68	173	68	958	71	34	20
9	51	33	72	63	76	72	138	68	1,060	50	33	19
10	49	35	72	68	80	72	132	72	984	39	35	19
11	49	31	72	59	85	72	132	90	578	35	37	18
12	38	30	63	68	90	60	126	90	352	37	40	18
13	34	33	55	63	94	49	104	94	229	37	27	19
14	31	33	59	63	120	72	99	94	215	35	32	21
15	28	34	68	63	120	94	94	81	244	36	30	23
16	27	38	59	59	114	152	81	72	244	37	29	38
17	29	35	55	63	104	215	76	63	180	42	25	50
18	31	33	55	68	104	215	72	55	132	37	24	51
19	36	33	52	68	109	229	68	54	106	40	22	38
20	37	33	50	68	114	274	63	59	83	215	21	30
21	32	33		68	109	336	59	83	75	512	23	28
22	33	35		72	109	512	76	79	67	259	21	27
23	31	36	45	72	104	468	90	71	63	145	19	25
24	30	33		72	94	408	81	59	63	92	18	22
25	31	31		81	99	388	81	54	59	67	17	26
26	31	33		104	90	370	86	54	51	51	19	59
27	31	32		145	86	304	104	51	48	46	23	96
28	32	33		159	72	408	109	45	48	39	21	59
29	33	36	40	138	------	736	104	43	96	38	20	42
30	33	55		126	------	622	86	41	512	33	20	40
31	33	------		114	------	370	------	44	------	32	19	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	51	24	33.6	0.091	0.10
November	55	30	33.8	.092	.10
December	90	------	59.1	.160	.18
January	159	------	76.5	.207	.24
February	120	68	93.6	.254	.26
March	736	49	227	.615	.71
April	259	59	128	.347	.39
May	94	41	65.2	.177	.20
June	1,060	42	287	.778	.87
July	512	32	97.9	.265	.31
August	101	17	33.1	.090	.10
September	96	18	33.1	.090	.10
The year	1,060	17	97.1	.263	3.56

MAUMEE RIVER AT ANTWERP, OHIO

LOCATION.—Water-stage recorder just below highway bridge 1 mile north of Antwerp, Paulding County, and about 7 miles downstream from State boundary.

DRAINAGE AREA.—2,050 square miles.

RECORDS AVAILABLE.—September, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,380 second-feet Apr. 5 (gage height, 6.74 feet); minimum, 24 second-feet Oct. 17 (gage height, 0.32 foot). 1921–1931: Maximum discharge, 22,000 second-feet Jan. 16, 1930 (gage height, 19.4 feet); minimum, that of Oct. 17, 1930.

REMARKS.—Records good except those estimated for Dec. 1–4, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	175	144	430	243	272	332	2,030	700	187	565	146	90
2	175	163		187	272	302	1,630	610	175	900	125	112
3	161	144		258	243	287	1,630	521	175	1,050	137	134
4	146	149		228	243	272	2,660	438	175	800	128	125
5	151	146	382	228	214	272	3,300	382	76	543	141	158
6	137	139	295	228	214	258	2,590	365	162	543	158	151
7	111	146	302	228	243	258	1,960	348	200	430	214	175
8	228	130	302	243	257	272	1,630	348	744	302	200	214
9	629	153	317	243	272	208	1,450	332	1,270	258	175	228
10	175	151	287	258	287	258	1,270	332	1,270	175	200	175
11	287	139	272	243	332	228	1,270	332	1,210	175	214	139
12	243	149	258	243	287	228	1,330	332	1,150	175	149	118
13	200	156	243	228	287	228	1,210	332	1,000	153	158	107
14	92	151	243	243	348	272	1,000	317	700	146	130	90
15	42	151	228	187	400	452	900	332	543	132	137	86
16	31	158	258	214	400	1,280	700	317	478	146	134	98
17	29	94	214	215	400	1,630	610	317	400	155	158	77
18	132	200	214	222	458	1,390	565	317	365	135	134	146
19	158	151	214	228	478	1,210	500	302	365	113	137	121
20	132	156	214	228	565	1,270	458	302	317	112	125	112
21	151	156	214	205	610	1,450	419	332	258	140	121	123
22	139	149	214	272	565	1,510	458	287	243	170	98	132
23	139	146	214	243	521	1,450	419	287	243	641	96	114
24	151	141	187	258	478	1,390	400	272	272	750	86	107
25	156	141	216	243	458	1,270	419	272	243	610	75	130
26	149	153	228	214	419	1,150	521	258	214	458	92	163
27	139	187	214	288	400	1,050	700	200	214	382	75	200
28	144	163	200	317	382	1,270	800	85	200	348	128	163
29	134	214	200	287	-------	2,310	750	104	228	228	134	156
30	156	214	187	287	-------	2,820	700	200	272	200	123	187
31	137	-------	190	317	-------	2,590	-------	200	-------	163	96	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	629	29	162	0.079	0.09
November	214	94	154	.075	.08
December	-------	187	265	.129	.15
January	317	187	243	.119	.14
February	610	214	368	.180	.19
March	2,820	208	941	.459	.53
April	3,300	400	1,140	.556	.62
May	700	85	325	.158	.18
June	1,270	76	445	.217	.24
July	1,050	112	358	.175	.20
August	214	75	136	.066	.08
September	228	77	138	.067	.07
The year	3,300	29	389	.190	2.57

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, Defiance County. Zero of gage is 659.12 feet above mean sea level.

DRAINAGE AREA.—5,530 square miles.

RECORDS AVAILABLE.—November, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,200 second-feet Apr. 4, 5 (gage height, 4.30 feet); minimum, 23 second-feet Oct. 19 (gage height, 1.31 feet). 1924–1931: Maximum discharge, 87,000 second-feet Jan. 16, 1930 (gage height, 12.9 feet); minimum, that of Oct. 19, 1930.

REMARKS.—Records excellent except those for low and extremely high water, and those estimated for Oct. 22, 23, which are fair. Flow at extremely low water affected by regulation of Auglaize River at Toledo Edison Co.'s dam, 3 miles south of Defiance. Leakage into abandoned Miami & Erie Canal above station; diversion not included in tables of discharge. See list of miscellaneous measurements, p. 156.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	193	153	311	180	490	589	5,360	1,810	345	2,740	180	205
2	206	139	379	153	498	530	4,080	1,410	396	1,910	166	139
3	206	166	490	193	490	510	4,310	1,060	294	1,850	180	111
4	260	180	490	193	311	530	7,860	1,230	362	1,360	180	607
5	247	206	430	412	396	470	10,000	1,290	311	1,100	193	666
6	311	193	413	362	379	430	8,330	1,000	866	1,100	206	596
7	277	180	396	247	413	379	6,040	1,280	1,250	802	206	537
8	247	180	450	328	470	490	4,080	958	1,470	672	233	444
9	260	277	629	413	470	490	3,480	589	2,480	413	247	328
10	890	193	396	379	589	413	3,060	549	2,920	328	233	264
11	629	166	328	294	589	534	4,080	629	2,230	233	220	358
12	396	166	277	345	569	430	3,880	629	1,850	193	233	194
13	311	153	294	345	737	646	3,100	589	1,530	220	193	212
14	247	166	430	247	819	1,790	2,570	589	1,550	220	166	187
15	206	166	311	220	759	2,570	2,070	569	980	233	238	126
16	126	193	247	206	1,140	2,570	1,580	1,200	737	206	166	111
17	96	180	166	193	1,000	3,290	1,410	635	845	206	153	174
18	58	193	206	180	1,000	2,920	1,560	672	694	345	213	126
19	44	166	220	311	1,200	2,570	912	662	569	328	193	126
20	111	193	220	311	1,300	2,570	958	1,120	490	396	166	180
21	118	363	206	180	1,410	3,100	1,000	752	470	742	153	139
22	125	444	277	206	1,100	2,740	1,340	802	362	1,070	139	118
23	132	233	277	510	1,150	3,290	1,020	589	379	802	118	126
24	139	233	206	379	958	2,740	845	396	502	912	111	316
25	118	166	180	362	780	2,740	1,390	490	512	935	103	475
26	126	180	206	413	802	2,400	2,070	470	470	780	103	229
27	139	118	193	478	780	2,070	3,100	345	362	569	103	153
28	126	118	206	536	651	3,890	3,480	345	396	490	210	419
29	126	180	311	656	-------	6,280	2,740	530	1,030	379	291	417
30	126	233	277	629	-------	8,330	2,400	297	2,130	277	180	498
31	166	-------	166	549	-------	6,770	-------	220	-------	206	166	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	890	44	218	May	1,810	220	765
November	444	118	196	June	2,920	294	959
December	629	166	309	July	2,740	193	710
January	656	153	336	August	291	103	182
February	1,410	311	759	September	666	111	286
March	8,330	379	2,230				
April	10,000	845	3,270	The year	10,000	44	849

MAUMEE RIVER AT WATERVILLE, OHIO

LOCATION.—Water-stage recorder 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; August, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, about 12,300 second-feet Apr. 5 (gage height, 5.60 feet); minimum, 70 second-feet Oct. 21 (gage height, 1.49 feet).

1921–1931: Maximum discharge (revised), 75,000 second-feet Jan. 16, 1930 (gage height, 13.6 feet); minimum, 63 second-feet July 15, 1930.

REMARKS.—Records good except those for extremely high and low stages and those estimated because of ice, which are fair. Flow at low water affected by regulation of Auglaize River at hydroelectric plant of Toledo-Edison Co., 3 miles south of Defiance.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	276	181	360	260	536	602	6,350	2,160	276	3,050	190	164
2	232	162	480	250	402	536	4,740	1,910	419	2,530	276	206
3	168	174	580	240	448	437	4,410	1,410	448	2,070	232	206
4	181	181	615	270	437	448	7,940	842	550	1,870	174	168
5	174	216	425	350	296	483	11,300	1,410	662	1,410	174	636
6	174	232	402	390	327	367	9,850	1,290	727	1,170	190	615
7	247	155	357	357	379	215	7,730	1,150	2,390	970	190	562
8	286	207	327	258	437	727	5,260	1,310	2,700	754	190	562
9	232	198	402	266	402	496	3,800	914	2,390	589	276	425
10	207	190	496	357	460	379	3,150	724	3,180	413	357	316
11	828	215	413	286	536	316	4,740	589	2,960	337	244	266
12	509	190	324	258	549	448	4,580	646	2,300	258	198	286
13	379	181	174	306	615	402	3,660	724	1,960	232	249	249
14	286	168	308	367	806	842	2,780	708	1,670	249	224	261
15	258	174	266	306	1,110	2,960	2,460	709	1,480	423	190	224
16	214	202	260	280	677	2,930	1,980	686	950	437	224	253
17	304	254	240	250	1,230	3,150	1,670	1,110	662	357	198	215
18	212	196	210	230	914	3,310	1,330	896	824	402	190	168
19	153	176	168	215	1,230	2,860	1,480	950	646	471	181	155
20	113	206	181	276	1,330	2,650	770	824	608	562	142	225
21	77	355	181	360	1,230	3,310	1,010	1,410	325	630	136	266
22	86	440	224	300	1,510	3,100	1,300	806	396	1,050	148	222
23	90	301	249	420	932	3,230	1,370	970	369	950	148	160
24	130	245	258	550	1,030	3,120	1,010	724	296	770	155	168
25	154	379	250	425	896	2,800	914	549	547	970	136	284
26	148	124	215	390	708	2,510	2,880	575	496	878	99	880
27	186	130	198	402	724	2,180	3,570	602	456	646	136	271
28	258	130	181	471	708	3,740	4,100	589	364	589	162	148
29	240	200	266	536	-------	7,530	3,200	536	471	437	256	375
30	128	260	350	602	-------	8,340	2,680	662	1,310	286	210	437
31	204	------	300	589	-------	7,940	-------	423	-------	240	148	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	828	77	230	May	2,160	423	929
November	440	124	214	June	3,180	276	1,090
December	615	168	312	July	3,050	232	839
January	602	215	349	August	357	99	194
February	1,510	296	745	September	880	148	312
March	8,340	215	2,330				
April	11,300	770	3,730	The year	11,300	77	938

ST. MARYS RIVER NEAR WILLSHIRE, OHIO

LOCATION.—Chain gage in sec. 34, T. 3 S., R. 1 E., at highway bridge three-fourths mile above mouth of Black Creek and 3 miles southeast of Willshire, Van Wert County.

DRAINAGE AREA.—355 square miles.

RECORDS AVAILABLE.—September, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 565 second-feet Apr. 3 (gage height, 6.03 feet); minimum, 9.4 second-feet July 17.

1925–1931: Maximum discharge, about 4,260 second-feet Jan. 15, 1930 (gage height, 16.65 feet); minimum, that of July 17, 1931.

REMARKS.—Records good. Water flows from Lake St. Marys, at the head of this stream, into Wabash River Basin. Some water is diverted at this point by Miami & Erie Canal into Auglaize River Basin. Flow also regulated to some extent at Lake St. Marys.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	28	36	22	26	26	241	118	18	47	20	23
2	28	27	37	22	26	25	163	86	18	60	23	31
3	28	28	36	20	25	24	475	68	16	47	54	37
4	26	28	33	21	26	22	529	57	16	33	78	68
5	26	27	33	24	27	22	529	50	15	24	57	127
6	26	28	30	30	28	20	547	44	15	20	33	98
7	26	30	30	26	29	19	565	41	16	18	24	54
8	26	29	28	26	28	25	459	38	17	15	21	28
9	28	30	27	31	28	26	265	37	22	13	23	25
10	28	28	25	37	28	27	205	37	32	15	26	20
11	27	25	22	30	28	28	253	34	26	20	24	20
12	28	26	20	26	27	36	265	35	22	17	28	19
13	28	26	20	22	28	44	205	34	20	15	60	20
14	27	26	20	21	30	71	145	31	17	15	50	22
15	26	26	20	17	26	102	110	36	18	13	32	22
16	25	26	20	16	30	102	86	33	15	12	26	22
17	24	24	20	15	33	94	74	31	16	9.8	21	18
18	24	23	25	15	38	78	68	27	16	16	17	16
19	30	23	24	20	35	71	57	27	16	28	16	16
20	28	22	22	22	34	86	50	30	18	82	17	22
21	28	24	22	20	38	82	50	28	17	154	17	18
22	28	27	23	18	47	82	50	28	20	145	15	17
23	27	26	23	18	44	78	50	28	36	127	14	19
24	27	26	22	18	38	71	94	26	54	145	14	17
25	26	24	20	23	33	60	110	24	44	127	14	20
26	27	24	21	24	31	47	127	21	32	71	15	26
27	27	20	22	24	28	47	154	20	25	41	15	44
28	29	22	23	25	26	229	241	20	20	27	15	183
29	30	24	24	24	------	241	253	20	50	22	36	241
30	31	30	24	25	------	293	173	20	47	20	33	173
31	28	------	24	27	------	307	------	19	------	17	24	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	31	24	27.3	May	118	19	37.0
November	30	20	25.9	June	54	15	23.8
December	37	20	25.0	July	154	9.8	45.7
January	37	15	22.9	August	78	14	27.8
February	47	25	30.9	September	241	16	48.9
March	307	19	80.2				
April	565	50	220	The year	565	9.8	51.1

ST. MARYS RIVER NEAR FORT WAYNE, IND.

LOCATION.—Chain gage in sec. 35, T. 30 N., R. 12 E., at highway bridge 12 miles above mouth of river and 4 miles south of Fort Wayne.
DRAINAGE AREA.—810 square miles.
RECORDS AVAILABLE.—November, 1930, to September, 1931.
EXTREMES.—Maximum discharge during period, 2,000 second-feet Apr. 4 (gage height, 7.49 feet); minimum, 16 second-feet July 19 (gage height, 0.53 foot).
REMARKS.—Records good except those estimated for short periods of ice effect, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		84		34	40	425	210	25	210	21	36
2		e 82		30	39	425	155	24	127	25	33
3		e 80	e 20	26	26	995	127	22	95	26	77
4		e 78		24	26	2,000	95	23	83	33	82
5		57		26	26	1,430	88	21	65	70	73
6		48		26	29	855	79	23	41	64	134
7	26	46		32	23	670	76	127	31	44	120
8	26	44	e 38	41	31	610	65	108	28	30	79
9	26	39		63	29	500	53	45	26	28	49
10	26	35		55	31	425	61	38	20	33	35
11	26	33		45	34	670	61	36	18	31	28
12	26	29		36	34	500	46	35	18	26	27
13	27	29	e 35	50	65	402	53	33	22	30	24
14	26	26		90	109	315	52	28	21	42	22
15	26	23		130	580	228	48	27	19	60	20
16	24			84	580	173	45	22	18	45	23
17	25			62	379	155	48	22	18	36	25
18	25			84	275	127	42	19	17	28	27
19	25			116	256	108	41	19	16	30	23
20	24			130	357	101	42	19	22	24	21
21	24			116	237	95	45	20	61	23	20
22	24		e 25	102	210	101	44	28	170	20	19
23	24			84	201	95	41	46	170	19	25
24	23	e 20		61	184	83	36	44	141	19	21
25	26			80	168	101	35	52	134	19	28
26	26			68	137	256	34	57	134	77	45
27	e 26			52	61	336	30	48	89	26	39
28	e 26		40	45	402	295	30	34	54	22	68
29	25		43	------	1,140	315	26	57	38	21	95
30	34		38	------	760	295	25	525	28	19	246
31	------		36	------	475	------	24	------	24	37	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
November 7–30	34	23	25.7	0.032	0.03
December	84	------	34.0	.042	.05
January	43	------	29.7	.037	.04
February	130	24	64.0	.079	.08
March	1,140	23	224	.276	.32
April	2,000	83	436	.538	.60
May	210	24	59.9	.074	.08
June	525	19	54.2	.067	.07
July	210	16	63.2	.078	.09
August	77	19	33.2	.041	.05
September	246	19	52.1	.064	.07

e Estimated.

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, Defiance County.

DRAINAGE AREA.—766 square miles.

RECORDS AVAILABLE.—August, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1930, 9,990 second-feet Jan. 14 (gage height, 23.3 feet); minimum, 10 second-feet Aug. 14, 15 (gage height, 0.81 foot).

Maximum discharge during year ending Sept. 30, 1931, 1,000 second-feet Mar. 28 (gage height, 6.97 feet); minimum, 10 second-feet Sept. 13, 14 (gage height, 0.80 foot).

1928–1931: Maximum discharge, that of Jan. 14, 1930; minimum, that of August, 1930, September, 1931.

REMARKS.—Records good except those for low stages, those estimated for periods of ice effect, and those for period recorder was not operating, June 14 to July 4, 1931, which are fair.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929–30												
1	39	888	e 280			2,640	836	407	97	39	14	15
2	45	3,040	e 280			2,100	726	390	82	36	14	16
3	45	3,080	e 260	e 3,800	e340	1,520	616	373	72	36	12	16
4	39	2,460	e 260			1,080	514	325	68	35	12	17
5	30	2,000	248		594	748	424	293	60	35	12	22
6	28	1,580	233		704	638	373	263	68	35	18	20
7	26	962	248		704	572	341	233	68	35	16	18
8	25	594	373	3,600	660	550	309	218	68	34	42	14
9	25	442	496		550	514	293	204	82	36	56	13
10	26	390	478		514	478	263	176	82	36	36	13
11	30	998	407		496	442	233	156	72	34	22	13
12	34	1,300	373		550	407	218	150	64	30	16	13
13	36	1,390	349	e 6,500	1,390	390	218	144	68	28	13	13
14	42	1,650	1,650		1,830	373	204	131	64	26	11	12
15	42	1,580	1,720		e1,700	325	190	119	56	25	12	14
16	39	1,520	1,520	e 6,600	e1,600	293	596	113	68	25	12	14
17	36	1,330	2,120	e 4,200	e1,300	293	2,200	119	87	24	14	14
18	34	1,080	3,650		1,050	380	4,670	119	92	23	15	14
19	31	1,420	e 2,800	e1,900	973	682	3,920	119	82	22	18	13
20	31	1,650	e 2,000		1,550	770	3,490	131	87	21	30	12
21	35	1,420			1,760	638	2,820	176	119	20	29	12
22	161	1,050			1,940	532	2,720	218	108	36	22	12
23	1,740	726	e1,100	e 940	2,680	424	2,100	190	92	25	18	12
24	2,950	572			3,220	373	1,420	163	72	24	17	14
25	2,680	460			4,030	442	902	156	64	22	16	18
26	2,180	e 390			4,920	550	638	150	56	20	16	19
27	1,830	e 360			4,360	594	514	137	58	19	15	18
28	1,420	e 340	e 490	e 460	3,310	660	442	125	48	18	14	17
29	836	e 310			-------	1,000	424	108	45	17	14	20
30	496	e 290			-------	1,050	424	108	42	16	14	22
31	407	-------			-------	946	-------	108	-------	15	14	-------

e Estimated.

Daily and monthly discharge, in second-feet, of Tiffin River near Brunersburg, Ohio, 1929–1931–Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	20	31	113	e 36	e 102	87	424	72	42	550	29	12
2	20	30	97	e 36	e 87	e 77	514	64	36	620	26	16
3	19	30	92	e 36	e 82	e 68	436	60	35	440	26	17
4	18	31	82	e 39	e 82	e 68	616	52	40	290	88	25
5	18	31	72	e 45	e 77	e 64	496	48	111	190	97	33
6	18	30	72	e 64	e 72	e 68	373	48	478	131	92	27
7	18	30	92	68	e 77	e 68	293	48	550	92	72	24
8	29	30	87	72	102	e 68	233	48	748	64	52	20
9	48	32	82	72	e 113	e 64	190	52	836	52	42	16
10	52	32	68	68	e 102	e 56	218	68	792	45	42	14
11	48	32	68	e 60	e 97	e 48	293	72	532	36	42	12
12	39	32	60	e 52	e 108	e 52	248	77	341	31	42	12
13	28	32	56	e 45	e 156	e 72	218	82	242	28	34	10
14	22	31	48	e 42	e 176	199	176	92	175	25	30	10
15	24	31	45	e 39	e 156	325	137	92	190	26	28	11
16	22	32	42	e 42	e 137	373	113	87	260	24	26	14
17	22	33	e 40	e 42	144	357	102	82	220	161	25	20
18	22	32	e 38	e 56	218	341	92	68	175	204	22	35
19	26	32	e 36	72	204	341	82	60	145	150	21	48
20	39	32	e 36	77	e 163	390	72	64	110	167	20	38
21	31	32	e 36	77	e 144	424	72	60	87	511	19	28
22	30	31	e 36	77	e 131	460	72	60	68	638	18	22
23	30	30	e 36	72	e 131	460	72	56	60	442	16	26
24	26	30	e 36	72	e 125	407	68	52	60	309	14	16
25	23	29	e 36	92	113	390	72	48	56	190	14	19
26	23	29	e 36	150	108	373	82	45	48	113	14	31
27	26	32	e 36	176	97	341	92	45	45	72	15	45
28	29	30	e 36	190	92	711	92	42	45	56	15	64
29	30	30	e 36	190	------	946	92	39	45	42	14	60
30	31	42	e 36	156	------	770	87	39	125	36	14	45
31	31	------	e 36	131	------	572	------	42	------	31	14	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1929–30					
October	2,950	25	497	0.649	0.75
November	3,080	290	1,180	1.54	1.72
December	3,650	233	925	1.21	1.39
January	------	------	3,010	3.93	4.53
February	4,920	------	1,560	2.04	2.12
March	2,640	293	723	.944	1.09
April	4,670	190	1,080	1.41	1.57
May	407	108	188	.245	.28
June	119	42	73.0	.095	.11
July	39	15	27.0	.035	.04
August	56	11	18.8	.025	.03
eptember	22	12	15.3	.020	.02
The year	------	11	771	1.01	13.65
1930–31					
October	52	18	27.8	0.036	0.04
November	42	29	31.4	.041	.05
December	113	36	55.5	.072	.08
January	190	36	78.9	.103	.12
February	218	72	121	.158	.16
March	946	48	292	.381	.44
April	616	68	204	.266	.30
May	92	39	60.1	.078	.09
June	836	35	224	.292	.33
July	638	24	186	.243	.28
August	97	14	33.0	.043	.05
September	64	10	25.5	.033	.04
The year	946	10	111	.145	1.98

e Estimated.

NOTE.—Discharge records for the year ending Sept. 30, 1930, are revised records and supersede those published in Water-Supply Paper 699.

AUGLAIZE RIVER NEAR FORT JENNINGS, OHIO

LOCATION.—Water-stage recorder in SE. ¼ sec. 15, T. 1 S., R. 5 E., at highway bridge 6 miles above mouth of Ottawa River and 3½ miles northeast of Fort Jennings, Putnam County. Chain gage at same site and datum used prior to Oct. 6, 1930.

DRAINAGE AREA.—333 square miles.

RECORDS AVAILABLE.—August, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,630 second-feet Apr. 4 (gage height, 7.79 feet); minimum, 6.0 second-feet Sept. 22 (gage height, 0.79 foot). 1921–31: Maximum discharge, 7,860 second-feet Jan. 15, 1930 (gage height, 16.6 feet); minimum, that of Sept. 22, 1931.

REMARKS.—Records good except those estimated, which are fair. Diversion into this basin from Lake St. Marys by Miami & Erie Canal above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 40				42	44	210	12[illegible]	22	63	14	13
2	31	a 30	a 40		36	32	210	10[illegible]	26	48	17	22
3	28			a 30	36	42	730	95	26	46	14	67
4	a 26		36		36	39	1,560	83	29	43	15	81
5	a 23	22			33	36	1,110	77	26	29	19	104
6	21				30	36	570	68	24	27	18	79
7	22		a 40		30	36	314	67	26	23	14	53
8	23	a 25		a 45	34	39	224	62	25	21	14	41
9	28				26	36	177	64	66	18	17	34
10	26				36	44	216	68	55	17	19	25
11	26				39	76	472	61	46	23	18	26
12	22				42	67	260	64	52	23	19	28
13	28	a 35	a 35	a 40	39	63	179	63	48	18	14	28
14	28				42	76	149	65	39	20	14	26
15	26				36	127	125	57	33	20	16	19
16	24				71	127	104	46	35	18	16	15
17	22				76	107	97	65	31	17	13	14
18	20	a 30	a 30	a 30	63	90	87	52	29	17	11	11
19	23				56	85	81	50	24	33	11	9.9
20	21				71	80	67	49	22	36	11	10
21					76	101	77	46	25	47	9.9	7.1
22					76	113	90	41	50	38	11	8.9
23	a 25	a 30	a 25	a 45	60	101	120	38	91	27	16	10
24					60	96	132	37	64	22	12	11
25					63	80	121	29	58	20	9.9	14
26					56	76	205	35	51	20	17	39
27				a 30	50	71	460	35	43	18	35	203
28	a 30	a 30	a 30		44	187	360	32	39	20	24	210
29				26	------	870	228	31	63	16	20	136
30				42	------	630	158	32	93	12	19	100
31		------		50	------	314	------	25	------	9.9	18	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	40	------	26.2	May	124	25	57.1
November	------	------	29.7	June	93	22	42.0
December	------	------	33.1	July	63	9.9	26.1
January	------	------	37.7	August	35	9.9	16.0
February	76	26	48.5	September	210	7.1	48.2
March	870	32	126				
April	1,560	67	296	The year	1,560	7.1	65.3

a Estimated.

AUGLAIZE RIVER NEAR DEFIANCE, OHIO

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

DRAINAGE AREA.—2,330 square miles.

RECORDS AVAILABLE.—April, 1915, to September, 1931. May to August, 1903, at highway bridge 1¾ miles downstream.

EXTREMES.—Maximum mean daily discharge during year, 5,470 second-feet Apr. 4; minimum, 28 second-feet Apr. 19, May 3, 9, 10, 13–15, 17, 27, 30, 31, June 3, 5, 16.

1915–1931: Maximum mean daily discharge, 38,700 second-feet Jan. 15, 1930; minimum, 6 second-feet Oct. 17, 1923.

REMARKS.—Records good except those for extremely low water, which are poor. Daily discharge ascertained from power plant records. Daily-discharge values below 500 second-feet corrected for leakage. Records of daily discharge, not corrected for leakage, furnished by Toledo Edison Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	30	51	29	29	29	2,000	741	119	1,200	38	132
2	30	30	29	29	260	150	1,650	683	193	510	38	39
3	30	30	29	29	150	150	2,210	28	28	457	94	39
4	63	30	29	29	29	150	5,470	713	104	32	38	764
5	30	30	29	256	150	150	5,450	677	28	244	38	677
6	178	30	29	121	150	150	4,430	471	491	305	38	460
7	30	30	29	29	271	180	3,020	831	479	154	38	434
8	30	30	150	120	29	29	1,760	259	506	125	38	294
9	30	194	342	135	150	150	1,470	28	774	34	38	124
10	353	30	29	150	290	150	1,750	28	775	34	38	124
11	30	30	29	29	259	259	2,180	117	446	34	89	95
12	30	30	29	120	150	150	1,810	87	330	34	38	124
13	52	30	210	120	308	471	1,430	28	240	86	38	39
14	30	30	29	29	514	1,120	978	28	530	91	38	124
15	30	30	121	29	29	1,410	843	28	119	134	151	39
16	30	30	121	29	773	1,160	602	1,040	28	35	38	39
17	30	30	42	29	301	1,100	512	28	271	36	38	124
18	30	75	29	29	512	726	745	411	120	66	95	40
19	30	30	29	120	513	725	28	119	120	36	38	40
20	30	30	29	120	420	745	345	796	120	127	38	40
21	30	265	29	29	863	835	481	480	30	430	46	40
22	30	260	116	154	150	628	683	298	90	339	38	40
23	30	30	120	320	359	935	327	237	121	270	39	40
24	30	99	29	331	331	715	277	47	317	113	51	305
25	30	71	29	29	154	712	1,100	146	256	150	39	398
26	30	29	29	150	301	481	1,470	119	277	38	39	40
27	30	29	29	260	301	481	2,160	28	174	115	39	40
28	30	29	29	260	271	1,740	2,360	119	226	83	207	292
29	30	45	120	290	------	3,120	1,420	433	605	38	291	266
30	30	29	120	260	------	4,010	1,360	28	1,370	38	39	436
31	30	------	29	271	------	3,100	------	28	------	38	91	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	353	30	47.0	May	1,040	28	294
November	265	29	56.5	June	1,370	28	310
December	342	29	67.5	July	1,200	32	175
January	331	29	127	August	291	38	63.1
February	863	29	286	September	764	39	190
March	4,010	29	836				
April	5,470	28	1,680	The year	5,470	28	342

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, Allen County.

DRAINAGE AREA.—168 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 920 second-feet Apr. 3 (gage height, 4.60 feet); minimum, 5.8 second-feet July 27, 28.

1923–1931: Maximum discharge, about 3,100 second-feet Mar. 20, 1927 (gage height, 9.0 feet); minimum, that of July 27, 28, 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 25–29, Dec. 16–25, 31, Jan. 1–4, 15, and for periods when recorder was not operating, June 3–13, Aug. 27 to Sept. 22, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	9.8	24		12	13	53	41	16	31	25	40
2	9.5	9.5	18		11	12	119	37	17	33	24	240
3	9.2	12	12	10	11	13	687	30	16	23	9.2	150
4	9.5	11	11		11	13	655	23	16	17	8.0	60
5	9.2	10	11	30	11	13	316	20	18	16	7.7	40
6	8.3	11	17	27	11	13	127	22	50	14	8.6	30
7	8.9	10	13	18	21	14	65	22	180	12	8.3	20
8	22	10	11	14	15	26	39	22	130	11	8.9	16
9	12	9.8	11	12	13	22	26	25	80	8.3	12	14
10	9.8	9.2	11	12	13	21	47	27	50	8.3	22	13
11	9.2	11	15	12	14	19	44	30	32	8.3	12	13
12	9.2	12	12	11	13	18	28	20	26	8.3	8.9	12
13	9.5	13	12	14	24	21	20	20	20	8.0	8.0	13
14	9.5	11	11	12	24	27	19	18	19	9.2	7.4	13
15	9.5	11	11	12	20	23	16	16	17	27	7.4	20
16	9.5	10		12	15	19	14	16	16	13	7.4	18
17	11	9.8		12	22	16	16	69	16	10	7.0	16
18	10	12	10	12	18	17	14	175	16	17	7.7	14
19	10	11		21	20	25	13	80	14	9.5	8.0	12
20	9.5	10		23	20	22	13	53	21	10	12	11
21	11	11		17	19	23	32	32	12	12	24	11
22	11	11		16	16	19	45	27	25	16	9.8	12
23	11	10	9	14	15	13	53	26	24	8.6	7.7	14
24	11	10		13	15	15	69	22	57	7.4	7.0	14
25	11			13	14	20	44	19	46	6.7	8.0	49
26	10	10	15	12	13	17	134	16	31	6.7	73	183
27	9.8		16	14	12	18	236	19	26	6.4	56	80
28	16		11	13	12	326	143	18	22	7.0	36	32
29	9.5		11	12	-------	468	85	16	32	7.0	16	26
30	9.5	36	11	13	-------	192	58	34	65	7.4	12	20
31	10	-------	10	12	-------	64	-------	34	-------	7.2	10	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	22	8.3	10.5	0.062	0.07
November	36	9.2	11.4	.068	.08
December	24	----------	11.9	.071	.08
January	30	----------	14.3	.085	.10
February	24	11	15.5	.092	.10
March	468	12	49.7	.296	.34
April	687	13	108	.643	.72
May	175	16	33.2	.198	.23
June	180	12	37.0	.220	.25
July	33	6.4	12.5	.074	.09
August	73	7.0	15.5	.092	.11
September	240	11	40.2	.239	.27
The year	687	6.4	29.8	.177	2.44

BLANCHARD RIVER NEAR FINDLAY, OHIO

LOCATION.—Water-stage recorder on east line of sec. 10, T. 1 N., R. 10 E., at highway bridge 2 miles northwest of Findlay, Hancock County. Chain gage at same datum used prior to July 24, 1930.

DRAINAGE AREA.—343 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,290 second-feet Apr. 3 (gage height, 4.72 feet); minimum, 1.7 second-feet Oct. 9 (gage height, 0.73 foot).

1923–1931: Maximum discharge, 6,320 second-feet Dec. 1, 1927 (gage height, 14.5 feet); minimum, 1.0 second-foot Aug. 14, 1930 (gage height, 0.70 foot).

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

REMARKS.—Records excellent.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	4.6	8.9	7.3	18	18	188	144	2[illegible]	24	13	12
2	3.6	5.0	9.9	7.3	17	17	288	91	2[illegible]	20	6.4	30
3	3.2	5.7	9.4	6.4	14	16	890	77	2[illegible]	22	9.8	363
4	3.6	5.4	8.9	5.4	14	14	1,160	61	3[illegible]	18	21	200
5	3.2	6.1	14	11	13	16	823	53	6[illegible]	16	17	126
6	3.0	6.4	13	10	12	15	394	48	3[illegible]	14	10	108
7	3.6	6.1	10	10	15	16	251	48	10[illegible]	13	9.4	57
8	6.4	6.1	11	12	13	19	179	47	36[illegible]	13	9.4	35
9	2.5	5.0	10	16	16	21	141	48	20[illegible]	13	11	23
10	3.2	11	9.4	13	18	24	161	50	112	13	29	20
11	3.2	3.9	9.4	10	19	48	209	48	6[illegible]	8.6	13	18
12	3.2	3.9	8.4	11	18	37	151	44	4[illegible]	7.9	17	17
13	2.8	4.3	7.8	10	22	36	126	40	3[illegible]	9.7	20	16
14	4.3	3.9	7.3	9.9	22	67	103	34	2[illegible]	9.2	14	17
15	3.9	3.9	8.9	9.9	19	173	85	32	2[illegible]	28	13	19
16	4.3	4.3	9.9	9.4	54	164	72	28	2[illegible]	10	13	15
17	5.4	6.4	9.4	7.3	45	105	62	51	2[illegible]	18	12	11
18	4.6	7.8	7.8	6.8	36	73	53	164	22	116	11	8.6
19	3.6	7.3	6.1	166	39	60	44	134	33	226	7.2	7.9
20	3.6	7.3	5.7	220	51	58	41	77	20	219	7.2	7.9
21	3.2	7.3	6.1	90	48	91	40	54	17	138	7.2	9.4
22	3.6	8.4	6.1	64	39	164	135	44	27	66	7.2	8.6
23	3.2	8.4	6.4	36	36	120	310	37	18	38	11	7.9
24	3.6	8.4	6.4	27	30	83	258	30	219	28	12	9.4
25	3.9	8.9	6.8	36	26	69	159	28	87	20	12	25
26	3.6	8.4	6.8	50	25	90	419	26	55	16	18	50
27	5.0	8.4	6.4	42	23	97	599	28	29	13	8.6	205
28	3.9	8.9	6.1	39	20	480	394	17	18	12	30	183
29	5.0	8.4	6.4	32	-------	741	238	22	40	12	22	85
30	5.4	16	7.3	25	-------	495	157	15	43	8.6	15	46
31	4.6	-------	7.3	23	-------	258	-------	21	-------	7.9	13	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6.4	2.5	3.85	0.011	0.01
November	16	3.9	6.86	.020	.02
December	14	5.7	8.30	.024	.03
January	220	5.4	33.0	.096	.11
February	54	12	25.8	.075	.08
March	741	14	119	.347	.40
April	1,160	40	271	.790	.88
May	164	15	52.0	.152	.18
June	361	17	62.7	.183	.20
July	226	7.9	38.0	.111	.13
August	30	6.4	13.5	.039	.04
September	363	7.9	58.0	.169	.19
The year	1,160	2.5	57.5	.168	2.27

BLANCHARD RIVER NEAR DUPONT, OHIO

LOCATION.—Water-stage recorder on east line of sec. 13, T. 1 N., R. 5 E., at highway bridge 4 miles east of Dupont, Putnam County.

DRAINAGE AREA.—749 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1930, 16,800 second-feet Jan. 15 (gage height, 26.7 feet); minimum, 2.8 second-feet Aug. 22–23 (gage height, 0.52 foot).

Maximum discharge during year ending Sept. 30, 1931, 2,150 second-feet Apr. 5 (gage height, 10.09 feet); minimum, 7.7 second-feet Oct. 6, 7 (gage height, 0.64 foot).

1928–1931: Maximum discharge, that of Jan. 15, 1930; minimum, that of Aug. 22, 23, 1930.

REMARKS.—Records good except those estimated for periods of ice effect, which are fair.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929–30												
1	22	690	a 170		223	1,540	1,360	207	47	53	5.5	4.6
2	22	3,360	a 160		223	923	1,000	192	41	38	4.6	5.5
3	25	5,040	a 140	a4,400	239	650	769	170	38	30	4.2	8.0
4	25	3,940	a 140		358	495	604	142	34	26	4.2	8.2
5	23	1,930	135		537	434	474	122	31	22	4.2	7.4
6	22	900	135		604	377	396	111	38	21	4.9	6.4
7	23	558	148		558	358	358	106	79	18	5.1	6.4
8	22	415	428	a4,000	453	377	322	100	75	16	5.7	6.2
9	19	322	888		396	650	304	96	60	14	6.0	5.5
10	18	340	1,150		377	721	255	87	50	13	6.9	6.2
11	17	1,400	950		340	581	223	83	56	12	8.7	7.4
12	18	1,780	673	a3,900	413	474	207	75	47	11	7.2	8.5
13	19	1,330	1,430		1,460	396	192	71	38	11	5.5	8.5
14	19	897	4,160	a12,000	2,750	304	184	64	33	11	5.1	8.0
15	18	950	5,840	16,400	2,420	255	192	60	30	11	4.9	7.7
16	19	1,360	5,460	14,900	a1,500	207	336	60	29	10	4.6	8.2
17	17	1,240	4,690	10,200	a1,000	207	1,170	60	28	12	5.5	9.3
18	15	897	5,980	a5,500	650	346	2,650	60	116	12	4.6	10
19	15	1,090	8,100	a2,300	558	650	1,810	67	97	9.9	3.8	9.3
20	15	1,420	a7,700		581	745	900	75	56	8.0	3.3	8.5
21	19	1,270			697	650	769	96	41	6.4	2.9	8.2
22	261	871			871	474	950	91	38	6.9	2.9	8.5
23	2,450	581	a2,000	a 840	1,090	340	769	71	44	7.2	2.9	9.0
24	4,620	434			1,360	420	537	64	41	6.7	3.3	9.0
25	5,320	340			1,780	2,020	396	60	60	6.2	4.6	17
26	4,480	287		a 380	2,350	3,720	322	56	83	6.2	4.9	18
27	2,620	a 240		322	3,150	4,200	255	53	79	6.9	4.9	18
28	1,050	a 220	a 410	a 290	2,650	3,450	223	50	64	6.7	5.7	22
29	558	a 190		a 370	-------	2,550	207	50	83	6.0	4.9	20
30	396	a 180		255	-------	2,450	192	50	79	6.0	5.5	16
31	304	-------		239	-------	1,950	-------	50	-------	6.4	4.6	-------

Daily and monthly discharge, in second-feet, of Blanchard River near Dupont, Ohio, 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930-31												
1	12	13	28	13	[a] 59	36	516	313	40	89	15	36
2	11	14	28	12	[a] 49	33	444	232	38	112	14	35
3	10	14	32	13	[a] 45	28	965	189	47	72	13	62
4	9.3	14	38	13	[a] 39	26	1,890	151	51	56	12	291
5	8.7	15	30	19	[a] 34	26	2,020	124	53	45	14	361
6	7.7	15	26	32	[a] 32	26	1,460	108	54	44	21	240
7	8.0	15	26	36	32	26	849	99	110	40	25	158
8	9.3	16	26	36	41	30	484	94	164	30	22	120
9	9.6	16	30	39	36	39	349	93	346	22	21	82
10	9.6	15	27	36	34	38	393	96	349	18	24	57
11	10	14	24	32	32	39	650	96	225	16	26	42
12	13	15	22	36	30	47	581	92	146	15	21	32
13	13	16	21	36	52	84	406	85	100	14	30	24
14	12	21	21	30	63	215	296	79	70	13	28	22
15	10	19	21	28	55	232	225	73	57	13	27	19
16	10	16	17	26	45	263	179	65	47	22	28	21
17	12	14	17	26	53	279	155	60	39	26	23	20
18	9.9	13	17	24	80	218	132	91	34	32	18	21
19	9.6	13	16	42	93	174	115	136	30	34	17	20
20	9.3	13	16	54	76	149	101	196	27	139	16	19
21	9.3	13	16	111	74	136	96	163	23	255	15	18
22	9.3	13	14	296	73	139	112	115	28	232	14	16
23	9.3	13	14	210	71	172	144	86	30	149	13	13
24	9.9	14	13	149	65	196	366	69	30	87	19	11
25	11	14	13	129	57	182	415	62	34	58	21	11
26	9.9	13	13	117	50	159	526	58	97	44	18	20
27	9.6	13	14	106	45	151	848	54	100	33	17	30
28	9.9	14	14	110	39	591	1,060	49	62	24	82	108
29	10	14	14	104	-------	1,040	784	45	53	20	74	181
30	11	23	14	83	-------	1,180	484	44	74	18	47	160
31	12	-------	13	69	-------	873	-------	39	-------	16	42	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1929–30					
October	5,320	15	725	0.968	1.12
November	4,040	180	1,150	1.54	1.72
December	8,100	135	1,970	2.63	3.03
January	16,400	239	3,980	5.31	6.12
February	3,150	223	1,060	1.42	1.48
March	4,200	207	1,060	1.42	1.64
April	2,650	184	611	.816	.91
May	207	50	87.1	.116	.13
June	116	28	54.5	.073	.08
July	53	6.0	13.9	.019	.02
August	8.7	2.9	4.89	.007	.01
September	22	4.6	9.85	.013	.01
The year	16,400	2.9	896	1.20	16.27
1930–31					
October	13	7.7	10.2	.014	.02
November	23	13	14.8	.020	.02
December	38	13	20.5	.027	.03
January	296	12	66.7	.089	.10
February	93	30	51.9	.069	.07
March	1,180	26	220	.294	.34
April	2,020	96	568	.758	.85
May	313	39	105	.140	.16
June	349	23	85.3	.114	.13
July	255	13	57.7	.077	.09
August	82	12	25.1	.034	.04
September	361	11	75.0	.100	.11
The year	2,020	7.7	108	.144	1.96

[a] Estimated.

NOTE.—Discharge records for year ending Sept. 30, 1930, are revised records and supersede those published in Water-Supply Paper 699.

MIAMI & ERIE CANAL AT DELPHOS, OHIO

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

RECORDS AVAILABLE.—March, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 52 second-feet Mar. 28 (gage height, 3.65 feet); no flow Jan. 16–19, 21–29, Aug. 15–21, Sept. 18–23.

1928–1931: Maximum discharge, 125 second-feet Mar. 30, 1928 (gage height, 4.4 feet); no flow at times each year when canal is shut down.

REMARKS.—Records fair. Water diverted into canal by feeder at Lake St. Marys. Small amount of water diverted from canal above gage for flushing sewers in Delphos. Gage-height record furnished by State canal superintendent.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Apr.	May	June	Aug.	Sept.
1929-30							
1	19	56	0	21	12	0	22
2	21	82	0	17	17	0	22
3	19	27	0	19	17	19	15
4	22	32	0	22	15	19	15
5	18	34	0	4	17	22	15
6	14	35	0	19	22	24	14
7	19	32	13	19	17	26	7
8	22	32	15	16	2	23	18
9	22	30	37	16	14	22	17
10	22	33	32	17	21	19	16
11	28	39	26	9	17	16	20
12	26	30	14	17	10	15	19
13	14	39	12	16	14	13	13
14	21	27	22	16	11	13	21
15	16	38	15	14	14	22	21
16	32	35	25	13	32	20	19
17	20	25	27	16	24	13	14
18	27	26	27	12	42	20	14
19	24	27	23	19	11	20	16
20	14	28	16	13	15	17	16
21	22	21	22	16	0	17	10
22	30	21	28	13	0	26	19
23	32	25	24	14	0	21	19
24	45	0	15	19	0	10	18
25	38	0	27	13	0	22	20
26	45	0	21	15	0	19	21
27	37	0	10	15	0	21	14
28	33	0	15	15	0	20	15
29	36	0	20	14	0	19	17
30	40	0	19	13	0	12	20
31	45	-------	-------	18	-------	9	-------

Daily and monthly discharge, in second-feet, of Miami & Erie Canal at Delphos, Ohio, 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930-31												
1	11	30	21	13	15	10	12	15	1[illegible]	22	12	15
2	18	14	13	24	14	19	26	18	15	9	3	18
3	22	19	17	23	20	20	33	12	1[illegible]	7	7	23
4	20	15	13	13	22	21	37	18	14	6	11	16
5	16	19	13	21	16	23	26	15	11	6	11	20
6	16	20	20	21	13	16	22	19	1[illegible]	7	8	9
7	13	21	13	17	19	18	17	16	[illegible]	8	8	9
8	24	18	30	11	11	18	19	18	1[illegible]	5	9	15
9	22	12	22	11	22	19	18	23	14	8	4	13
10	23	23	23	11	23	23	18	13	15	9	6	17
11	15	13	18	8	26	17	25	18	1[illegible]	11	12	20
12	27	24	22	6	21	16	14	20	2[illegible]	6	4	23
13	20	20	22	6	22	20	19	28	1[illegible]	12	7	26
14	16	22	11	6	23	18	18	28	13	9	2	18
15	18	22	15	8	13	5	13	12	1[illegible]	11	0	14
16	13	12	12	0	24	4	18	17	14	10	0	10
17	9	18	13	0	22	19	13	9	15	9	0	4
18	18	19	19	0	16	18	19	16	14	9	0	0
19	14	21	18	0	21	23	10	15	14	8	0	0
20	23	21	24	5	21	19	16	15	2[illegible]	16	0	0
21	22	20	12	0	22	21	21	13	[illegible]	16	0	0
22	22	19	19	0	11	12	19	14	23	11	1	0
23	14	11	20	0	18	22	18	11	15	11	4	0
24	15	26	26	0	26	18	14	9	14	10	6	10
25	18	17	13	0	23	18	16	16	1[illegible]	10	16	20
26	13	22	20	0	23	16	18	19	1[illegible]	7	21	35
27	19	10	20	0	18	14	22	15	11	9	16	23
28	18	11	12	0	21	41	21	16	[illegible]	7	14	21
29	13	14	15	0	-------	22	15	19	14	5	14	18
30	22	16	17	33	-------	16	15	9	14	5	9	16
31	17	-------	21	21	-------	21	-------	9	-------	13	9	-------

Month	Maximum	Minimum	Mean
1929-30			
October	45	14	26.5
November	82	0	25.8
April	37	0	16.8
May	22	4	15.5
June	42	0	11.5
August	26	0	17.4
September	22	7	16.9
The year	82	0	10.9
1930-31			
October	27	9	17.8
November	30	10	18.3

Month	Maximum	Minimum	Mean
1930-31			
December	30	11	17.9
January	33	0	8.32
February	26	11	19.5
March	41	4	18.3
April	37	10	19.1
May	28	9	16.0
June	23	6	14.0
July	22	5	9.42
August	21	0	6.90
Septembe	35	0	13.8
The year	41	0	14.9

NOTE.—No flow during months for which no discharge is given.

SOUTH BRANCH OF PORTAGE RIVER NEAR PEMBERVILLE, OHIO

LOCATION.—Chain gage in sec. 21, T. 5 N., R. 12 E., at highway bridge 2½ miles southwest of Pemberville, Wood County.

DRAINAGE AREA.—334 square miles.

RECORDS AVAILABLE.—August, 1930, to September, 1931.

EXTREMES—Maximum discharge during year, 1,660 second-feet Apr. 4 (gage height, 6.20 feet); minimum, 1.0 second-foot Oct. 24, Nov. 28, 29.

1930–31: Maximum and minimum discharge occurred during 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 28–29, Dec. 20 to Jan. 4, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	3.0	15		13	7.3	121	110	16	110	3.1	2.2
2	1.9	3.0	13		11	6.4	205	94	14	83	3.1	3.9
3	1.7	3.4	11	1.1	5.8	6.1	1,120	81	12	48	3.3	24
4	1.6	2.6	6.7		6.7	5.5	1,360	55	16	34	5.5	36
5	1.6	2.4	6.7	3.4	4.1	5.5	550	47	214	30	3.3	34
6	1.9	1.9	8.3	8.6	7.6	4.9	304	47	142	20	2.4	30
7	1.9	1.9	8.6	11	7.3	4.4	204	53	755	14	2.0	25
8	2.2	2.0	7.3	15	8.0	4.9	168	44	790	16	2.0	15
9	2.6	2.0	5.8	11	17	11	126	46	326	9.6	2.6	7.1
10	3.9	1.6	3.9	6.7	15	6.4	134	63	186	7.1	12	5.5
11	3.9	1.9	4.4	6.7	13	6.7	830	59	118	4.8	38	4.5
12	2.4	1.7	3.9	5.2	10	6.7	326	47	72	3.6	24	3.9
13	2.2	1.6	3.2	4.9	12	11	223	52	48	3.3	16	2.4
14	1.9	1.4	3.0	4.9	22	36	160	44	53	3.3	11	3.1
15	1.9	1.9	2.6	4.4	50	216	102	37	40	14	7.6	6.7
16	1.6	2.2	1.9	3.9	22	134	88	29	36	80	5.9	29
17	1.9	1.9	1.6	3.9	20	75	81	39	25	100	4.5	34
18	2.0	1.9	1.3	3.9	33	56	69	51	19	102	4.2	25
19	2.4	1.9	1.3	7.3	40	55	52	42	14	242	3.3	12
20	2.4	1.9	1.2	47	29	70	47	34	13	223	2.2	7.6
21	1.9	1.9		88	22	163	46	29	9.6	204	1.8	5.1
22	1.3	2.0		72	18	121	134	25	8.0	86	1.8	3.3
23	1.1	1.9	1.2	44	17	63	755	20	7.1	44	2.0	2.6
24	1.0	1.9		31	16	43	326	18	7.1	28	1.8	2.4
25	1.3	1.9		22	14	50	204	23	8.0	14	1.5	3.6
26	1.6	1.6		41	12	58	685	24	8.0	9.0	1.8	24
27	1.9	1.1		38	7.6	53	1,040	21	7.6	4.8	2.2	53
28	2.0	1.0	1.1	24	7.3	550	403	19	8.0	3.6	9.0	34
29	1.9	1.0		16	-------	1,030	252	16	13	2.8	2.4	16
30	2.2	4.4		13	-------	299	151	15	134	2.6	2.2	9.6
31	2.8	-------		12	-------	153	-------	15	-------	2.6	2.0	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3.9	1.0	2.04	0.006	0.01
November	4.4	1.0	2.03	.006	.01
December	15	----------	3.98	.012	.01
January	88	----------	17.8	.053	.06
February	50	4.1	16.4	.049	.05
March	1,030	4.4	107	.320	.37
April	1,360	46	342	1.02	1.14
May	110	15	41.9	.125	.14
June	790	7.1	104	.311	.35
July	242	2.6	50.0	.150	.17
August	38	1.5	5.95	.018	.02
September	53	2.2	15.2	.046	.05
The year	1,360	1.0	58.8	.176	2.38

PORTAGE RIVER AT WOODVILLE, OHIO

LOCATION.—Chain gage in sec. 28, T. 6 N., R. 13 E., on highway bridge at Woodville, Sandusky County.
DRAINAGE AREA.—433 square miles.
RECORDS AVAILABLE.—July, 1928, to September, 1931.
EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 2,040 second-feet Apr. 4 (gage height, 6.61 feet); minimum, 0.3 second-foot Aug. 26 (gage height, 1.75 feet).
1928–1931: Maximum discharge, about 10,500 second-feet Jan. 15, 1930 (gage height, 12.96 feet); minimum, that of Aug. 26, 1931.
REMARKS.—Records good except those for high stages and for estimated periods, which are fair.

Daily discharge, in second-feet, 1928–1931

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1928				1928				1928			
1	-------	13	21	11	37	18	8.0	21	44	8.0	5.4
2	-------	10	23	12	31	13	6.6	22	60	5.8	5.4
3	-------	8.9	23	13	36	9.9	5.8	23	97	5.4	4.8
4	-------	8.0	7.5	14	63	8.0	5.1	24	50	8.9	6.2
5	-------	8.4	6.6	15	206	5.8	7.0	25	37	8.9	5.8
6	-------	60	6.6	16	166	7.8	11	26	38	9.4	4.8
7	-------	123	9.4	17	87	7.0	12	27	50	8.0	4.8
8	-------	57	14	18	55	7.0	9.9	28	64	8.0	4.4
9	-------	34	14	19	43	9.9	7.5	29	40	8.0	5.1
10	-------	22	13	20	50	9.9	7.0	30	27	22	5.1
								31	19	24	------

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928–29												
1	5.8	6.6	15			1,190	1,000	475	72	630	11	5.4
2	7.0	8.4	14			1,000	1,400	630	63	336	8.4	7.0
3	7.0	12	19	[a] 30	[a] 40	830	680	4,370	54	166	13	6.6
4	6.6	26	17			1,260	475	2,490	50	94	9.9	5.4
5	8.9	30	18			1,190	1,260	1,120	47	1,470	14	6.2
6	8.4	18	15			780	730	585	46	4,860	14	4.2
7	8.4	11	15			562	415	415	45	4,370	9.4	4.4
8	8.9	11	12	[a] 75	[a] 28	266	283	283	43	1,060	7.5	8.9
9	9.4	8.9	[a] 11			250	235	206	40	562	8.0	9.4
10	8.0	9.4	[a] 11			179	680	166	45	283	7.0	9.9
11	7.0	9.9	[a] 10			166	1,400	149	47	179	8.0	4.8
12	4.8	11	[a] 10			131	1,190	154	43	118	8.9	4.4
13	4.2	7.5	11	[a] 33	[a] 26	154	730	206	46	92	7.5	7.0
14	3.6	6.6	27			940	680	1,260	85	226	7.5	7.0
15	5.1	7.0	455			1,870	435	2,770	90	220	12	6.6
16	7.5	7.0	283	21		3,170	318	1,330	114	106	28	7.0
17	9.4	6.6	192	20		2,580	235	680	60	72	21	8.9
18	16	8.9	1,060	780	[a] 26	1,630	179	415	54	52	12	8.4
19	15	15	518	4,990		1,000	140	1,120	50	40	8.0	8.0
20	14	21	415	5,380		630	131	1,400	39	36	5.8	9.4
21	10	27	154	1,400		540	3,370	680	31	26	3.8	8.9
22	10	30		680	[a] 25	455	1,710	336	29	22	3.4	6.2
23	8.4	25	[a] 45	880		730	780	266	21	18	4.8	5.8
24	7.5	25		830		680	475	206	18	17	15	5.4
25	6.6	21		1,710	45	585	475	166	17	19	10	5.4
26	10	16		1,950	4,250	730	3,800	125	21	36	7.5	10
27	10	11		880	7,740	1,260	2,670	110	25	36	5.8	16
28	8.9	10	[a] 40	415	2,220	585	1,190	99	24	27	4.2	19
29	8.0	11			-------	375	1,120	97	19	22	3.1	18
30	7.5	17		[a] 120	-------	300	730	92	26	15	3.6	17
31	7.0	-------			-------	283	-------	80	-------	14	5.1	------

Daily discharge, in second-feet, of Portage River at Woodville, Ohio, 1928–1931—Con.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929–30												
1	15	72		1,950		585	562	138	13	5.8	3.0	4.4
2	11	3,170		5,520		518	455	138	12	4.8	4.4	6.0
3	9.4	2,770	a 50	6,380	a100	435	300	125	11	4.2	2.4	7.2
4	9.9	1,060		2,670		266	235	116	9.9	2.8	2.4	9.6
5	11	585		1,060		206	179	110	8.4	3.6	.6	7.7
6	21	375	47	780		192	149	108	12	2.8	.8	8.6
7	21	235	50	1,260		179	140	110	52	2.2	.5	9.1
8	14	166	145	6,230	a105	235	123	103	118	3.1	.5	6.8
9	13	131	400	9,020		235	110	99	69	3.1	1.0	5.2
10	8.9	110	518	4,370		235	99	96	54	3.1	2.4	3.7
11	7.0	1,470	356	1,630	a 100	220	85	80	39	2.6	6.8	1.8
12	7.0	1,330	283	1,060	220	179	96	78	32	2.2	7.2	2.1
13	7.5	780	680	3,800	2,220	138	96	68	26	3.1	4.4	4.0
14	8.0	630	2,220	6,530	1,630	114	89	59	19	3.6	3.0	5.6
15	8.4	730	1,470	10,200	680	101	99	52	15	3.6	.9	5.6
16	7.0	518	780	5,660	375	87	730	50	12	4.2	1.0	6.4
17	5.4	375	518	1,790	300	92	3,270	45	10	3.0	1.8	5.6
18	5.8	518	4,250	680	235	131	3,170	29	21	1.6	2.7	4.0
19	4.8	2,490	5,660	455	300	1,190	1,400	32	39	1.8	1.0	3.0
20	6.2	1,630	1,790	330	585	680	680	45	28	.8	2.1	3.0
21	12	830	518		730	495	455	63	18	.6	5.2	11.6
22	32	585	300		680	266	375	46	13	1.4	6.0	8.6
23	1,790	300		a 180	1,260	179	415	33	12	.8	6.4	7.2
24	1,870	235	a210		1,120	235	318	31	10	2.4	9.1	8.2
25	940	179			1,260	395	235	30	8.0	1.4	8.6	25
26	540	154			1,550	2,580	179	25	8.9	3.7	8.6	44
27	300	138			1,400	2,400	149	21	12	3.0	7.7	38
28	206	127	a180		830	1,950	149	21	14	2.7	6.0	19.2
29	118	77		a 80		1,550	147	17	9.4	1.8	5.2	10.6
30	92	a 65				266	140	17	6.6	3.7	3.7	7.7
31	78		680			220		14		3.7	5.2	
1930–31												
1	5.2	6.0	13.8		43	25	283	283	18.6	12.2	3.7	5.2
2	4.8	43	16.2	a 3.0	37	23	300	250	16.2	21	8.2	8.6
3	4.4	19.2	15.0		26	18.6	585	206	16.2	32	9.6	10.1
4	4.4	14.4	23		16.2	13.8	1,710	192	23	59	7.7	11.6
5	3.7	10.6	27	6.8	13.8	10.6	830	179	26	59	5.2	16.2
6	3.4	10.1	29	13.8	11.1	8.6	630	192	34	59	3.7	15.6
7	3.0	10.6	26	22	16.8	10.6	336	179	75	48	2.1	13.8
8	4.4	8.6	25	26	16.2	13.2	235	166	518	37	1.4	10.6
9	5.6	10.6	21	30	13.8	15.0	179	107	730	26	.6	7.7
10	8.6	8.6	18.6	26	18.6	19.8	192	67	495	18.6	1.0	5.2
11	9.1	8.6	16.2	21	27	24	283	78	154	13.8	4.8	4.4
12	9.6	7.2	12.2	15.6	26	23	540	88	108	10.6	15.0	2.4
13	8.6	8.6	8.6	12.7	30	26	495	89	92	9.1	26	3.0
14	7.7	10.6	9.6	a 10.0	31	36	336	94	67	8.6	23	11.6
15	6.4	9.6	7.7	a 9.0	30	56	283	88	65	10.6	18.6	21
16	6.4	6.4	6.0	a 8.0	57	145	235	80	64	11.6	16.2	32
17	7.7	6.8	5.2	a 7.0	75	206	192	72	48	24	15.0	48
18	10.1	8.6	4.8	6.0	65	154	192	88	41	68	12.2	45
19	10.6	8.2	4.0	13.8	94	166	179	77	36	179	6.0	39
20	10.1	9.1	4.4	34	88	192	154	67	30	179	3.0	30
21	9.1	10.6	3.7	86	70	235	154	63	24	145	2.4	17.4
22	8.2	11.6		75	59	283	300	51	21	120	1.4	11.6
23	8.2	6.0	a 3.4	46	48	300	585	37	19.8	88	1.4	10.6
24	6.8	6.8		41	39	266	540	30	18.6	50	.8	9.1
25	6.0	5.2		34	41	235	415	27	17.4	32	.6	15.0
26	6.8	3.7		48	36	220	630	23	16.2	21	.4	31
27	6.0	3.0		64	30	206	780	30	15.0	16.8	3.0	30
28	6.8	a 2.7	a 3.1	89	27	250	630	31	13.8	15.0	9.6	23
29	6.0	a 2.4		70		1,000	415	23	12.7	11.1	8.6	21
30	7.2	10.6		54		780	318	16.2	11.6	7.7	6.8	19.2
31	6.4			48		318		19.2		5.2	6.0	

a Estimated.

Monthly discharge, in second-feet, of Portage River at Woodville, Ohio, 1928–1931

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1928					
July (21 days)	206	19	61.9	0.143	0.11
August	123	4.8	17.9	.041	.05
September	23	4.4	9.0	.021	.02
1929–30					
October	16	3.6	8.35	.019	.02
November	30	6.6	14.5	.033	.04
December	1,060	10	119	.275	.32
January	5,380	20	677	1.56	1.80
February	7,740	----------	534	1.23	1.28
March	3,170	131	848	1.96	2.26
April	3,800	131	964	2.23	2.49
May	4,370	80	725	1.67	1.93
June	114	17	45.5	.105	.12
July	4,860	14	491	1.13	1.30
August	28	3.1	9.26	.021	.02
September	19	4.2	8.35	.019	.02
The year	7,740	3.1	370	.855	11.60
1929–30					
October	1,870	4.8	199	.460	.53
November	3,170	65	728	1.68	1.87
December	5,660	----------	724	1.67	1.93
January	10,200	----------	2,350	5.43	6.26
February	2,220	----------	589	1.36	1.42
March	2,580	87	534	1.23	1.42
April	3,270	85	488	1.13	1.26
May	138	14	64.5	.149	.17
June	118	6.6	23.7	.055	.06
July	5.8	.6	2.81	.006	.01
August	9.1	.5	3.89	.009	.01
September	44	1.8	9.65	.022	.02
The year	10,200	.5	477	1.10	14.96
1930–31					
October	10.6	3.0	6.82	.016	.02
November	43	2.4	9.60	.022	.02
December	29	----------	10.6	.024	.03
January	89	----------	30.0	.069	.08
February	94	11.1	38.8	.090	.09
March	1,000	8.6	170	.393	.45
April	1,710	154	431	.995	1.11
May	283	16.2	96.5	.223	.26
June	730	11.6	94.2	.218	.24
July	179	5.2	45.1	.104	.12
August	26	.4	7.23	.017	.02
September	48	2.4	17.6	.041	.05
The year	1,710	.4	79.5	.184	2.49

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 a mile below mouth of Poe Ditch and 5 miles northeast of Bowling Green, Wood County.

DRAINAGE AREA.—54.0 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 130 second-feet Apr. 4 (gage height, 2.22 feet); minimum, 0.1 second-foot June 3, 20–23, Aug. 3–5, 15, 16, 21.

1923–1931: Maximum discharge, 962 second-feet Jan. 10, 1930 (gage height, 6.7 feet); minimum, 0.1 second-foot several times during 1930 and 1931.

REMARKS.—Records good except those for ice-affected period, Nov. 27–29, and those for period when affected by aquatic growth, May 2 to Sept. 8, which are fair. 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.6	5.0	1.4	1.0	1.0	28	18	0.6	1.2	0.2	0.8
2	.8	.6	4.6	1.4	.9	1.0	48	17	.2	9.0	.2	2.4
3	.8	.6	4.1	1.4	.6	1.0	96	12	.1	11	.1	1.4
4	.6	.6	3.7	1.4	.6	.8	130	12	1.4	3.5	.1	1.4
5	.6	.4	2.8	2.6	.6	.8	118	8.5	.8	1.3	.1	1.4
6	.6	.5	2.8	6.3	.6	1.5	80	8.5	22	1.7	.2	1.3
7	.9	.6	2.2	7.6	1.2	2.6	34	9.0	74	.6	.3	1.4
8	2.6	.6	.9	8.0	1.3	2.8	25	8.5	107	.3	.4	2.2
9	.8	.5	.8	8.0	1.0	2.4	20	8.5	59	.3	.6	1.9
10	.8	.5	.8	8.0	1.3	2.2	29	8.0	24	.3	1.0	1.7
11	.4	.6	.8	8.0	1.4	1.9	32	11	14	.3	1.1	1.1
12	.6	.6	.8	3.7	1.5	2.4	28	8.5	8.0	.2	.4	1.0
13	.5	.6	1.0	3.7	1.5	2.4	28	6.3	5.8	.2	.4	.9
14	.5	.6	.6	3.7	3.3	4.6	24	5.4	5.8	.2	.3	3.0
15	.7	.6	.6	3.7	1.4	12	24	4.1	4.1	5.0	.1	2.8
16	.9	.6	.8	3.7	3.3	21	17	3.7	1.7	12	.1	15
17	1.4	.7	.9	3.7	5.8	20	15	6.3	.8	14	.2	2.6
18	1.2	.6	.9	7.1	5.0	17	15	5.8	.4	8.5	.2	2.6
19	.7	.6	.9	18	4.6	16	12	5.8	.2	10	.2	1.1
20	.6	.6	.9	8.5	5.0	18	9.0	7.6	.1	33	.2	.9
21	.7	.6	.9	10	7.1	18	11	6.7	.1	33	.1	1.0
22	.6	.6	.9	11	3.3	28	23	3.5	.1	16	.3	1.4
23	.7	.6	.9	12	1.9	21	57	4.1	.1	12	.2	1.4
24	.6	.6	.9	12	1.9	18	41	3.0	.2	4.6	.3	1.4
25	.6	.6	.9	11	1.5	14	31	4.1	.5	1.4	.4	10
26	.5	.6	1.2	6.3	1.7	12	74	1.4	.4	.8	1.0	3.3
27	.5	.6	1.2	3.3	1.1	10	90	1.1	.4	.4	.6	2.8
28	.6	.6	1.2	3.7	1.1	96	60	.9	.9	.3	.6	1.1
29	.9	.6	1.2	2.2	------	90	35	.8	6.7	.3	.7	1.4
30	.8	22	1.2	1.7	------	50	27	.7	1.4	.2	.5	.9
31	8	------	1.2	1.2	------	36	------	.7	------	.2	.5	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	2.6	0.4	.78	May	18	0.7	6.50
November	22	.4	1.30	June	107	.1	11.4
December	5.0	.6	1.54	July	33	.2	5.86
January	18	1.2	5.95	August	1.1	.1	.374
February	7.1	.6	2.20	September	15	.8	2.39
March	96	.8	16.9				
April	130	9.0	42.0	The year	130	.1	8.08

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, Crawford County.

DRAINAGE AREA.—89.8 square miles.

RECORDS AVAILABLE.—August, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 885 second-feet Apr. 26 (gage height, 4.90 feet); minimum (estimated), 1 second-foot Dec. 25.

1925–1931: 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 of ice effect, Nov. 28, Dec. 25, 26, Jan. 5, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	1.7	13	2.4	15	17	72	39	79	27	13	23
2	1.5	1.6	8.6	2.1	12	14	130	33	30	15	5.1	130
3	1.6	2.1	4.4	2.1	11	14	550	27	16	11	4.2	430
4	1.5	1.8	2.4	2.2	22	13	430	22	26	8.6	4.2	275
5	1.6	2.1	1.8	7.0	10	12	169	16	17	7.5	3.8	310
6	1.6	2.4	2.9	42	7.4	10	85	17	13	7.2	3.8	112
7	1.7	2.2	1.8	67	24	9.3	60	21	121	6.5	3.8	47
8	8.6	2.1	2.4	63	37	13	46	26	242	6.8	3.8	28
9	7.4	1.9	1.8	31	47	22	37	29	86	6.2	3.8	19
10	5.6	2.5	1.8	17	31	22	34	24	42	5.5	67	14
11	2.6	2.4	3.2	7.1	14	17	34	19	26	5.8	130	11
12	1.8	6.0	3.2	8.2	14	17	30	20	17	5.3	24	9.8
13	2.2	2.4	4.9	7.1	82	24	24	22	14	5.8	60	9.2
14	3.2	1.8	5.4	5.6	347	61	20	23	32	6.0	130	8.3
15	5.6	2.1	4.6	4.6	67	96	17	18	21	6.0	42	7.8
16	5.1	1.6	3.7	3.7	61	83	16	15	14	5.1	16	10
17	6.7	1.9	3.2	4.4	40	72	17	159	11	19	11	49
18	5.6	1.8	2.6	4.2	59	56	14	106	9.2	55	8.3	15
19	5.4	2.1	2.6	31	72	57	13	50	8.0	50	13	11
20	6.3	1.6	1.9	50	81	74	11	37	7.2	19	8.0	8.9
21	7.8	1.6	1.6	32	70	160	16	35	6.5	11	6.8	7.5
22	8.9	1.8	2.1	14	56	96	231	25	8.0	9.2	6.0	7.0
23	6.7	1.8	1.8	9.3	54	57	490	21	6.8	7.8	5.5	6.2
24	8.9	1.9	1.6	8.6	42	44	140	20	6.2	6.5	5.3	6.0
25	7.1	2.1	1.4	12	29	89	82	23	6.0	5.8	5.1	10
26	4.2	2.4	1.5	52	26	170	520	29	8.3	5.3	36	96
27	5.1	2.2	2.9	45	22	89	400	20	104	5.1	220	45
28	2.1	2.1	2.9	30	18	400	149	14	42	4.7	53	22
29	2.4	2.1	2.9	27	-------	347	85	13	130	4.7	24	14
30	2.1	7.8	2.9	23	-------	121	52	18	72	4.7	14	11
31	2.1	-------	2.4	17	-------	80	-------	75	-------	4.2	12	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8.9	1.5	4.34	0.048	0.06
November	7.8	1.6	2.33	.026	.03
December	13	1.4	3.23	.036	.04
January	67	2.1	20.4	.227	.26
February	347	7.4	48.9	.545	.57
March	400	9.3	76.0	.846	.98
April	550	11	132	1.47	1.64
May	159	13	32.8	.365	.42
June	242	6.0	40.7	.453	.51
July	55	4.2	11.2	.125	.14
August	220	3.8	30.4	.339	.39
September	430	6.0	58.4	.650	.73
The year	550	1.4	38.1	.424	5.77

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, Wyandot County.

DRAINAGE AREA.—299 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,580 second-feet Apr. 27 (gage height, 4.84 feet); minimum, 5.6 second-feet Oct. 7 (gage height, 1.00 foot).

1921–1931: Maximum discharge, 6,750 second-feet Dec. 15, 1927 (gage height, 10.5 feet); minimum, 1.8 second-feet Aug. 17, 1930 (gage height, 0.98 foot).

REMARKS.—Records excellent except those for periods of ice effect, Nov. 30, Dec. 1–5, 15–18, Jan. 21, 22, 31, Feb. 1–8, for periods when recorder was not operating, Aug. 20–31, Sept. 1–10, 16–30, and for extremely low water, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.8	14	30	17	44	50	240	156	59	154	11	50
2	6.6	14	43	16	36	43	332	128	94	76	11	110
3	6.0	14	41	15	30	41	1,060	105	60	52	22	780
4	9.0	12	38	16	23	39	1,370	92	49	39	17	780
5	7.8	11	36	38	21	38	801	79	56	29	11	1,300
6	7.2	11	35	59	21	36	398	74	66	27	9.8	560
7	5.6	10	30	76	29	35	249	76	198	22	7.4	270
8	11	10	29	105	56	39	184	79	779	19	6.2	160
9	25	11	24	103	105	56	148	79	492	17	6.2	110
10	39	11	22	65	95	56	128	83	214	14	104	83
11	27	11	20	56	57	60	116	76	128	14	284	68
12	18	14	20	46	60	52	105	73	88	17	195	56
13	16	16	20	38	64	56	94	71	68	17	184	48
14	11	17	19	37	439	94	79	76	63	16	775	41
15	10	22	19	32	364	194	73	68	74	14	460	36
16	11	19	19	32	179	236	63	72	77	13	178	37
17	11	16	18	29	121	176	60	356	53	14	90	41
18	8.4	14	18	31	110	155	59	383	41	236	57	70
19	6.6	14	18	104	140	143	55	200	34	290	43	45
20	6.6	14	17	176	158	164	50	135	29	146	38	35
21	9.0	14	17	126	158	211	47	113	25	79	120	25
22	9.0	13	16	100	135	274	175	94	28	53	110	22
23	11	14	16	85	108	176	897	79	41	43	63	21
24	11	14	15	70	95	129	553	68	33	31	33	20
25	11	13	14	65	82	129	279	62	28	23	26	25
26	11	14	16	77	74	232	728	63	24	18	36	360
27	13	14	17	118	62	247	1,380	62	22	15	450	630
28	15	14	16	126	53	568	644	53	104	13	330	270
29	16	13	17	82	------	1,230	339	44	132	11	120	120
30	19	16	17	68	------	593	212	38	256	10	70	75
31	17	------	16	58	------	312	------	44	------	10	55	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	39	5.6	12.7	0.042	0.05
November	22	10	13.8	.043	.05
December	43	14	22.4	.075	.09
January	176	15	66.6	.223	.26
February	439	21	104	.348	.36
March	1,230	35	189	.632	.73
April	1,380	47	364	1.22	1.36
May	383	38	103	.344	.40
June	779	22	114	.381	.43
July	290	10	49.4	.165	.19
August	775	6.2	126	.421	.49
September	1,300	20	208	.693	.78
The year	1,380	5.6	114	.38[illegible]	5.19

SANDUSKY RIVER NEAR MEXICO, OHIO

LOCATION.—Water-stage recorder in sec. 13, T. 1 N., R. 14 E., at highway bridge 3 miles above mouth of Honey Creek and 4¼ miles north of Mexico, Wyandot County.

DRAINAGE AREA.—776 square miles.

RECORDS AVAILABLE.—March, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,300 second-feet Apr. 4 (gage height, 9.45 feet); minimum, 12 second-feet June 25 (gage height, 1.65 feet).

1923–1931: Maximum discharge, 13,900 second-feet Mar. 22, 1927 (gage height, 19.9 feet); minimum, 4 second-feet Aug. 25, 1928.

REMARKS.—Records excellent except those estimated for periods of ice effect and those for extremely high water, which are fair.

Daily discharge, in second-feet, 1928–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928-29												
1	14	181	40	101		7,100	2,040	582	184	48	156	27
2	14	216	52	98		4,200	3,160	418	160	33	133	25
3	16	98	75	91	[a] 180	1,630	2,220	1,730	126	164	108	24
4	16	87	94	98		1,280	960	1,930	102	358	[b] 106	21
5	16	81	75	101		1,730	1,180	1,780	105	449	103	20
6	14	69	66			1,380	1,780	960	108	2,220	89	24
7	14	61	69			1,140	1,050	840	92	2,700	86	24
8	14	55	61	[a] 110	[a] 110	724	724	582	76	2,280	69	24
9	16	55	63			449	388	418	70	2,520	62	27
10	16	47	61			388	617	276	76	1,430	59	28
11	14	35	55			330	1,480	262	68	652	[b] 56	31
12	14	29	61			276	2,040	247	70	449	52	27
13	16	24	58		[a] 75	252	1,680	228	65	302	47	10
14	17	29	101	[a] 85		652	1,330	513	68	480	[b] 66	9.7
15	20	35	700			1,880	1,050	2,400	70	[b] 384	84	11
16	16	27	700			1,980	724	2,460	70	289	90	11
17	19	22	665	560		1,930	617	1,680	76	210	76	12
18	16	35	2,580	965	[a] 80	1,380	547	582	73	164	68	12
19	20	55	2,580	7,400		1,050	330	1,180	68	121	56	14
20	24	84	1,530	8,600		920	358	1,680	65	105	47	14
21	40	119	630	9,910		1,480	2,220	920	70	86	39	14
22	47	181	490	4,360		1,830	3,720	762	68	79	35	15
23	52	170	334	2,040	[a] 90	2,220	2,400	617	62	72	52	16
24	35	159	252	2,400		2,160	1,480	388	54	66	140	14
25	31	159	181	4,040		3,370	800	330	59	72	178	15
26	27	138	138	5,160	6,310	4,120	2,880	252	48	139	128	18
27	20	115	101	4,040	10,200	2,350	2,640	206	40	582	79	20
28	192	89	84	2,880	13,400	3,370	1,430	180	35	[b] 751	54	30
29	181	58	75	665	-------	1,180	1,050	202	43	920	43	42
30	170	47	84	[a] 450	-------	840	920	228	76	449	34	39
31	181	-------	91	[a] 360	-------	800	-------	224	-------	197	31	-------

[a] Estimated because of ice.
[b] Interpolated.

Daily discharge, in second-feet, of Sandusky River near Mexico, Ohio, 1928–1932—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929–30												
1	33	342		2,370		1,640	1,030	182	61	81	19	13
2	32	1,540		6,040		992	836	168	54	63	18	14
3	32	2,160	a190	7,500	a350	782	836	155	50	53	17	15
4	34	1,500		7,300		609	746	138	45	45	16	18
5	44	800		4,470		528	560	125	44	40	15	19
6	38	530	172	1,550		496	451	127	146	36	16	17
7	35	403	206	1,690		481	406	121	182	35	15	17
8	40	313	1,420	6,750	a450	742	421	116	104	35	15	16
9	35	254	2,340	10,000		1,260	466	112	86	32	15	16
10	32	224	1,870	12,000		1,160	436	102	66	31	15	17
11	32	575	1,030	9,970	a350	782	344	90	58	29	15	16
12	31	1,120	706	7,800	444	626	299	84	51	26	15	15
13	28	1,070	2,480	9,580	2,120	496	273	77	47	23	15	16
14	30	1,430	4,840	12,200	2,820	406	252	70	41	22	15	18
15	26	2,700	4,920	12,800	2,490	339	247	68	40	77	15	19
16	24	2,520	3,720	9,100	1,380	263	286	70	50	88	15	26
17	24	1,530	2,580	a4,600	874	275	560	72	84	54	15	86
18	24	1,280	4,760		677	306	1,280	75	129	40	15	56
19	24	2,460	5,160	a900	576	678	1,300	86	119	33	15	37
20	27	2,220	3,800		544	893	887	86	79	27	15	33
21	42	1,430	1,730		782	677	560	84	86	25	15	29
22	455	840	1,030		932	481	481	82	90	23	15	23
23	4,220	547		a450	1,370	364	451	79	70	22	15	21
24	4,920	418	a510		2,400	356	378	86	73	21	15	19
25	4,600	324			2,520	2,300	312	81	112	21	15	24
26	3,080	279			3,040	3,880	267	79	250	21	15	44
27	1,380	262	a410		3,650	3,690	230	110	406	20	15	58
28	762	257		a340	3,100	2,040	213	96	242	19	15	56
29	513	206	496			1,790	203	86	164	19	14	54
30	364	a200	670			1,840	191	79	112	19	14	44
31	289		990			1,440		68		19	15	
1930–31												
1	36	41	86	a36	166	129	711	402	90	311	23	139
2	29	43	a73	a35	132	119	804	300	97	176	20	184
3	25	43	68	33	a104	108	2,120	239	110	102	24	1,230
4	23	38	70	30	100	98	3,230	203	114	71	24	1,590
5	23	37	75	43	a92	94	2,760	168	146	55	24	1,640
6	20	38	84	114	81	88	1,740	148	123	49	24	1,540
7	20	38	81	132	82	86	910	143	299	42	23	794
8	20	37	77	108	119	88	586	148	1,160	36	20	418
9	21	37	68	a123	180	121	434	148	1,120	34	18	247
10	22	37	63	a129	244	191	357	148	640	30	19	168
11	48	36	61	a119	a196	239	339	148	372	31	140	126
12	79	32	61	96	a141	203	289	139	252	30	247	98
13	61	36	173	a79	150	191	244	139	178	28	192	79
14	50	38	58	a72	a232	257	208	134	137	26	599	68
15	38	38	53	a65	a528	481	180	126	125	26	850	59
16	36	38	a45	a54	a528	528	160	112	119	25	652	52
17	30	40	a45	a48	364	466	143	263	114	48	282	49
18	26	43	47	47	286	364	128	714	97	68	160	97
19	24	41	44	241	299	339	114	517	82	299	112	104
20	24	43	40	436	364	350	105	342	66	303	90	93
21	26	38	40	a257	378	466	97	234	55	300	114	71
22	27	32	37	a196	350	560	275	188	50	176	234	56
23	27	32	36	a184	306	512	1,210	158	73	112	197	45
24	27	32	36	a173	265	378	1,540	139	52	84	130	39
25	27	32	a35	166	230	328	830	123	12	66	82	39
26	27	32	35	184	208	378	937	112	14	55	65	410
27	27	36	36	198	175	496	2,160	105	14	42	302	1,120
28	29	40	37	225	152	1,050	2,040	97	39	36	771	870
29	35	37	37	247		2,280	1,080	87	182	31	450	394
30	41	48	a37	210		2,040	604	76	270	28	234	212
31	43		a37	189		1,210		76		25	152	

a Estimated because of ice.

NOTE.—Records of daily discharge for the years ending Sept. 30, 1929 and 1930, supersede those published in Water-Supply Papers 684 and 699.

Monthly discharge, in second-feet, of Sandusky River near Mexico, Ohio, 1928–1931

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1928–29					
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	----------	1,780	2.29	2.64
February	13,400	----------	1,160	1.49	1.55
March	7,100	252	1,770	2.28	2.63
April	3,720	330	1,460	1.88	2.10
May	2,460	180	808	1.04	1.20
June	184	35	78.2	.101	.11
July	2,700	33	606	.781	.90
August	178	31	78.3	.101	.12
September	42	9.7	20.6	.027	.03
The year	13,400	9.7	690	.889	12.04
1929–30					
October	4,920	24	68.5	.883	1.02
November	2,700	200	991	1.28	1.43
December	5,160	172	1,570	2.02	2.33
January	12,800	----------	4,280	5.52	6.36
February	3,650	----------	1,220	1.57	1.63
March	3,880	275	1,050	1.35	1.56
April	1,300	191	507	.653	.73
May	182	68	98.5	.127	.15
June	406	40	105	.135	.15
July	88	19	35.5	.046	.05
August	19	14	15.3	.020	.02
September	86	13	28.5	.037	.04
The year	12,800	13	885	1.14	15.47
1930–31					
October	79	20	32.0	.041	.05
November	48	32	37.8	.049	.05
December	173	35	57.3	.074	.09
January	436	30	138	.178	.21
February	528	81	230	.296	.31
March	2,280	86	459	.591	.68
April	3,230	97	878	1.13	1.26
May	714	76	196	.253	.29
June	1,160	12	207	.267	.30
July	311	25	88.5	.114	.13
August	850	18	202	.260	.30
September	1,640	39	401	.517	.58
The year	3,230	12	243	.313	4.25

NOTE.—The above records for 1929 and 1930 are revisions and supersede those published in Water-Supply Papers 684 and 699.

SANDUSKY RIVER NEAR FREMONT, OHIO

LOCATION.—Water-stage recorder 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, Sandusky County.

DRAINAGE AREA.—1,250 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1931. November, 1898, to March, 1901, at station 4 miles below present site.

EXTREMES.—Maximum discharge during year, 3,570 second-feet Apr. 4 (gage height, 4.02 feet); minimum, 19 second-feet Oct. 10–11 (gage height, 0.94 foot).

1923–1930: Maximum discharge, 17,900 second-feet Jan. 15, 1930 (gage height, 11.1 feet); minimum, 15 second-feet Sept. 1, 1925 (gage height, 0.90 foot).

REMARKS.—Records good except those for periods of ice effect, Nov. 27–30, Dec. 1–6, 15–31, Jan. 1–27, 29–30, Feb. 1, 2, 13–15, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	42	56	42	207	175	995	680	149	526	40	186
2	37	40	125	42	180	160	880	518	139	438	37	207
3	48	34	154	40	144	144	2,350	438	149	259	32	624
4	53	40	110	40	139	130	3,570	363	170	170	34	1,470
5	32	42	76	45	120	101	3,060	320	180	125	40	1,390
6	27	37	68	106	120	130	2,240	272	246	72	34	1,540
7	22	34	115	154	92	125	1,320	259	293	68	29	1,060
8	24	40	80	180	125	125	880	266	978	64	27	611
9	26	37	92	180	149	120	680	272	1,320	56	29	396
10	24	27	76	165	230	154	592	286	935	51	40	279
11	24	29	64	149	272	230	725	293	592	48	51	207
12	27	34	72	134	230	252	592	293	438	45	171	165
13	45	32	40	125	186	235	485	300	320	40	320	115
14	72	29	45	115	175	241	400	327	266	37	328	123
15	48	37	56	101	378	392	334	300	241	40	825	115
16	37	32	56	88	725	592	279	300	191	40	825	120
17	40	32	56	76	510	592	241	313	175	34	511	92
18	37	34	56	88	400	493	224	705	160	51	293	110
19	37	37	56	320	356	430	207	825	134	106	191	110
20	29	37	56	725	400	407	191	635	106	385	149	139
21	27	40	56	461	430	493	180	469	96	385	139	120
22	29	37	51	320	430	635	360	378	80	334	140	120
23	22	37	45	286	400	635	1,510	320	53	207	246	93
24	22	32	45	266	356	526	1,840	272	80	154	207	51
25	26	37	45	259	306	438	1,300	252	84	125	139	51
26	29	37	45	272	252	438	1,370	235	56	68	106	120
27	27	29	48	286	241	526	2,560	218	51	51	110	790
28	29	29	48	272	202	841	2,560	202	110	56	488	1,060
29	27	29	48	293	-------	2,560	1,620	191	257	45	615	678
30	32	34	45	293	-------	2,400	935	165	592	45	397	386
31	40	-------	45	259	-------	1,620	-------	134	-------	45	251	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	72	22	34.3	0.027	0.03
November	42	27	34.9	.028	.03
December	154	40	65.5	.052	.06
January	725	40	199	.159	.18
February	725	92	277	.222	.23
March	2,560	101	527	.422	.49
April	3,570	180	1,150	.920	1.03
May	825	134	348	.278	.32
June	1,320	51	288	.230	.26
July	526	34	135	.108	.12
August	825	27	221	.177	.20
September	1,540	51	418	.334	.37
The year	3,570	22	307	.246	3.32

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, 1931.

EXTREMES.—Maximum discharge during year, 645 second-feet Apr. 22 (gage height, 3.22 feet); minimum, 0.2 second-foot Aug. 9 (gage height, 0.58 foot). 1923–1931: Maximum discharge, 3,810 second-feet Oct. 5, 1926, Feb. 26, 1929; minimum, that of Aug. 9, 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 26–30, Dec. 1–5, 16–20, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	7.9		21	27	12	33	28	16	9.4	0.5	3.2
2	5.4	7.9		21	28	12	110	23	14	7.0	1.4	18
3	5.4	7.9	10	28	16	12	388	21	12	5.4	3.6	40
4	5.4	7.9		25	22	11	313	17	16	3.9	1.4	26
5	5.4	7.1		37	23	11	103	16	14	2.9	.6	22
6	5.4	7.1	13	108	13	13	55	15	17	3.9	.5	20
7	5.4	7.1	12	84	23	11	37	17	41	2.9	.4	14
8	6.7	7.1	9.6	62	21	13	29	24	55	2.6	.4	9.4
9	7.5	7.1	9.2	47	20	15	24	24	36	1.8	.7	8.0
10	7.1	7.1	8.8	38	19	17	26	23	24	1.6	4.6	5.8
11	6.2	7.5	8.3	40	29	23	41	23	15	2.9	10	3.2
12	6.2	9.2	7.9	46	14	23	29	21	11	2.3	85	2.9
13	6.2	9.6	8.3	43	18	15	21	21	10	2.3	139	1.8
14	5.4	9.2	8.8	32	45	18	17	21	8.9	2.0	36	1.2
15	5.4	8.8	8.8	36	75	19	14	21	8.0	1.8	21	2.0
16	5.4	8.8		43	21	18	13	18	7.0	2.0	15	11
17	5.4	8.3		42	22	18	15	55	6.6	1.8	12	22
18	5.4	7.9	9.0	43	24	17	14	47	6.6	21	8.9	12
19	5.4	7.5		260	25	18	13	27	5.4	15	5.8	8.4
20	5.4	7.1		151	25	19	12	23	5.0	9.4	4.6	5.4
21	5.4	7.1	9.6	80	23	26	14	21	6.2	6.2	3.2	3.9
22	5.4	7.1	11	64	21	23	260	17	5.8	4.6	2.9	2.6
23	5.8	7.1	12	46	21	19	332	17	7.5	3.2	2.9	2.0
24	6.2	7.1	12	47	21	17	156	17	7.5	2.3	2.9	2.0
25	6.2	7.9	12	139	19	19	67	18	6.6	1.6	2.9	2.9
26	7.1		21	135	16	24	295	17	6.2	1.4	3.2	43
27	7.1		18	92	14	23	260	16	18	1.0	4.2	36
28	7.9	9.0	15	73	13	179	101	14	8.9	.7	4.6	17
29	8.3		14	58	-------	139	56	12	20	.5	3.9	12
30	7.9		13	46	-------	58	37	14	15	.4	2.9	9.4
31	8.8	-------	13	41	-------	40	-------	17	-------	1.0	2.3	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8.8	5.4	6.19	0.073	0.08
November	-------	7.1	7.98	.094	.10
December	-------	7.9	11.0	.130	.15
January	260	21	65.4	.770	.89
February	75	13	23.5	.277	.29
March	179	11	28.5	.336	.39
April	388	12	96.2	1.13	1.26
May	55	12	21.5	.253	.29
June	55	5.0	14.3	.168	.19
July	21	.4	4.03	.047	.05
August	139	.4	12.5	.147	.17
September	43	1.2	12.2	.144	.16
The year	388	.4	25.2	.297	4.02

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, 1931.

EXTREMES.—Maximum discharge during year, 2,120 second-feet Apr. 23 (gage height, 4.25 feet); minimum, 0.1 second-foot Oct. 24–27, 30, 31, Nov. 2, July 31.

1922–1931: Maximum discharge, 5,360 second-feet Feb. 27, 1929, Jan. 9, 1930 (gage height, 7.2 feet); maximum gage height, 9.9 feet June 29, 1924 (backwater caused by tornado); no flow Aug. 9–16, 18–22, 1930.

REMARKS.—Records good except those for extremely low water, for periods of ice effect, Nov. 27–30, Dec. 1–3, 16–31, Jan. 1–4, 9–31, Feb. 1–3, and for periods of no gage-height record, Nov. 5–9, May 10–11, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.4				36	277	103	79	17	0.4	3.5
2	.4	.1	3.0	1.5	20	30	685	72	100	12	.6	8.7
3	.4	.4				20	1,100	53	90	11	1.0	12
4	.4	.4	14		22	18	1,280	44	66	9.4	1.0	15
5	.6	.4	12	20	22	18	615	38	52	8.6	1.3	38
6	.7	.4	14	30	22	16	335	34	49	7.9	1.3	23
7	1.0	.4	12	32	27	14	108	30	66	6.4	1.3	21
8	1.3	.4	6.4	34	61	14	74	70	79	6.4	1.3	18
9	1.0	.4	6.4	30	76	18	70	66	166	5.4	2.1	6.4
10	.7	.4	6.4	20	79	18	74	65	209	4.5	1.6	4.5
11	.7	.4	8.7		83	20	64	65	92	3.5	1.4	4.5
12	.7	.7	6.4		50	24	52	64	55	2.6	32	1.6
13	.4	.7	7.9	20	70	39	50	59	36	2.6	22	1.6
14	.4	.7	7.2		196	49	44	55	30	2.6	19	1.6
15	.7	1.0	6.4		368	55	24	53	21	3.5	12	1.6
16	.7	.7	5.9		192	76	22	53	12	3.0	5.4	3.0
17	.4	1.3	5.0		142	76	22	63	6.4	4.0	4.0	1.6
18	.4	3.0		20	231	97	22	61	12	3.5	3.5	1.6
19	.4	3.5	4.5		240	111	22	53	11	7.9	4.5	1.6
20	.4	3.5			185	97	22	39	9.4	7.2	4.5	2.1
21	.4	3.0			148	92	23	36	9.4	5.4	4.5	2.6
22	.4	3.0			105	84	545	47	10	5.0	4.5	1.6
23	.4	3.5	3.5	25	103	76	2,120	57	9.4	5.4	4.5	1.6
24	.2	3.5			76	196	940	55	9.4	4.5	3.5	5.0
25	.1	3.5			53	222	650	70	19	4.5	4.0	5.9
26	.1	3.5			45	214	1,020	72	30	4.5	3.5	6.4
27	.1				45	192	1,370	63	231	3.2	3.5	8.7
28	.4				42	510	685	55	103	2.1	4.5	6.4
29	.4	3.0	2.5	20	-------	420	306	57	50	1.2	3.5	7.2
30	.1				-------	310	181	55	19	.6	4.5	5.9
31	.2	-------			-------	277	-------	28	-------	.1	3.5	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1.3	0.1	0.48	0.002	0.002
November	3.5	.1	1.71	.008	.01
December	14	-------	5.60	.027	.03
January	34	-------	19.9	.094	.11
February	368	-------	98.0	.464	.48
March	510	14	111	.526	.61
April	2,120	22	427	2.02	2.25
May	103	28	56.0	.265	.31
June	231	6.4	57.7	.273	.30
July	17	.1	5.35	.025	.03
August	32	.4	5.30	.025	.03
September	38	1.6	7.41	.035	.04
The year	2,120	.1	65.4	.310	4.20

CUYAHOGA RIVER NEAR HIRAM, OHIO

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

DRAINAGE AREA.—152 square miles.

RECORDS AVAILABLE.—August, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 689 second-feet Apr. 5 (gage height, 4.06 feet); minimum, 14 second-feet Aug. 16, 17 (gage height, 0.58 foot).

1927–1931: Maximum discharge, 2,260 second-feet Jan. 20, 1929 (gage height, 8.2 feet); minimum, 11 second-feet Aug. 13, 1930 (gage height, 0.56 foot).

REMARKS.—Records good except those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	45	e 55	e 54	506	90	426	332	63	270	18	20
2	16	49	e 120	e 54	400	83	400	248	60	212	17	30
3	16	50	e 180	55	e 324	76	452	184	57	157	19	37
4	16	51	e 180	57	244	70	590	129	56	99	21	42
5	16	50	e 140	96	e 186	e 72	674	98	55	56	22	40
6	16	47	e 150	195	e 152	e 71	605	75	62	44	21	33
7	16	42	e 220	e 270	e 130	e 66	508	66	90	36	19	28
8	18	36	e 320	e 300	138	e 58	386	88	130	33	18	24
9	23	32	e 430	e 290	177	e 54	290	122	134	28	17	21
10	25	30	e 480	e 240	e 204	e 48	217	152	123	26	19	19
11	25	28	426	e 200	e 195	e 46	170	167	110	24	22	17
12	22	30	374	e 170	177	e 47	134	167	90	22	24	16
13	18	37	312	e 140	e 160	e 47	109	236	72	22	e 26	16
14	17	44	266	e 120	e 224	57	81	300	59	21	e 25	16
15	16	45	214	e 120	e 277	80	60	310	46	20	e 22	16
16	17	42	e 177	e 110	e 324	116	51	290	38	20	e 16	16
17	17	39	e 145	e 100	349	152	46	248	34	21	e 17	18
18	18	36	e 123	e 100	349	186	44	193	28	22	21	19
19	20	34	e 103	e 100	324	214	43	151	24	22	20	19
20	19	33	89	e 140	324	244	41	120	23	36	20	19
21	19	31	e 79	177	288	266	41	95	23	46	19	17
22	19	28	e 70	195	244	288	100	80	22	58	18	16
23	21	27	e 62	204	195	324	234	82	21	55	17	16
24	23	26	e 55	195	160	374	342	99	20	49	16	16
25	25	e 26	e 55	204	e 138	400	420	119	20	42	19	16
26	25	e 25	65	324	116	452	482	134	41	34	25	22
27	24	e 23	64	452	110	478	521	130	109	28	28	30
28	25	e 21	59	590	96	506	548	112	193	24	28	34
29	27	e 19	56	674	------	534	534	88	270	22	27	33
30	31	e 23	e 54	674	------	534	432	69	300	20	25	28
31	38	------	e 54	562	------	478	------	65	------	19	22	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	38	16	20.8	0.137	0.16
November	51	19	35.0	.230	.26
December	480	54	167	1.10	1.27
January	674	54	231	1.52	1.75
February	506	96	233	1.53	1.59
March	534	46	210	1.38	1.59
April	674	41	299	1.97	2.20
May	332	65	153	1.01	1.16
June	300	20	79.1	.520	.58
July	270	19	51.2	.337	.39
August	28	16	20.9	.138	.16
September	42	16	23.1	.152	.17
The year	674	16	126	.829	11.28

e Estimated.

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, 1931.

EXTREMES.—Maximum discharge during year, 1,300 second-feet Sept. 16 (gage height, 4.65 feet); minimum, 35 second-feet Oct. 12.

1921–1931: Maximum discharge, 3,820 second-feet Apr. 5, 1929 (gage height, 10.1 feet); minimum, 35 second-feet Aug. 10, Oct. 12, 1930.

REMARKS.—Records good except those for low water, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	65	139	109	474	132	624	594	162	209	64	151
2	73	49	186	132	438	149	682	446	158	205	68	199
3	90	84	190	116	369	138	920	352	110	156	76	138
4	45	90	179	86	335	192	1,040	312	119	130	85	124
5	40	84	195	160	278	158	964	231	111	137	74	113
6	40	95	244	235	232	134	942	217	125	142	73	103
7	61	68	223	208	262	96	878	231	152	118	77	88
8	80	64	244	293	224	127	708	184	271	97	66	73
9	48	42	292	272	258	166	535	202	256	84	52	78
10	48	48	371	270	282	176	426	228	190	92	123	74
11	69	69	487	242	266	200	361	206	175	76	82	71
12	44	58	460	261	234	159	290	276	127	50	83	89
13	49	56	414	238	332	127	262	334	121	49	113	78
14	60	68	340	207	441	118	216	374	91	50	81	86
15	71	80	317	198	394	140	155	382	112	52	83	74
16	62	58	256	195	418	176	208	380	92	75	78	163
17	67	115	222	139	516	202	155	392	92	60	71	88
18	53	140	192	81	543	309	128	354	79	53	180	63
19	81	117	168	184	532	303	104	316	93	66	99	56
20	82	125	118	208	492	287	140	250	65	73	71	84
21	67	102	79	150	450	331	155	204	52	67	90	86
22	90	144	176	138	387	322	286	217	85	91	79	82
23	66	96	134	159	364	329	542	242	75	74	72	60
24	48	85	132	215	307	339	592	228	70	71	87	65
25	46	116	82	178	238	406	592	248	50	67	149	144
26	42	98	111	266	226	473	971	246	98	74	225	75
27	51	81	120	284	204	498	1,140	214	83	71	129	72
28	88	80	108	372	194	586	962	182	64	73	125	94
29	52	80	147	428	-------	688	835	187	102	76	114	65
30	89	135	130	499	-------	656	752	146	193	77	96	89
31	121	-------	103	546	-------	610	-------	133	-------	82	112	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	121	40	64.7	May	594	133	274
November	144	42	86.4	June	271	50	119
December	487	79	212	July	209	49	90.2
January	546	81	228	August	225	52	96.0
February	543	194	346	September	199	56	94.2
March	688	96	282				
April	1,140	104	552	The year	1,140	40	202

CUYAHOGA RIVER AT INDEPENDENCE, OHIO

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

DRAINAGE AREA.—709 square miles.

RECORDS AVAILABLE.—September, 1903, to July, 1906; September, 1921, to May, 1923; September, 1927, to September, 1931.

EXTREMES.—Maximum combined daily discharge of river and canal during year, 2,840 second-feet Apr. 3; minimum, 83 second-feet Nov. 29.

1921–1923, 1927–1931: Maximum discharge, about 8,960 second-feet Jan 19, 1929; minimum, that of Nov. 29, 1930.

REMARKS.—Records good. Water diverted into Ohio Canal at Brecksville, 6 miles upstream, and carried past station. (For record of this diversion see p. 89.) Small amount of water diverted into this drainage basin from Tuscarawas River by Ohio Canal. Daily discharge table does not include flow in canal.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	144	277	82	685	262	1,070	910	228	286	66	126
2	88	84	188	111	595	197	2,240	677	274	300	30	325
3	71	59	253	108	515	203	2,790	514	189	257	51	360
4	90	86	176	105	450	226	2,620	429	203	245	46	190
5	41	91	191	109	390	230	1,850	332	197	233	58	182
6	32	86	209	594	290	164	1,520	285	194	220	48	122
7	48	93	298	360	323	162	1,310	281	709	181	46	115
8	64	70	255	301	464	185	1,080	532	771	144	47	97
9	108	64	288	316	422	179	822	383	693	124	29	84
10	71	42	303	301	350	213	635	371	480	118	33	91
11	50	49	441	253	330	264	559	349	316	130	131	91
12	71	67	478	281	289	244	455	427	269	93	74	85
13	46	76	427	289	556	186	354	898	197	52	80	103
14	58	64	384	237	1,050	284	347	872	231	62	95	91
15	59	71	280	231	725	519	254	713	222	53	58	113
16	71	91	266	217	664	660	237	604	197	49	43	160
17	64	44	208	181	885	696	232	910	163	77	46	188
18	72	108	257	126	1,110	682	210	594	147	55	50	119
19	48	130	165	142	1,010	774	162	508	88	48	184	89
20	66	90	127	288	935	793	144	396	132	62	90	75
21	78	92	93	245	799	773	209	350	86	78	55	109
22	72	79	53	163	660	663	1,620	287	67	103	64	116
23	85	114	150	129	565	580	2,240	511	125	100	48	107
24	69	48	110	200	544	561	1,520	509	102	78	46	79
25	50	51	92	248	395	917	1,210	535	96	68	99	87
26	44	84	43	654	344	1,360	2,670	410	421	47	132	286
27	29	72	109	570	316	1,060	2,510	376	653	66	289	159
28	56	30	90	543	286	1,400	1,900	306	211	62	152	138
29	102	26	84	622	-------	1,460	1,410	284	145	58	131	152
30	64	43	114	670	-------	1,210	1,140	215	224	56	104	110
31	133	-------	114	759	-------	1,010	-------	242	-------	57	96	-------

Month	River			Canal (mean)	Combined		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	133	29	66.7	59.7	197	89	126
November	144	26	74.9	57.6	208	83	132
December	478	43	210	58.2	538	100	268
January	759	82	304	53.6	813	142	358
February	1,110	286	570	52.5	1,160	339	622
March	1,460	162	584	51.5	1,510	212	636
April	2,790	144	1,180	51.4	2,840	194	1,230
May	910	215	484	51.2	964	269	535
June	771	67	268	53.7	828	121	322
July	300	47	115	55.6	354	101	171
August	289	29	81.3	58.8	349	84	140
September	360	75	138	52.0	417	121	190
The year	2,790	26	337	54.7	2,840	83	302

CONGRESS LAKE OUTLET NEAR KENT, OHIO

LOCATION.—Water-stage recorder at 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, 1931.

EXTREMES.—Maximum discharge during year, 212 second-feet Apr. 5 (gage height, 4.72 feet); minimum, 4.0 second-feet July 31, Aug. 1.

1927–1931: Maximum discharge, 1,060 second-feet Feb. 28, 1929 (gage height, 9.5 feet); minimum, 3.1 second-feet July 12, 1930.

REMARKS.—Records good except those for periods of ice effect, Dec. 17, 25, 31, Jan. 2, 8, 9, 22–25, Feb. 2–5, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	22	30	20	38	30	75	61	40	14	4.4	64
2	11	23	30	17	33	28	101	43	40	14	4.6	49
3	11	22	22	16	26	28	176	38	38	13	4.6	43
4	11	21	20	16	22	28	212	36	40	11	5.0	43
5	10	20	23	24	23	26	212	33	40	8.8	5.2	52
6	10	20	30	68	26	26	200	30	43	12	5.0	58
7	11	17	40	72	26	24	154	30	64	10	5.0	49
8	13	15	38	22	38	26	82	43	75	13	5.4	40
9	16	14	36	22	52	28	64	52	82	9.2	5.2	30
10	15	13	33	52	55	30	55	55	75	7.8	6.8	21
11	14	13	33	30	39	33	52	43	61	7.5	7.0	17
12	12	16	33	26	33	30	49	40	52	6.8	7.5	17
13	11	17	28	26	50	33	46	58	49	6.2	10	16
14	11	16	28	24	94	43	40	68	52	5.8	9.2	14
15	11	16	24	23	94	55	36	68	52	5.4	8.8	14
16	12	15	24	22	118	72	33	55	55	5.6	7.2	15
17	14	17	23	21	110	78	30	43	52	5.2	5.8	18
18	14	16	22	20	102	72	30	46	46	5.2	10	20
19	13	16	20	26	115	68	28	43	40	5.0	12	22
20	12	17	21	30	115	64	26	40	30	7.8	16	20
21	13	17	20	33	90	68	26	38	22	8.2	19	18
22	13	16	19	28	72	61	71	38	18	12	14	17
23	14	15	20	24	61	55	154	52	17	14	10	16
24	15	14	20	22	52	49	165	55	17	16	7.5	16
25	15	15	19	28	46	52	165	61	16	8.0	9.2	16
26	13	15	19	52	40	61	176	58	17	5.6	12	23
27	14	14	20	61	38	68	176	52	22	4.6	26	28
28	16	14	20	61	33	82	165	43	18	4.4	40	30
29	17	14	19	52	------	90	154	38	16	4.6	55	28
30	17	21	20	43	------	98	115	38	14	4.8	78	21
31	21	------	20	40	------	86	------	40	------	4.6	90	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	21	10	13.3	0.173	0.20
November	23	13	16.7	.217	.24
December	40	19	25.0	.325	.37
January	----------	16	32.9	.428	.49
February	118	----------	58.6	.762	.79
March	98	24	51.4	.668	.77
April	212	26	102	1.33	1.48
May	68	30	46.4	.603	.70
June	82	14	40.1	.521	.58
July	16	4.4	8.39	.109	.13
August	90	4.4	16.3	.212	.24
September	64	14	27.8	.362	.40
The year	212	4.4	36.3	.472	6.39

LITTLE CUYAHOGA RIVER AT AKRON, OHIO

LOCATION.—Water-stage recorder at foot of Seiberling Street, Akron, Summit County, half a mile below mouth of Springfield Lake outlet.

DRAINAGE AREA.—42.0 square miles.

RECORDS AVAILABLE.—July, 1920, to September, 1931.

EXTREMES.—Maximum discharge during year, 106 second-feet Aug. 26 (gage height, 0.96 foot); minimum, 2.2 second-feet Sept. 12 (gage height, 0.10 foot).

1920–1931: Maximum discharge not known; no flow June 24, July 14, 1923, on account of regulation above station.

REMARKS.—Records excellent. Gage-height record furnished by Goodyear Tire & Rubber Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.7	19.2	15.4	7.0	15.4	12.9	23	20	12.9	10.7	10.7	11.4
2	11.4	12.2	23	10.0	17.3	16.3	45	16.3	12.2	10.0	10.0	25
3	10.7	13.7	12.2	12.9	16.3	16.3	73	17.3	10.0	10.0	11.4	31
4	9.2	12.9	9.2	10.0	15.4	15.4	73	14.4	13.5	7.7	10.0	29
5	7.0	11.4	13.7	28	15.4	14.4	49	12.9	15.4	8.5	10.0	26
6	10.7	12.9	11.4	64	14.4	14.4	31	12.9	13.7	16.3	10.0	20
7	10.7	12.9	12.2	44	18.2	9.2	23	14.4	32	10.0	10.0	12.9
8	12.2	10.7	22	25	26	10.7	19.2	44	37	9.2	7.0	11.4
9	14.4	8.5	19.2	15.4	25	15.4	16.3	35	26	9.2	12.2	10.0
10	13.7	12.9	16.3	11.4	19.2	12.9	16.3	25	18.2	10.0	17.3	9.2
11	10.7	12.9	15.4	10.7	13.7	16.3	22	21	12.9	8.5	9.2	7.7
12	7.7	14.4	15.4	15.4	12.9	12.9	20	19.2	10.7	6.5	9.2	7.0
13	11.4	16.3	14.4	13.7	34	10.7	16.3	34	8.5	10.7	13.7	7.7
14	11.4	14.4	12.9	12.9	55	17.3	13.7	35	7.7	11.4	10.0	10.0
15	13.7	10.7	14.4	14.4	34	22	12.9	23	12.9	12.2	8.5	10.7
16	12.2	9.2	12.9	14.4	28	22	12.9	18.2	13.7	12.2	7.0	24
17	12.9	15.4	11.4	11.4	34	22	11.4	23	12.2	11.4	8.5	16.3
18	11.4	14.4	12.2	10.7	46	19.2	11.4	25	10.7	8.5	21	14.4
19	8.5	12.9	12.2	22	37	20	10.7	18.2	10.7	7.0	25	12.2
20	11.4	12.2	10.7	21	31	23	10.0	16.3	7.7	10.7	19.2	12.2
21	12.2	12.2	9.2	14.4	25	22	10.0	17.3	6.5	11.4	12.9	12.9
22	12.2	9.2	13.7	16.3	23	18.2	60	17.3	11.4	17.3	8.5	11.4
23	12.2	8.5	13.7	10.7	21	17.3	90	35	10.7	12.9	6.5	10.0
24	12.9	11.4	12.9	10.0	20	16.3	52	30	10.7	11.4	8.5	10.0
25	10.0	11.4	8.5	20	18.2	21	34	29	11.4	7.0	25	35
26	7.7	11.4	12.9	36	13.7	30	62	17.3	12.9	6.5	56	31
27	12.9	7.7	13.7	28	15.4	24	74	17.3	17.3	10.0	93	30
28	14.4	10.7	10.7	23	14.4	36	49	14.4	11.4	10.0	61	18.2
29	12.2	8.5	12.2	20	------	40	31	12.9	14.4	10.0	34	12.9
30	12.9	12.9	10.7	18.2	------	28	24	12.9	11.4	9.2	21	10.0
31	22	------	10.7	18.2	------	22	------	13.7	------	10.0	12.9	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	22	7.0	11.7	May	44	12.9	21.4
November	19.2	7.7	12.1	June	37	6.5	13.9
December	23	8.5	13.4	July	17.3	6.5	10.2
January	64	7.0	19.0	August	93	6.5	18.7
February	55	12.9	23.5	September	35	7.0	16.3
March	40	9.2	19.3				
April	90	10.0	33.2	The year	93	6.5	17.7

OHIO CANAL AT INDEPENDENCE, OHIO

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

RECORDS AVAILABLE.—September, 1921, to May, 1923; August, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 68 second-feet Oct. 17 (gage height, 4.34 feet); minimum, 32 second-feet May 10 (gage height, 3.42 feet). 1927–1931: Maximum discharge, 99 second-feet Apr. 5, 1929 (gage height, 5.09 feet); minimum not determined.

REMARKS.—Records fair. Water diverted into canal from Cuyahoga River by feeder at dam at Brecksville, 6 miles above station.

Daily and monthly discharge, in second-feet, 1930–31

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

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	64	54	59.7	May	57	46	51.2
November	64	57	57.6	June	57	50	53.7
December	60	57	58.2	July	60	54	55.6
January	60	50	53.6	August	64	54	58.8
February	57	50	52.5	September	60	46	52.0
March	54	50	51.5				
April	57	46	51.4	The year	64	46	54.7

CHAGRIN RIVER AT WILLOUGHBY, OHIO

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

DRAINAGE AREA.—251 square miles.

RECORDS AVAILABLE.—July, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 20,500 second-feet June 26 (gage height, 9.90 feet); minimum not determined.

1925–1931: Maximum discharge, that of June 26, 1931; minimum, 5.2 second-feet Aug. 12, 13, 15, 1930.

REMARKS.—Records good except those for periods of ice effect, Dec. 18–31, Jan. 1–4, 9, 10, 12–25, 31, Mar. 7–13, and for Nov. 21, June 8–10, 12, 26–30, which are fair; and those for July 1 to Sept. 30, which are poor except for Aug. 22, Sept. 21, when discharge measurements were made.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	83	630	48	246	105	257	196	112	200	22	40
2	23	77	257	48	202	97	780	146	90	170	35	60
3	28	59	186	55	137	90	1,640	137	74	140	30	120
4	23	53	155	65	169	83	1,370	142	59	120	25	70
5	18	53	175	83	142	83	580	142	56	110	23	85
6	14	48	1,180	1,120	137	74	350	115	74	180	22	50
7	28	43	1,120	630	137	68	263	119	544	120	21	35
8	30	36	580	274	508	63	207	499	320	90	20	32
9	46	38	335	190	388	60	164	323	210	70	35	31
10	38	38	263	150	263	58	164	202	130	500	30	30
11	33	38	224	119	124	56	155	169	87	200	45	28
12	26	38	235	90	150	55	146	240	65	120	60	26
13	23	50	202	75	466	55	132	730	53	80	90	23
14	28	53	155	65	835	142	115	544	53	60	70	30
15	16	48	128	60	350	304	80	274	191	90	40	45
16	26	43	97	57	286	571	83	196	77	65	25	50
17	28	43	62	55	395	535	90	246	56	45	20	35
18	23	43	56	52	580	442	83	207	59	130	28	26
19	26	38	53	51	395	508	74	119	43	80	30	21
20	28	38	51	300	304	434	65	119	53	60	29	18
21	38	38	50	200	246	490	71	119	65	50	28	16
22	30	38	49	180	229	458	835	101	46	600	27	20
23	38	28	48	170	191	380	1,440	202	43	200	25	17
24	33	30	48	160	150	292	544	286	48	100	24	16
25	36	38	49	150	112	580	323	252	46	80	50	25
26	36	30	65	1,370	128	945	1,570	218	7,500	50	40	50
27	33	28	62	730	101	490	1,180	137	2,700	40	35	100
28	38	36	56	553	105	780	526	112	700	33	60	70
29	56	50	50	395	-------	835	335	105	410	28	4[illegible]	50
30	46	97	48	286	-------	426	311	65	280	26	40	40
31	90	-------	48	260	-------	286	-------	115	-------	24	33	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	90	14	32.3	0.129	0.15
November	97	28	45.8	.182	.20
December	1,180	48	217	.865	1.00
January	1,370	48	259	1.03	1.19
February	835	101	267	1.06	1.10
March	945	55	318	1.27	1.46
April	1,640	65	464	1.85	2.06
May	730	65	212	.845	.97
June	7,500	43	475	1.89	2.11
July	600	24	125	.498	.57
August	90	20	35.7	.142	.16
September	120	16	42.0	.167	.19
The year	7,500	14	207	.825	11.16

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, 1931.

EXTREMES.—Maximum discharge during year, about 3,710 second-feet Apr. 27 (gage height, 6.83 feet); minimum, 0.2 second-foot Sept. 15 (gage height, 0.64 foot).

1922–1931: Maximum discharge, about 16,400 second-feet Jan. 19, 1929 (gage height, 12.0 feet); minimum, that of Sept. 15, 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 26–30, Dec. 17 to Jan. 25, Mar. 10–13, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	20	165	46	678	223	732	601	113	54	11	2.8
2	11	22	296	46	553	210	2,740	313	121	38	9.7	10
3	9.0	24	678	46	349	155	3,200	223	113	15	9.4	14
4	8.3	29	488	48	313	137	3,040	176	91	17	7.0	14
5	6.7	31	188	75	265	129	2,220	155	75	14	8.0	13
6	6.1	26	250	200	313	129	1,620	145	64	20	6.1	10
7	6.7	23	970	500	176	121	1,110	129	223	14	5.3	15
8	7.3	20	1,250	600	349	111	626	1,320	446	13	5.0	15
9	9.4	20	850	750	678	80	349	2,110	349	12	5.6	12
10	8.0	17	467	700	790	65	223	1,040	265	23	6.1	10
11	8.0	15	296	400	509	60	187	850	176	8.3	11	18
12	8.0	15	250	200	296	57	165	732	129	3.2	14	15
13	7.6	15	198	160	387	55	155	1,390	93	8.6	64	4.3
14	9.4	15	187	140	1,250	110	137	1,800	83	7.0	40	.8
15	12	13	165	130	1,320	165	129	1,110	41	7.0	22	.7
16	12	12	121	120	850	313	108	732	121	7.3	14	7.3
17	10	16	90	115	732	530	102	970	97	7.0	10	5.6
18	11	18	80	112	1,040	1,040	94	732	66	13	10	4.8
19	8.6	18	70	110	1,180	1,250	90	349	18	7.3	9.7	6.7
20	8.3	18	65	300	970	1,460	82	236	26	8.0	7.3	4.6
21	9.4	18	60	500	910	1,800	52	198	20	7.3	6.1	4.8
22	9.0	18	56	600	732	1,390	509	165	16	18	3.9	4.6
23	12	18	54	580	626	970	2,460	176	16	11	4.1	4.6
24	13	16	52	540	530	626	1,900	1,250	16	10	4.1	3.6
25	12	16	50	500	368	601	1,320	910	14	15	3.2	3.9
26	13	16	49	1,540	296	850	2,000	652	22	20	2.6	8.6
27	12	15	55	2,460	250	790	3,530	467	19	23	4.1	13
28	14	14	50	2,000	223	790	2,000	280	16	26	4.3	8.6
29	14	14	48	1,460	-------	2,000	1,390	198	113	19	3.2	7.0
30	14	30	47	970	-------	1,390	1,110	165	111	16	3.2	8.3
31	29	-------	46	790	-------	910	-------	105	-------	12	3.6	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	29	6.1	10.6	0.018	0.02
November	31	12	18.7	.032	.04
December	1,250	46	248	.422	.49
January	2,460	46	540	.920	1.06
February	1,320	176	605	1.03	1.07
March	2,000	55	597	1.02	1.18
April	3,530	52	1,110	1.89	2.11
May	2,110	105	635	1.08	1.25
June	446	14	102	.174	.19
July	54	3.2	15.3	.026	.03
August	64	2.6	10.2	.017	.02
September	18	.7	8.35	.014	.02
The year	3,530	.7	323	.550	7.48

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 about 6 miles above mouth.

DRAINAGE AREA.—178 square miles.

RECORDS AVAILABLE.—July, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,830 second-feet Apr. 2 (gage height 4.52 feet); minimum, 1.9 second-feet Aug. 21, 22, Sept. 14–16, 23 (gage height, 1.17 feet).

1922–1931: Maximum discharge, 6,160 second-feet Dec. 1, 1927, Jan. 19, 1929 (gage height 8.2 feet); minimum, 1.0 second-foot Aug. 21–23, 1930.

REMARKS.—Records excellent except those for high water and for periods of ice effect, Dec. 15–23, Jan. 7–27, 30, 31, Feb. 1–16, Mar. 4–8, 10–14, which are fair; and for periods when recorder was not operating, Oct. 1–11, Oct. 19 to Dec. 12, which are poor.

Daily and monthly discharge, in second-feet, 1925–26, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1925–26												
1	20	294	237				229	190			15	14
2	21	318	233				280	133			123	17
3	37	294	250	100	1,000	360	574	115			234	13
4	114	229	246				2,050	142			321	17
5	142	160	300				1,020	157			110	122
6	487	133	648	1,000			680	105	10	10	75	434
7	354	182	582	964			550	84			277	354
8	186	790	290	434	450	580	1,660	73			314	246
9	171	1,040	205				2,700	58			133	223
10	280	434	193	190			1,050	52			67	890
11	299	250	134				434	42		12	38	750
12	175	186	154	600			271	40		3.9	128	238
13	122	706	157			540	193	37		11	148	122
14	87	1,560	190				151	34		8.9		87
15	84	750	151	400	300		130	37	70	9.8		78
16	75	550	120				125	29		10	100	322
17		615	157				120	29		12		680
18		462	237			490	105	24		11		354
19		691	271	1,000			89			3.9		160
20	330	1,470	285	1,220			82			5.7	192	103
21		750	139	825	800		75			6.1	108	78
22		380	94	380			69			5.1	78	58
23		258		160		1,660	75			5.5	96	537
24		209					80			3.8	84	2,200
25		190			1,400		100	20	60	3.8	54	5,120
	1,000			900								
26		164	90		2,300	1,220	122			2.9	38	2,580
27		574			1,700	550	136			3.3	30	781
28		1,860			980	328	186			19	27	380
29		861				225	511			9.0	17	354
30	407	354		600		186	314			6.7	13	254
31	318					171				7.4	16	

Daily and monthly discharge, in second-feet, of Conneaut Creek at Amboy, Ohio, 1925–26, 1930–31—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	5.1	24	130	52	226	133	415	186	60	13	6.5	11
2	4.6	18	330	59	193	133	1,480	139	65	12	7.1	15
3	4.6	17	240	85	127	121	1,100	118	50	12	4.8	19
4	6.1	17	170	64	96	88	780	106	44	12	6.5	11
5	6.6	15	140	93	93	67	530	93	50	5.9	4.3	32
6	7.0	14	460	199	93	47	272	76	72	72	13	38
7	6.6	17	1,200	490	115	41	182	74	385	33	9.6	9.9
8	5.6	15	680	406	130	49	146	396	654	38	6.7	12
9	6.6	17	320	291	179	72	115	682	507	22	9.3	9.7
10	8.0	17	180	209	207	43	104	326	264	23	4.8	14
11	12	15	140	146	133	47	101	280	139	14	9.4	3.8
12	15	17	150	104	106	43	106	222	83	18	4.8	3.0
13	12	20	173	76	130	43	93	307	58	5.3	3.8	2.6
14	16	20	170	65	345	74	78	335	43	11	3.4	2.2
15	15	19	98	62	429	122	67	230	41	11	7.8	1.9
16	12	17	65	62	280	169	60	149	37	23	8.4	2.2
17	8.0	18	76	62	268	234	52	262	43	18	3.0	3.0
18	8.0	19	86	58	548	298	49	414	35	27	4.9	3.0
19	9.4	19	60	62	567	440	43	206	27	22	4.3	2.6
20	10	19	41	110	429	549	41	156	22	20	2.6	2.2
21	12	17	39	258	380	948	38	133	19	28	2.2	3.0
22	11	17	65	250	321	1,060	139	118	17	20	2.6	14
23	8.7	17	83	205	255	722	468	261	18	16	3.0	3.0
24	9.4	16	97	159	238	456	567	1,140	14	12	3.0	6.8
25	12	16	60	149	207	380	280	533	13	12	2.2	7.3
26	10	17	54	582	178	484	397	326	13	11	3.0	11
27	12	17	60	1,220	173	345	1,020	200	16	5.3	6.5	11
28	20	17	54	795	152	298	514	124	13	12	3.8	5.9
29	17	18	49	495	------	741	289	88	12	7.1	3.0	9.0
30	15	50	50	298	------	604	255	67	17	5.9	13	10
31	30	------	50	226	------	303	------	60	------	6.5	7.6	------

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1925–26					
October	----------	20	399	2.24	2.58
November	1,860	133	557	3.13	3.49
December	648	----------	196	1.10	1.27
January	----------	----------	518	2.91	3.36
February	----------	----------	726	4.08	4.25
March	----------	171	672	3.78	4.36
April	2,700	69	472	2.65	2.96
May	190	----------	52.9	.297	.34
June	----------	----------	46.7	.262	.29
July	19	2.9	8.41	.047	.05
August	321	13	108	.607	.70
September	5,120	13	586	3.29	3.67
The year	5,120	2.9	358	2.01	27.32
1930–31					
October	30	4.6	10.8	.061	.07
November	50	14	18.5	.104	.12
December	1,200	39	180	1.01	1.16
January	1,220	52	238	1.34	1.54
February	567	93	236	1.33	1.38
March	1,060	41	295	1.66	1.91
April	1,480	38	326	1.83	2.04
May	1,140	60	252	1.42	1.64
June	654	12	94.4	.530	.59
July	72	5.3	17.7	.099	.11
August	13	2.2	5.64	.032	.04
September	38	1.9	9.30	.052	.06
The year	1,480	1.9	140	.787	10.66

NOTE.—Daily and monthly discharge for year ending Sept. 30, 1926, supersedes the figures published in Water-Supply Paper 624 (record for Mar. 1–25, 1926, revised).

STREAMS TRIBUTARY TO LAKE ONTARIO

LITTLE TONAWANDA CREEK AT LINDEN, N. Y.

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

DRAINAGE AREA.—22 square miles.

RECORDS AVAILABLE.—July, 1912, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,080 second-feet Mar. 28 (gage height, 8.5 feet); minimum, about 0.7 second-foot Oct. 12, 13.

1912–1931: 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.

REMARKS.—Records good except those for low stages and those estimated for Oct. 10–15, which are fair. Record corrected for ice effect Dec. 16, Jan. 8, 22–24, Mar. 9–11.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	5.2	42	6.7	23	43	92	40	38	3.2	1.9	1.3
2	1.4	4.5	21	6.3	23	35	95	32	25	3.1	2.2	1.7
3	1.4	4.1	15	6.5	20	30	90	28	19	2.9	2.2	1.9
4	1.4	3.8	13	6.9	21	28	238	23	16	3.1	1.9	1.5
5	1.4	3.5	12	7.5	18	26	185	20	14	2.8	1.7	1.5
6	1.4	3.5	40	7.5	17	24	150	17	14	2.7	1.7	1.3
7	1.4	2.9	94	6.1	13	23	111	16	42	2.7	1.7	1.3
8	1.4	2.8	66	6.5	16	26	108	22	44	2.5	1.7	1.3
9	1.7	2.7	40	7.5	15	24	151	19	32	2.3	14	1.2
10	1.4	2.7	30	7.5	14	22	175	26	19	4.0	6.5	1.1
11	1.0	2.5	23	7.5	12	22	168	35	15	6.5	4.6	1.1
12	.7	2.5	31	8.2	13	21	78	40	13	4.5	3.5	.9
13	.7	2.5	23	8.2	23	19	70	52	11	3.2	2.9	.9
14	.8	2.5	16	8.0	40	20	52	33	10	3.2	2.4	.9
15	.8	2.4	12	7.5	40	27	38	23	21	2.9	2.2	1.6
16	.8	2.4	11	7.5	38	28	32	20	12	2.7	1.9	1.6
17	.8	2.4	10	8.0	38	26	28	43	10	2.7	1.9	1.5
18	1.3	2.5	9.8	8.2	59	43	24	23	8.0	2.7	1.7	1.3
19	1.9	2.4	9.5	8.5	49	59	22	17	7.1	2.4	1.7	1.1
20	1.5	2.4	9.5	8.5	40	60	19	16	6.5	5.7	1.7	2.2
21	1.6	2.4	9.2	7.8	35	87	16	14	5.5	7.5	1.6	2.9
22	1.8	2.3	9.0	7.5	31	124	15	12	5.5	6.1	1.5	1.8
23	2.8	2.3	8.5	7.5	28	171	19	171	5.2	4.3	1.4	1.5
24	3.7	2.2	8.5	7.0	28	187	19	324	5.0	3.4	1.4	1.5
25	5.2	2.2	7.5	11	27	265	17	117	4.6	2.9	1.5	1.3
26	3.8	2.4	8.0	39	30	181	46	66	4.5	2.7	1.5	1.9
27	3.5	2.4	8.2	52	28	140	63	40	4.3	2.4	1.5	2.0
28	7.1	2.4	8.2	40	30	505	65	29	4.0	2.3	1.4	1.9
29	6.7	2.2	8.0	35	------	314	118	22	3.7	2.2	1.4	1.7
30	4.8	6.4	7.8	28	------	116	62	19	3.5	2.2	1.2	1.6
31	4.5	------	7.3	25	------	90	------	70	------	2.0	1.2	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7.1	0.7	2.26	0.103	0.12
November	6.4	2.2	2.91	.132	.15
December	94	7.3	19.9	.905	1.04
January	52	6.1	13.2	.600	.69
February	59	12	27.5	1.25	1.30
March	505	19	89.9	4.09	4.72
April	238	15	78.9	3.59	4.00
May	324	12	46.1	2.10	2.42
June	44	3.5	14.1	.641	.72
July	7.5	2.0	3.35	.152	.18
August	14	1.2	2.44	.111	.13
September	2.9	.9	1.51	.069	.08
The year	505	.7	25.2	1.15	15.55

GENESEE RIVER AT SCIO, N. Y.

LOCATION.—Staff gage at highway bridge three-fourths mile above Scio, Allegany County.

DRAINAGE AREA.—288 square miles.

RECORDS AVAILABLE.—June, 1916, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,020 second-feet May 24 (gage height, 4.6 feet); minimum, 18 second-feet several times from Oct. 5 to Nov. 10.

1916–1931: 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, Nov. 26–30, Dec. 16–18, Jan. 1–3, 6–10, 15–18, 22–24, Jan. 31 to Feb. 7, Feb. 11, 15–18, and those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	22	94	20	a 28	111	1,010	481	532	57	84	36
2	20	a 22	43	20	26	140	1,170	409	344	77	98	44
3	19	21	33	20	28	123	1,090	532	304	856	164	154
4	19	20	31	21	28	100	1,810	481	249	208	120	100
5	18	20	29	20	26	92	1,680	409	232	132	84	76
6	18	a 20	36	20	26	84	1,500	344	215	108	72	59
7	19	a 19	52	20	24	69	1,330	304	1,420	98	66	45
8	18	a 18	46	20	24	a 79	1,010	678	2,190	84	62	41
9	18	18	41	20	29	77	923	542	1,160	71	175	39
10	20	a 18	36	20	28	71	1,880	559	705	72	181	38
11	19	a 19	33	21	26	69	2,370	456	559	115	127	37
12	19	a 19	40	22	26	71	1,480	690	481	76	111	35
13	19	21	39	21	29	68	1,010	2,180	432	66	84	33
14	20	21	35	20	46	71	832	1,410	324	68	76	33
15	18	21	28	20	48	a 80	675	935	304	60	68	31
16	18	20	24	20	42	80	532	800	285	53	62	51
17	18	20	22	22	36	73	456	1,080	249	49	56	78
18	20	23	22	20	90	69	387	675	a 200	46	51	58
19	20	22	23	21	167	79	344	532	172	45	50	46
20	19	22	22	20	140	103	285	587	155	171	46	41
21	19	22	22	20	113	153	249	828	147	1,030	44	39
22	19	22	22	19	100	273	250	589	129	1,220	41	37
23	19	21	22	19	71	371	425	2,400	118	458	38	35
24	20	21	22	19	75	534	344	2,690	108	304	34	33
25	19	20	22	20	79	855	324	2,150	92	232	31	31
26	19	19	22	27	92	865	486	1,870	86	178	29	42
27	18	a 19	22	60	105	735	768	1,130	84	152	86	41
28	23	a 19	22	86	94	1,780	615	865	78	127	66	40
29	23	a 19	22	65	------	2,550	768	645	68	106	53	39
30	22	a 30	21	46	------	1,420	675	506	62	113	45	37
31	22	------	21	36	------	865	------	a 559	------	94	40	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	23	18	19.4	0.067	0.08
November	30	18	20.6	.072	.08
December	94	21	31.3	.109	.13
January	86	19	26.6	.092	.11
February	167	24	58.8	.204	.21
March	2,550	68	391	1.36	1.57
April	2,370	249	889	3.09	3.45
May	2,690	304	913	3.17	3.66
June	2,190	62	383	1.33	1.48
July	1,220	45	211	.733	.85
August	181	29	75.6	.262	.30
September	154	31	48.0	.167	.19
The year	2,690	18	256	.889	12.11

a Estimated.

GENESEE RIVER AT ST. HELENA, N. Y.

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

DRAINAGE AREA.—992 square miles.

RECORDS AVAILABLE.—August, 1908, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,600 second-feet May 24 (gage height, 8.04 feet); minimum, 48 second-feet Oct. 17 (gage height, 1.97 feet). 1908–1931: Maximum discharge, about 44,400 second-feet May 17, 1916 (gage height, 12.8 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. 17, 23, 24, Jan. 3 to Mar. 13, and period of shifting control, Oct. 5 to Jan. 2, which are fair. Some diurnal fluctuation during low stages caused by power operations. Flow slightly regulated by storage in Caneadea Reservoir.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	89	330	104	100	550	2,790	1,960	1,120	169	191	136
2	84	82	164	173	90	500	3,200	1,500	922	162	172	129
3	82	78	168	440	90	460	2,930	1,510	778	270	214	129
4	99	84	240	500	90	440	5,730	1,410	710	677	270	140
5	235	73	166	550	130	400	6,530	1,210	688	363	231	206
6	235	71	246	550	200	400	5,480	1,060	628	270	191	169
7	246	69	377	360	120	360	4,330	847	1,080	248	162	139
8	79	73	382	120	100	380	3,220	1,020	5,470	214	166	126
9	73	69	304	90	95	340	3,940	2,040	2,840	191	1,090	114
10	67	63	232	180	90	320	5,320	1,440	1,670	199	1,500	109
11	65	67	183	260	90	340	5,760	1,690	1,210	318	771	101
12	61	67	233	260	90	320	3,760	2,200	981	276	494	99
13	54	73	251	260	100	320	2,520	7,360	874	214	365	91
14	54	105	217	240	160	318	1,970	4,440	778	176	279	78
15	58	369	142	170	190	329	1,520	2,960	710	155	248	189
16	52	388	181	90	240	365	1,230	2,040	695	158	218	440
17	52	394	220	100	320	376	1,060	2,070	650	152	191	320
18	60	399	180	180	440	394	966	1,880	499	145	166	299
19	63	269	145	190	600	459	975	1,560	422	132	158	235
20	71	101	123	190	800	543	882	1,440	468	154	155	305
21	73	84	112	180	750	738	794	1,200	490	227	145	371
22	73	172	170	150	650	1,310	740	1,230	399	1,490	136	313
23	73	329	280	90	600	1,920	745	4,170	329	1,150	172	275
24	76	344	180	110	600	2,600	975	10,300	303	672	195	217
25	78	344	94	190	600	3,140	957	5,960	270	536	172	139
26	78	344	155	190	600	3,700	1,030	4,670	256	405	162	185
27	76	246	120	200	600	2,980	2,580	2,800	231	323	157	279
28	87	89	109	200	550	5,830	2,780	1,930	202	275	168	318
29	101	169	99	150	------	9,660	3,210	1,430	199	235	220	294
30	89	446	99	120	------	5,030	2,980	1,160	191	214	252	279
31	82	------	101	100	------	2,900	------	1,050	------	210	205	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	246	52	89.3	0.090	0.10
November	446	63	185	.186	.21
December	382	94	194	.196	.23
January	550	90	216	.218	.25
February	800	90	324	.327	.34
March	9,660	318	1,540	1.55	1.79
April	6,530	740	2,700	2.72	3.04
May	10,300	847	2,500	2.52	2.90
June	5,470	191	869	.876	.98
July	1,490	132	335	.338	.39
August	1,500	136	297	.299	.34
September	440	78	207	.209	.23
The year	10,300	52	789	.795	10.80

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, 1931.

EXTREMES.—Maximum discharge during year, about 13,000 second-feet May 24 (gage height, 18.27 feet); minimum, 67 second-feet Dec. 17 (gage height, 0.47 foot).

1903–1906; 1908–1913; 1915–1931: 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. 3–5, 31, Jan. 8 to Mar. 4), periods of shifting control (Oct. 1 to Jan. 7, July 22 to Aug. 9), and those estimated, which are fair. Diurnal fluctuation at low stages caused by power operations; slight seasonal regulation by storage in Caneadea Reservoir.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	135	470	128	140	750	3,480	2,530	1,580	27[illegible]	284	226
2	135	141	418	159	130	700	4,140	1,930	1,340	280	248	189
3	137	141	260	195	130	650	4,260	1,810	1,130	59[illegible]	261	192
4	135	132	320	496	130	600	6,480	1,870	968	753	308	198
5	135	134	280	528	150	557	8,620	1,510	858	610	334	198
6	234	126	229	590	240	506	6,570	1,390	748	48[illegible]	284	220
7	209	122	387	[a] 590	180	[a] 483	5,320	1,160	1,030	367	239	223
8	206	114	410	280	140	474	4,100	1,110	5,490	352	239	174
9	152	104	371	130	130	496	4,550	2,320	3,770	33[illegible]	387	164
10	132	104	313	140	120	483	5,900	1,870	2,320	29[illegible]	2,160	161
11	116	102	241	260	120	435	6,310	2,000	1,760	439	991	145
12	106	97	250	300	120	427	4,790	2,740	1,370	410	615	[a] 139
13	104	97	302	300	140	392	3,220	8,860	1,160	368	470	[a] 140
14	102	97	289	300	220	371	2,530	6,660	1,080	345	390	[a] 170
15	100	[a] 230	243	280	260	402	2,000	4,330	940	270	302	[a] 300
16	97	[a] 430	203	150	320	427	1,690	3,070	858	25[illegible]	309	[a] 550
17	88	[a] 435	197	120	380	444	1,390	2,600	858	248	241	[a] 500
18	81	[a] 440	264	180	480	528	1,210	2,600	720	248	217	[a] 360
19	89	386	232	220	650	665	1,180	2,000	570	248	212	[a] 285
20	88	214	226	220	900	773	1,070	1,870	[a] 570	248	212	313
21	88	145	187	220	1,100	1,160	990	1,690	[a] 605	33[illegible]	212	410
22	88	[a] 135	150	200	1,000	1,810	908	1,570	570	1,560	200	398
23	89	[a] 220	179	150	900	2,600	990	2,970	516	1,730	187	327
24	91	[a] 380	334	140	850	3,300	1,210	11,600	439	912	192	313
25	95	[a] 400	217	150	850	3,860	1,180	8,550	402	[a] 710	235	269
26	95	[a] 400	148	260	850	4,610	[a] 1,210	6,780	390	[a] 550	212	171
27	95	[a] 380	143	260	800	3,860	2,650	4,400	363	[a] 470	214	272
28	95	[a] 260	135	280	750	5,870	3,160	3,040	360	42[illegible]	220	345
29	106	[a] 130	130	240	-------	11,100	3,720	2,260	294	330	235	352
30	122	227	128	200	-------	7,540	3,580	1,760	301	274	289	309
31	130	-------	120	160	-------	4,190	-------	1,520	-------	330	279	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	234	81	119	0.085	0.10
November	440	97	215	.154	.17
December	470	120	251	.179	.21
January	590	120	252	.180	.21
February	1,100	120	435	.311	.32
March	11,100	371	1,950	1.39	1.60
April	8,620	908	3,280	2.34	2.61
May	11,600	1,110	3,240	2.32	2.68
June	5,490	294	1,110	.793	.88
July	1,730	248	485	.346	.40
August	2,160	187	361	.258	.30
September	550	139	267	.191	.21
The year	11,600	81	999	.714	9.69

[a] Estimated.

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

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

DRAINAGE AREA.—2,460 square miles.

RECORDS AVAILABLE.—December, 1919, to September, 1931.

EXTREMES.—Maximum discharge during year, 17,300 second-feet Mar. 30 (gage height, 9.11 feet); minimum, approaching zero, occurs frequently during low-water periods when power plant shuts down.

1919–1931: Maximum discharge, about 29,600 second-feet Dec. 2, 1927 (gage height, 13.5 feet); minimum as noted above.

REMARKS.—Records good. Discharge estimated May 28–30. Barge Canal crosses the river near southern boundary of Rochester. It discharges water from Lake Erie into Genesee River and diverts, in general, a smaller amount to the east for canal purposes. Some regulation by storage in Caneadea Reservoir.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	871	768	942	759	813	1,350	5,770	4,750	3,240	1,160	1,100	980
2	794	749	980	770	796	1,490	5,710	3,740	2,960	1,190	921	1,280
3	838	755	957	688	791	1,480	7,400	3,080	2,630	1,180	1,150	882
4	805	778	900	350	815	1,450	7,690	2,990	2,220	1,210	1,080	756
5	733	790	851	724	942	1,370	11,400	2,960	2,130	1,400	1,080	774
6	826	863	992	774	926	1,300	12,300	2,950	1,980	1,430	1,100	695
7	795	814	955	784	1,010	1,080	9,510	2,220	2,020	1,350	1,060	812
8	820	789	1,220	750	775	607	7,840	2,260	3,860	1,310	926	790
9	893	784	1,430	795	813	1,090	6,110	2,360	7,110	1,240	1,010	884
10	834	764	1,160	741	896	1,040	6,860	3,560	4,640	1,220	1,770	786
11	828	730	1,050	409	844	1,000	9,080	3,110	3,540	1,380	2,370	772
12	691	720	1,050	800	902	976	9,090	3,180	2,780	1,260	1,840	753
13	798	653	958	872	920	954	6,190	6,090	2,450	1,470	1,430	650
14	748	646	784	935	876	791	4,610	10,900	2,280	1,250	1,290	785
15	738	744	952	945	592	530	3,860	7,360	2,380	1,250	1,190	714
16	711	722	847	940	912	978	3,340	5,130	2,580	1,150	1,070	822
17	784	869	942	931	1,240	1,080	2,910	4,510	2,610	1,100	1,200	1,100
18	773	981	927	856	1,590	1,310	2,740	3,910	2,430	1,110	1,140	1,120
19	708	998	964	807	1,990	2,280	2,250	3,840	2,020	921	1,020	1,060
20	776	1,020	817	783	2,160	2,720	2,340	3,220	1,790	1,200	1,010	929
21	785	975	394	804	2,130	3,060	2,200	3,050	1,490	1,090	984	1,150
22	784	920	776	797	1,840	4,610	2,060	2,810	1,580	1,280	904	1,180
23	746	767	898	765	1,920	5,010	2,120	2,950	1,470	2,400	782	1,150
24	785	907	875	858	1,790	5,400	2,190	10,100	1,490	2,290	948	1,190
25	791	1,020	772	567	1,720	6,190	2,450	15,000	1,450	1,670	911	1,020
26	712	1,120	892	763	1,720	6,760	2,380	13,100	1,390	1,530	925	1,060
27	791	1,040	880	824	1,770	6,630	3,030	9,020	1,300	1,390	926	836
28	787	1,080	807	863	1,990	6,370	4,160	5,700	1,110	1,310	978	982
29	831	895	840	1,140	-------	13,300	4,640	4,100	1,290	1,300	936	1,080
30	752	838	852	1,240	-------	15,500	5,550	3,100	1,170	1,210	856	1,080
31	818	-------	821	1,330	-------	10,300	-------	3,410	-------	1,040	1,010	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	893	691	785	----------	----------
November	1,120	646	850	----------	----------
December	1,430	394	919	----------	----------
January	1,330	350	818	----------	----------
February	2,160	592	1,270	----------	----------
March	15,500	530	3,480	----------	----------
April	12,300	2,060	5,260	----------	----------
May	15,000	2,220	4,980	----------	----------
June	7,110	1,110	2,380	----------	----------
July	2,400	921	1,330	----------	----------
August	2,370	782	1,130	----------	----------
September	1,280	650	936	----------	----------
The year	15,500	350	2,010	0.817	11.11

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; March, 1919, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,400 second-feet May 13 (gage height, 9.65 feet); minimum, 11 second-feet Dec. 4 (gage height, 5.93 feet). 1910–1912; 1915–1917; 1919–1931: Maximum discharge, about 6,900 second-feet Nov. 30, 1927 (gage height, 12.7 feet); minimum, that of Dec. 4, 1930.

REMARKS.—Records fair; corrected for ice effect Nov. 28–30, Dec. 2, 3, Dec.15 to Feb. 12.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	24	27	16	24	93	327	178	131	20	34	21
2	19	24	32	18	22	68	381	144	109	182	38	21
3	18	22	18	20	24	46	346	138	94	a 464	53	26
4	19	22	15	17	26	46	894	115	86	a 117	42	19
5	18	22	15	16	24	46	699	98	79	a 70	31	17
6	18	22	a 28	19	22	37	561	83	70	a 55	28	16
7	18	21	39	19	22	28	442	76	466	55	31	16
8	18	22	33	18	22	46	361	a 154	494	50	28	16
9	19	24	28	17	22	46	488	a 147	261	45	273	14
10	19	22	26	17	20	46	623	132	180	82	146	14
11	19	24	25	16	19	46	528	171	140	92	74	15
12	18	24	26	16	18	46	290	370	114	59	52	24
13	19	25	25	16	17	28	205	1,280	96	48	40	36
14	18	24	22	15	46	28	168	566	79	46	35	27
15	18	24	20	15	46	37	135	357	a 70	41	30	95
16	19	24	a 18	15	35	37	112	243	a 61	40	31	65
17	20	28	17	15	28	37	101	275	a 50	38	33	43
18	25	30	16	15	80	57	88	191	41	35	30	31
19	20	26	16	16	93	93	78	153	37	35	30	28
20	21	25	15	15	93	70	70	147	34	50	27	49
21	21	25	15	15	68	115	61	128	38	549	25	41
22	21	24	15	14	46	182	64	106	35	482	24	34
23	21	24	16	13	46	252	144	532	a 33	170	22	31
24	22	22	17	15	46	340	120	1,630	a 31	94	22	33
25	25	24	17	16	46	486	101	746	a 28	61	24	25
26	24	22	16	28	68	504	114	454	a 27	41	25	30
27	24	21	16	34	68	403	193	280	a 25	37	27	31
28	26	17	15	36	93	1,090	217	210	a 24	31	27	28
29	25	a 16	15	32	------	1,250	316	170	a 23	31	25	30
30	24	a 24	15	28	------	541	248	144	24	35	23	30
31	24	------	15	26	------	325	------	137	------	34	23	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	26	18	20.6	0.139	0.16
November	30	16	23.3	.157	.18
December	39	15	20.4	.138	.16
January	36	13	19.0	.128	.15
February	93	17	42.3	.286	.30
March	1,250	28	209	1.41	1.63
April	894	61	282	1.91	2.13
May	1,630	76	308	2.08	2.40
June	494	23	99.3	.671	.75
July	549	20	103	.696	.80
August	273	22	43.6	.295	.34
September	95	14	30.2	.204	.23
The year	1,630	13	100	.676	9.23

a Estimated.

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, 1931.
EXTREMES.—Maximum discharge during year, 5,500 second-feet May 12 (gage height, 5.8 feet from graph based on gage readings); minimum, about 0.9 second-foot Sept. 11 (gage height, 0.15 foot).
1910–1912; 1917–1931: Maximum stage, 5.9 feet Mar. 14, 1918, May 22, 1919, Nov. 17, 1927 (discharge not determined); minimum discharge, 0.2 second-foot Aug. 12, 13, 1930.
REMARKS.—Records fair. Records corrected for ice effect (Dec. 15–18, 24, 30, 31, Jan. 1–3, 22–24, Feb. 1–11), for effect of leaf boom (Oct. 7–20), for effect of temporary cofferdam (Feb. 1 to May 12), and for effect of sand bags on control (Aug. 25 to Sept. 28).

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	7.0		2.0	10	20	152	51	33	3.6	1.7	3.6
2	2.7	5.7		2.0	9.5	19	201	46	28	3.9	3.3	2.0
3	2.7	3.8		3.2	8.0	20	200	58	22	24	3.0	2.2
4	2.7	*5.3	*4.6	4.5	8.5	18	426	43	20	14	3.6	4.2
5	*2.2	5.7		4.5	7.0	16	214	33	16	7.4	2.2	3.0
6	1.8	4.1		4.5	7.0	13	150	28	18	5.7	2.0	2.8
7	2.5	4.5	11	*4.1	7.0	13	116	25	82	7.0	1.8	1.8
8	2.2	4.1	10	3.8	7.5	16	90	41	80	4.9	1.7	1.4
9	2.2	2.7	7.5	3.8	8.0	17	103	40	40	4.2	25	1.2
10	2.7	3.2	7.0	4.9	7.0	17	110	40	29	4.6	19	1.1
11	3.8	4.5	7.0	4.5	5.5	14	113	43	22	14	10	.9
12	2.2	4.1	8.0	5.3	8.5	14	63	1,160	19	7.9	7	1.0
13	1.3	*4.9	6.5	5.3	20	14	51	780	15	5.3	4.9	1.0
14	*1.5	3.5	5.3	3.8	26	16	43	238	13	4.9	5.7	1.2
15	1.8	5.3	4.0	3.5	21	18	34	131	13	4.2	4.2	1.0
16	2.2	*3.8	3.2	3.2	19	17	30	85	12	3.9	2.8	5.7
17	1.6	3.8	3.0	4.5	22	16	28	78	11	4.2	2.5	4.9
18	2.7	7.0	3.8	5.3	33	21	25	56	8.9	3.3	2.5	4.9
19	3.5	5.3	4.5	4.5	30	25	23	47	7.4	4.6	2.0	2.5
20	1.8	4.5	4.5	5.7	25	29	21	69	9.5	5.7	1.7	5.3
21	5.3	5.3	5.3	*4.6	28	58	17	69	8.9	8.4	1.7	10
22	3.8	5.7	4.1	3.2	23	72	19	44	7.9	14	2.2	5.7
23	3.5	5.7	3.8	3.0	18	72	46	1,340	7.4	7.4	2.2	4.2
24	3.5	3.2	3.6	2.6	21	110	32	552	7.4	6.5	1.5	3.0
25	3.8		3.2	5.3	21	150	28	207	6.5	3.6	1.4	3.3
26	4.5		4.9	10	19	181	32	134	5.7	3.0	1.4	5.7
27	2.2	*4.2	5.3	10	*19	110	67	78	4.9	2.5	1.3	4.6
28	5.3		5.3	9.0	*20	275	76	60	3.9	3.6	2.0	2.5
29	5.3		3.8	5.3	------	338	138	43	3.9	2.0	2.5	4.9
30	3.8		3.2	*7.0	------	150	76	37	3.9	1.7	3.3	3.0
31	5.3	------	2.4	8.5	------	95	------	43	------	1.8	1.8	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5.3	1.3	3.02	0.044	0.05
November	7.0	2.7	4.60	.067	.07
December	11	2.4	5.09	.074	.09
January	10	2.0	4.88	.071	.08
February	33	5.5	16.4	.238	.25
March	338	13	63.4	.919	1.06
April	426	17	90.8	1.32	1.47
May	1,340	25	184	2.67	3.08
June	82	3.9	18.6	.270	.30
July	24	1.7	6.19	.090	.10
August	25	1.3	4.13	.060	.07
September	10	.9	3.29	.048	.05
The year	1,340	.9	33.9	.491	6.67

* Estimated.

CONESUS CREEK NEAR LAKEVILLE, N. Y.

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

DRAINAGE AREA.—72 square miles.

RECORDS AVAILABLE.—November, 1919, to September, 1931.

EXTREMES.—Maximum discharge during year, 168 second-feet Apr. 5–7 (gage height, 2.1 feet); minimum, 0.6 second-foot Nov. 27–29, Dec. 4, 5, Jan. 10, 17, Feb. 8.

1919–1931: Maximum discharge, about 625 second-feet Dec. 1, 1928 (gage height, 3.6 feet from graph based on gage readings); minimum, 0.45 second-foot Nov. 22, 1923 (gage height, 0.52 foot).

REMARKS.—Records good. Slight backwater effect from ice Dec. 18, 28–31, Jan. 14, 15, 22–24, Jan. 29 to Feb. 2. Natural storage and regulation afforded by Conesus Lake. Water supply for Avon and Geneseo taken from Conesus Lake.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.2	1.4	1.1	1.0	1.2	10	126	88	126	48	23	17
2	4.8	1.4	.8	1.0	1.2	11	147	89	121	46	25	17
3	4.8	1.4	.8	1.0	1.2	11	140	88	112	46	24	18
4	4.8	1.4	.6	1.0	1.2	11	158	86	109	46	23	18
5	4.2	1.4	.6	1.1	.9	12	168	84	106	44	22	18
6	4.2	1.4	1.4	1.1	.9	13	168	84	104	42	22	16
7	4.2	1.4	1.6	1.0	.8	13	168	84	103	41	21	13
8	4.8	1.4	1.1	.8	.6	13	158	84	104	38	20	11
9	5.2	1.4	1.6	.8	.9	17	158	84	103	36	31	9.8
10	5.5	1.2	1.4	.6	1.0	17	158	84	100	36	26	8.8
11	5.5	1.2	1.6	.8	1.0	19	158	84	98	37	26	8.8
12	5.2	1.2	2.0	.8	1.2	19	145	84	92	38	24	8.8
13	5.2	1.2	1.8	1.0	1.4	19	140	84	90	38	23	7.8
14	4.8	1.1	1.4	.8	3.1	19	136	84	86	37	22	7.8
15	4.8	1.1	1.1	.8	3.1	19	129	90	82	36	22	8.8
16	4.2	1.1	1.0	.8	2.6	19	126	90	78	36	21	8.8
17	3.6	1.4	1.0	.6	4.4	19	122	95	76	36	20	8.8
18	3.1	1.8	1.1	.8	8.3	21	121	94	75	35	18	8.3
19	2.8	2.0	1.4	.8	8.3	25	117	90	74	35	18	7.8
20	2.6	2.4	1.2	1.0	8.3	28	111	92	73	35	17	9.3
21	2.4	3.1	1.2	.8	8.3	37	104	88	71	35	16	10
22	1.4	2.4	1.1	.8	8.8	35	103	84	66	35	16	9.8
23	1.4	1.8	1.1	.8	8.8	47	100	96	64	33	16	8.8
24	1.4	1.8	1.2	.8	8.8	51	96	133	62	33	15	8.8
25	1.1	1.6	1.2	1.1	9.3	56	94	138	60	32	15	8.3
26	1.1	1.1	1.1	1.6	9.8	64	98	136	57	32	14	9.8
27	1.1	.6	1.0	1.8	9.3	66	96	138	55	32	13	9.3
28	1.1	.6	1.0	2.0	13	79	90	138	54	29	13	8.3
29	1.0	.6	1.0	1.4	------	111	92	135	50	27	16	7.4
30	1.1	1.1	1.0	1.2	------	116	90	129	49	26	17	7.0
31	1.1	------	1.0	1.2	------	128	------	128	------	25	17	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5.5	1.0	3.35	0.047	0.05
November	3.1	.6	1.43	.020	.02
December	2.0	.6	1.18	.016	.02
January	2.0	.6	1.00	.014	.02
February	13	.6	4.56	.063	.07
March	128	10	36.3	.504	.58
April	168	90	127	1.76	1.96
May	138	84	99.5	1.38	1.59
June	126	49	83.3	1.16	1.29
July	48	25	36.3	.504	.58
August	31	13	19.9	.276	.32
September	18	7.0	10.6	.147	.16
The year	168	.6	35.4	0.492	6.66

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, 1931.
REMARKS.—Data collected, computed, and furnished for publication by city engineer of Rochester, N. Y.

Month	Mean elevation of lake above low-water mark (feet)	Discharge in second-feet		Run-off in inches
		Mean	Per square mile	
October	−0.608	5.256	0.417	0.481
November	−1.133	.382	.030	.034
December	−1.239	.000	.000	.000
January	−1.127	.399	.032	.037
February	−.285	2.265	.180	.187
March	.627	8.755	.695	.801
April	2.733	43.774	3.474	3.876
May	1.256	27.051	2.147	2.475
June	1.535	15.309	1.215	1.356
July	.585	7.408	.588	.678
August	.226	.198	.016	.018
September	.024	.448	.036	.040
The year	.216	9.270	.736	9.983

NOTE.—Terminal water-surface elevation for the year was 0.09 foot lower than that of preceding year, corresponding to a decrease in storage of 2,536,980 cubic feet, or a discharge of 0.080 second-foot for the year. This correction applied to the mean discharge for the year gives 9.190 second-feet, equivalent to 0.729 second-foot per square mile or a run-off of 9.896 inches from drainage area.

FALL CREEK NEAR ITHACA, N. Y.

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

DRAINAGE AREA.—126 square miles.

RECORDS AVAILABLE.—February, 1925, to September, 1931; July, 1908, to June, 1909, at station 1¼ miles below present site.

EXTREMES.—Maximum discharge during year, 1,770 second-feet Mar. 29 (gage height, 3.45 feet); minimum, 8.3 second-feet Sept. 14 (gage height, 0.29 foot).

1925–1931: Maximum discharge, about 6,290 second-feet (revised) Nov. 16, 1926; maximum gage height, 7.6 feet 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, Dec. 2–4, 13, 14, Jan. 6 to Feb. 16, and those estimated for May 8, 9, Aug. 16, 17, which are fair. Water supply for Cornell University diverted from Fall Creek about a mile above gage.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	30	26	39	34	139	591	144	177	28	23	24
2	21	31	28	33	32	122	1,030	122	133	26	21	14
3	21	26	30	41	32	127	687	144	122	43	21	42
4	18	31	34	44	32	130	787	127	109	35	25	34
5	16	26	37	46	30	118	631	109	100	34	25	20
6	17	26	41	46	30	109	531	93	90	28	21	19
7	16	22	61	46	30	109	570	83	208	28	26	13
8	16	25	131	44	30	137	728	156	339	26	17	15
9	17	23	130	44	30	207	819	214	184	25	32	18
10	15	21	93	44	30	166	718	266	156	32	59	15
11	15	27	80	42	30	130	1,080	282	133	93	51	13
12	16	22	71	42	30	127	628	214	113	60	34	11
13	15	39	60	42	30	111	423	184	97	37	31	10
14	15	54	50	42	36	127	339	163	83	37	29	9
15	13	41	46	40	40	127	291	139	83	32	23	13
16	13	31	37	40	46	147	247	122	104	30	29	20
17	16	29	31	40	139	207	222	359	83	25	21	29
18	20	30	31	40	234	302	207	184	70	40	20	66
19	15	28	42	42	339	334	177	127	58	52	19	31
20	14	23	37	42	305	310	156	113	56	41	19	20
21	14	25	43	40	252	387	144	122	65	84	15	35
22	15	26	35	40	218	494	133	122	58	122	15	29
23	16	23	35	38	191	600	156	127	53	76	15	21
24	18	22	35	38	180	738	156	748	47	56	22	20
25	27	23	37	38	174	1,140	139	1,180	45	43	16	20
26	32	25	36	38	160	1,200	127	755	45	35	11	21
27	32	26	37	38	139	1,120	144	369	41	35	12	22
28	50	10	39	38	110	1,120	144	256	37	32	16	23
29	37	19	42	36	------	1,600	207	199	42	28	15	21
30	36	22	39	34	------	1,020	191	170	24	30	13	20
31	30	------	37	34	------	617	------	191	------	26	13	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	50	13	20.7	0.164	0.19
November	54	10	26.9	.213	.24
December	131	26	48.7	.387	.45
January	46	33	40.4	.321	.37
February	339	30	106	.841	.88
March	1,600	109	430	3.41	3.93
April	1,080	127	413	3.28	3.66
May	1,180	83	245	1.94	2.24
June	339	24	98.5	.782	.87
July	122	25	42.5	.337	.39
August	59	11	22.9	.182	.21
September	66	9	22.3	.177	.20
The year	1,600	9	126	1.00	13.63

NOTE.—During the year Cornell University diverted 29,700,000 cubic feet for its water supply, thus reducing the mean yearly discharge about 0.9 second-foot.

OWASCO LAKE OUTLET NEAR AUBURN, N. Y.

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

DRAINAGE AREA.—206 square miles.

RECORDS AVAILABLE.—November, 1912, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,260 second-feet Apr. 4 (gage height, 3.67 feet); minimum, 4 second-feet Jan. 19 (gage height, 1.40 feet).

1912–1931: Maximum discharge, 2,750 second-feet during period Mar. 25–30, 1913 (gage height, from flood marks, 6.4 feet); minimum, 3.8 second-feet Aug. 21, 1920.

REMARKS.—Records good except those estimated for Feb. 18–21, May 21–23, May 25 to June 24, which are fair. Diurnal fluctuation in flow caused by operation of mills in Auburn; seasonal regulation at State Dam. Water supply for Auburn taken from Owasco Lake, part of which returns to outlet above gaging station as sewage.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	60	80	72	67	151	920	323	550	208	188	109
2	110	60	66	89	90	152	960	314	400	187	122	118
3	105	80	62	59	78	158	1,010	292	360	209	211	113
4	98	65	61	50	81	150	1,050	317		134	172	119
5	78	61	68	96	84	160	1,070	314		148	159	95
6	139	68	74	77	78	158	1,030	306		195	162	32
7	90	70	37	78	78	160	990	297		177	179	27
8	94	60	86	80	77	162	974	314	340	162	149	73
9	92	31	64	80	91	164	955	320		166	180	88
10	92	89	64	80	77	169	965	251		166	191	100
11	75	56	67	58	84	142	946	286		200	163	97
12	80	62	82	92	84	157	951	270		114	174	86
13	118	60	74	87	89	155	901	260		181	159	39
14	92	60	51	76	83	166	828	282		168	171	76
15	98	59	94	77	80	142	675	270	320	149	187	92
16	86	29	74	80	100	148	592	272		163	125	89
17	82	72	73	44	102	173	550	260		166	190	97
18	80	58	77	61	110	167	462	296		180	156	93
19	56	60	78	88	120	160	398	290	300	117	163	86
20	112	55	81	75	120	170	405	291		212	160	46
21	80	61	49	75	130	212	387	298		167	145	92
22	78	76	89	70	132	246	343	300	290	185	116	84
23	77	64	75	72	140	278	353	300		181	130	94
24	67	58	88	56	141	265	342	484	263	182	158	82
25	66	54	52	72	146	260	336	800	259	168	137	79
26	51	60	92	92	150	354	332	1,000	276	132	131	91
27	95	30	64	79	148	515	348	1,000	242	192	127	24
28	66	87	49	74	152	595	338	950	167	163	127	60
29	67	56	94	78	------	820	316	850	191	164	104	75
30	70	43	78	78	------	938	328	700	250	158	102	76
31	68	------	74	64	------	930	------	650	------	170	143	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	139	51	86.0	0.417	0.48
November	89	29	60.1	.292	.33
December	94	37	71.5	.347	.40
January	96	44	74.5	.362	.42
February	152	67	104	.505	.53
March	938	142	277	1.34	1.54
April	1,070	316	668	3.24	3.62
May	1,000	251	424	2.06	2.38
June	550	167	312	1.51	1.68
July	212	114	170	.825	.95
August	211	102	154	.748	.86
September	119	24	81.1	.394	.44
The year	1,070	24	207	1.00	13.63

NOTE.—Elevation of surface of Owasco Lake decreased from 705.70 feet on Oct. 1 to 705.22 feet on Sept. 30. This indicates a net decrease in storage of about 187,831,000 cubic feet, equivalent to an average yearly discharge of 4.37 second-feet, 0.021 second-foot per square mile, or a run-off of 0.29 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, 1931.

EXTREMES.—Maximum discharge during year, 2,710 second-feet Apr. 10 (gage height, 4.1 feet from graph based on gage readings); minimum, 18 second-feet Aug. 24–27 (gage height, 1.17 feet).

1923–1931: Maximum discharge, about 5,520 second-feet Apr. 8, 1928; maximum gage height, 8.3 feet Apr. 6, 1928; minimum discharge, that of Aug. 24–27, 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 5–7, Nov. 26 to Apr. 6, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	52	240	46	38	55	380	390	151	26	33	28
2	49	42	170	44	36	55	600	523	100	26	30	120
3	42	39	140	46	36	55	550	979	76	2[illegible]	67	245
4	34	36	120	50	38	55	700	566	67	1[illegible]	87	96
5	32	34	110	55	38	55	550	439	57	59	44	56
6	30	34	95	50	36	55	600	338	57	42	32	40
7	29	32	90	48	34	50	556	268	123	34	28	33
8	27	36	100	46	36	50	446	302	390	31	27	29
9	39	44	100	44	38	55	655	425	218	28	39	27
10	27	33	95	44	40	60	1,280	319	151	26	106	26
11	24	29	90	46	38	55	1,950	307	109	50	60	24
12	24	35	120	46	38	55	1,170	338	78	50	85	22
13	25	45	110	46	42	50	862	484	65	45	49	21
14	24	49	80	44	55	50	1,270	332	56	73	43	26
15	24	42	65	42	60	50	829	223	56	53	35	147
16	24	44	60	40	75	55	805	182	64	37	31	486
17	26	73	55	40	80	65	805	237	54	30	29	566
18	34	93	55	42	85	75	918	154	42	28	26	411
19	35	73	60	44	85	80	805	126	39	27	30	170
20	37	56	60	46	80	90	805	285	37	39	26	196
21	39	50	60	44	70	110	702	332	42	382	31	326
22	39	43	60	42	65	150	655	252	36	298	20	174
23	45	36	55	40	60	190	566	230	38	191	19	147
24	57	35	55	38	60	260	383	675	73	96	19	151
25	65	69	48	40	55	320	263	566	47	57	19	129
26	54	85	46	42	55	400	370	390	43	45	18	315
27	53	60	48	44	55	440	754	247	37	33	46	446
28	74	48	48	46	55	420	484	169	33	32	133	201
29	106	48	48	44	-------	500	439	133	29	57	57	106
30	87	95	50	42	-------	400	418	103	29	76	42	78
31	64	-------	48	40	-------	320	-------	154	-------	42	30	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	106	24	43.5	0.580	0.67
November	95	29	49.7	.663	.74
December	240	46	83.3	1.11	1.28
January	55	38	44.2	.589	.68
February	85	34	53.0	.707	.74
March	500	50	151	2.01	2.32
April	1,950	263	719	9.59	10.70
May	979	103	338	4.51	5.20
June	390	29	79.9	1.07	1.19
July	398	26	79.2	1.06	1.22
August	133	18	43.3	.577	.67
September	566	21	161	2.15	2.40
The year	1,950	18	154	2.05	27.81

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, 1931.

EXTREMES.—Maximum discharge during year, 5,520 second-feet Apr. 11 (gage height, 5.53 feet); minimum not determined.

1923–1931: Maximum discharge, about 16,200 second-feet Apr. 6, 1924 (gage height, 8.2 feet); minimum, about 12 second-feet July 31, 1930.

REMARKS.—Records good except those for periods of ice effect, Nov. 27–29, Dec. 2–6, Dec. 14 to Mar. 4, and period referred to temporary staff gage during bridge reconstruction, July 14 to Sept. 30, which are fair. A small amount of water diverted above station by city of Oneida for municipal supply. Some diurnal fluctuation at low stages.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	275	126	603	100	100	160	816	928	329	50	120	96
2	172	110	380	100	95	160	1,300	1,100	239	47	99	244
3	133	97	320	110	95	160	1,120	1,660	193	443	142	678
4	105	92	280	130	95	150	1,340	1,110	166	338	344	383
5	92	87	260	130	100	153	1,330	788	142	166	184	207
6	86	89	240	120	100	156	1,320	619	161	105	124	153
7	76	67	229	110	95	148	1,300	505	248	87	99	110
8	70	73	242	110	95	148	1,150	633	658	74	99	105
9	84	92	246	100	100	163	1,700	865	456	61	108	92
10	82	90	246	110	100	163	2,930	664	316	57	316	84
11	70	78	217	110	100	156	4,420	690	253	120	260	76
12	64	72	304	110	95	151	2,450	690	187	126	217	68
13	60	90	287	110	110	146	1,890	823	151	108	169	68
14	60	116	200	100	160	146	2,460	658	128	271	125	68
15	55	110	150	100	200	142	1,780	494	130	171	217	318
16	55	108	140	100	240	158	1,390	437	161	110	196	560
17	57	187	130	110	220	179	1,290	517	176	82	110	903
18	87	264	130	110	240	214	1,230	363	124	76	109	1,060
19	89	199	140	110	240	223	1,240	293	101	76	92	488
20	87	161	140	110	220	247	1,070	400	94	122	110	606
21	106	132	140	110	200	309	969	523	124	1,960	81	1,030
22	110	120	130	100	190	396	860	466	103	1,400	41	595
23	112	108	120	100	180	524	767	508	89	725	63	547
24	128	103	110	100	180	688	632	1,250	144	425	97	523
25	151	181	110	100	170	868	456	1,090	124	346	22	466
26	144	218	100	110	170	1,050	1,030	797	124	223	41	1,000
27	120	160	110	110	160	1,130	1,940	511	105	158	21	1,090
28	144	120	110	110	160	1,080	1,280	372	76	114	677	632
29	204	120	110	110	------	1,270	1,390	297	61	169	377	400
30	190	214	110	100	------	1,010	1,110	239	54	415	179	289
31	151	------	110	100	------	781	------	320	------	233	179	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	275	55	110	0.585	0.67
November	264	67	126	.670	.75
December	603	100	198	1.05	1.21
January	130	100	108	.574	.66
February	240	95	150	.798	.83
March	1,270	142	401	2.13	2.46
April	4,420	456	1,470	7.82	8.72
May	1,660	239	665	3.54	4.08
June	658	54	181	.963	1.07
July	1,960	47	286	1.52	1.75
August	677	21	162	.862	.99
September	1,090	68	431	2.29	2.56
The year	4,420	21	357	1.90	25.75

BLACK RIVER NEAR BOONVILLE, N. Y.

LOCATION.—Chain gage at highway bridge three-fourths mile above mouth of Sugar River and 2 miles northeast of Boonville, Oneida County.

DRAINAGE AREA.—305 square miles.

RECORDS AVAILABLE.—February, 1911, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,880 second-feet Apr. 12 (gage height, 8.8 feet); minimum, 84 second-feet Nov. 8 (gage height, 3.62 feet).

1911–1931: 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. 3–6, 15–26, Dec. 31 to Mar. 19, and those estimated for Apr. 13, July 24, 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	289	113	530	170	160	150	875	940	457	167	202	215
2	273	108	416	170	160	140	875	875	396	165	178	202
3	243	98	380	160	160	140	940	1,200	358	507	218	344
4	215	98	360	160	160	140	1,070	1,370	322	915	340	416
5	202	107	340	160	160	140	1,140	1,110	305	714	289	340
6	190	104	320	170	160	140	1,290	864	273	383	243	305
7	167	89	305	160	160	140	1,290	665	363	243	202	289
8	167	87	305	150	160	130	1,290	528	597	243	146	273
9	167	88	305	150	160	130	1,370	925	672	229	268	258
10	156	94	258	150	160	130	1,650	1,000	619	265	416	258
11	144	96	243	160	160	130	3,370	1,370	478	696	377	273
12	136	94	258	160	160	130	3,570	1,630	436	804	305	273
13	127	94	243	160	160	130	2,620	1,810	396	645	289	258
14	129	95	229	150	170	120	2,620	1,520	340	865	289	258
15	125	94	220	150	170	120	2,400	1,370	305	967	273	336
16	118	107	220	150	180	120	2,000	1,290	273	563	289	436
17	127	136	220	150	180	110	1,630	1,000	340	396	273	512
18	156	215	220	160	180	110	1,630	815	289	322	243	672
19	142	229	220	160	190	110	1,450	593	273	289	258	534
20	135	215	220	160	190	107	1,210	593	243	306	243	477
21	127	243	220	160	180	110	1,210	619	243	1,900	229	878
22	120	273	220	160	180	113	1,210	645	229	2,400	215	815
23	118	190	220	150	170	190	1,070	854	258	1,660	215	755
24	124	190	220	150	170	273	1,140	1,240	358	1,080	202	684
25	144	202	220	150	160	436	1,000	1,180	340	527	202	500
26	142	243	220	160	160	545	817	1,000	305	478	202	643
27	146	215	202	160	160	700	1,260	755	258	416	202	1,000
28	156	167	202	160	150	1,000	1,370	645	229	358	202	794
29	142	142	202	160	------	1,290	1,290	478	215	358	304	500
30	135	256	190	160	------	1,140	1,140	436	202	416	243	396
31	127	------	180	160	------	1,000	------	436	------	243	215	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	289	118	158	0.518	0.60
November	273	87	149	.489	.55
December	530	180	262	.859	.99
January	170	150	158	.518	.60
February	190	150	167	.548	.57
March	1,290	107	302	.990	1.14
April	3,570	817	1,530	5.02	5.60
May	1,810	436	960	3.15	3.63
June	672	202	346	1.13	1.26
July	2,400	165	630	2.07	2.39
August	416	146	251	.823	.95
September	1,000	202	463	1.52	1.70
The year	3,570	87	448	1.47	19.98

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, 1931.

EXTREMES.—Maximum discharge during year, 15,900 second-feet Apr. 13 (gage height, 6.87 feet); minimum, 87 second-feet Aug. 16 (gage height, 0.16 foot). 1920–1931: Maximum discharge, 33,900 second-feet Apr. 9, 1928 (gage height, 10.6 feet); minimum, that of Aug. 16, 1931.

REMARKS.—Records good. Discharge estimated for Feb. 3, June 7. Flow regulated by storage in Stillwater Reservoir, Fulton Chain of Lakes, Forestport Reservoir, and other reservoirs in upper drainage basin. 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,010	1,150	1,370	1,060	1,040	1,070	6,870	6,200	2,660	1,260	1,780	1,410
2	1,950	1,020	1,780	1,100	1,250	1,270	7,070	5,780	2,610	1,260	1,360	1,430
3	1,520	1,320	1,980	1,050	1,300	1,620	7,370	5,250	2,530	1,210	1,350	1,380
4	1,650	1,070	2,020	1,030	1,450	1,590	7,370	5,770	2,030	1,680	1,390	1,940
5	1,420	1,200	1,990	1,040	1,320	1,660	7,200	5,920	1,950	2,220	1,590	2,160
6	1,320	984	1,820	1,210	1,310	1,540	7,620	5,720	1,810	2,200	1,490	1,860
7	1,600	890	1,650	1,290	1,310	1,380	7,520	4,940	1,150	1,730	1,490	1,080
8	1,610	901	1,680	1,250	945	1,340	7,680	4,160	2,500	1,510	1,220	1,630
9	1,560	775	1,630	1,210	1,150	1,200	8,140	3,920	2,950	1,170	970	1,510
10	1,370	922	1,810	958	1,400	1,650	9,740	3,950	2,980	1,440	1,090	1,540
11	1,610	1,080	1,720	1,210	1,330	1,760	11,800	4,880	3,010	1,480	1,330	1,210
12	1,120	1,090	1,630	1,180	1,190	1,520	12,800	5,120	2,360	1,630	1,620	1,290
13	1,190	1,210	1,730	1,330	1,100	1,420	15,600	5,520	2,590	2,800	1,730	1,060
14	1,300	1,200	1,590	1,320	1,130	1,260	15,200	5,920	1,130	2,440	1,550	1,150
15	1,230	1,000	1,350	1,290	1,120	1,020	13,100	5,920	1,610	2,300	1,940	1,690
16	1,380	997	1,490	1,210	1,220	1,280	11,600	5,450	1,760	2,500	893	2,370
17	1,270	992	1,260	1,220	1,230	1,320	10,600	4,680	1,520	2,160	1,130	4,780
18	1,410	994	1,170	1,200	1,280	1,540	9,260	4,240	1,640	1,920	1,600	4,760
19	1,440	1,080	1,090	1,200	1,520	1,840	8,150	3,800	1,590	1,460	1,680	4,410
20	1,410	1,360	1,290	1,390	1,380	1,610	7,520	3,750	1,640	1,440	1,590	3,300
21	1,690	1,230	1,010	1,170	1,400	1,690	7,070	4,380	1,270	2,590	1,300	2,820
22	1,560	1,200	1,200	1,310	1,250	1,500	6,770	4,820	1,270	4,700	1,430	3,380
23	1,590	1,090	1,170	1,270	1,380	2,360	6,200	4,550	1,300	6,200	1,060	3,400
24	1,720	1,439	1,160	1,420	1,470	3,010	5,780	6,690	1,450	5,650	1,020	3,860
25	1,510	1,320	962	1,060	1,370	4,490	5,250	7,460	1,500	4,620	1,440	3,680
26	1,340	1,360	1,090	1,250	1,410	6,790	4,260	6,920	1,530	3,520	1,340	3,120
27	1,440	1,160	964	1,590	1,330	7,390	7,990	6,620	1,750	2,570	1,050	2,950
28	1,590	1,320	944	1,500	1,500	7,840	5,920	5,560	878	1,930	1,170	3,970
29	1,710	1,110	1,170	1,370	-------	7,700	6,480	4,310	980	1,820	1,340	3,900
30	1,320	1,040	1,220	1,360	-------	7,890	6,620	3,050	1,270	1,610	1,380	3,080
31	1,210	-------	1,170	1,350	-------	7,310	-------	2,650	-------	1,730	1,360	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,010	1,120	1,490	0.793	0.91
November	1,430	775	1,120	.596	.66
December	2,020	944	1,420	.755	.87
January	1,590	958	1,240	.660	.76
February	1,520	945	1,290	.686	.71
March	7,890	1,020	2,800	1.49	1.72
April	15,600	4,260	8,380	4.46	4.98
May	7,460	2,650	5,090	2.71	3.12
June	3,010	878	1,840	.979	1.09
July	6,200	1,170	2,350	1.25	1.44
August	1,940	893	1,300	.734	.85
September	4,780	1,060	2,540	1.35	1.51
The year	15,600	775	2,580	1.37	18.62

FORESTPORT FEEDER NEAR BOONVILLE, N. Y.

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

RECORDS AVAILABLE.—October, 1915, to September, 1931, during canal seasons.

REMARKS.—Records fair. Discharge estimated for Oct. 25 to Nov. 2, Nov. 25, May 1–8, 14–16. Slope relation nonexistent Apr. 14 to May 20, Sept. 24; open-water rating used. Canal diverts water from Black River at Forestport.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	114	116	-------	2	40	38	74	90
2	114	120	-------	2	40	40	84	93
3	113	120	-------	3	38	61	88	108
4	113	119	-------	2	33	56	79	103
5	112	121	-------	2	34	47	62	95
6	113	123	-------	2	34	39	43	91
7	113	122	-------	2	40	41	44	90
8	114	122	-------	4	50	38	78	92
9	113	122	-------	5	48	38	89	89
10	113	123	-------	3	42	40	68	89
11	114	122	-------	7	40	50	89	89
12	113	122	-------	6	39	50	94	87
13	113	123	-------	5	36	47	93	86
14	115	124	32	3	33	58	92	90
15	116	126	28	2	37	55	92	97
16	114	124	25	4	39	48	91	97
17	115	131	22	16	37	44	92	106
18	118	134	21	15	36	44	92	93
19	116	131	20	12	39	42	91	97
20	118	127	18	12	38	54	91	104
21	118	90	17	34	38	121	90	97
22	118	81	16	36	38	75	90	92
23	117	79	16	41	39	69	89	43
24	116	78	19	54	41	64	92	28
25	106	83	18	56	38	61	90	72
26	107	85	19	49	38	53	90	129
27	107	82	35	37	38	53	93	124
28	107	-------	26	39	36	53	98	127
29	107	-------	25	38	35	55	95	117
30	107	-------	10	34	36	59	90	108
31	108	-------	-------	32	-------	57	92	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	118	106	113	June	50	33	38.3
November 1–27	134	78	113	July	121	38	53.2
April 14–30	35	10	21.6	August	98	43	85.0
May	56	2	18.0	September	129	28	94.1

NOTE.—Canal probably carried normal minimum flow of about 30 second-feet from Nov. 28 to Apr. 13.

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.

RECORDS AVAILABLE.—September, 1915, to September, 1931, during canal seasons.

REMARKS.—Records excellent. Records 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 Basin into Mohawk River Basin.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	100	102	-------	2	24	34	16	62
2	101	105	-------	2	1	24	31	63
3	103	99	-------	2	1	23	32	71
4	98	99	-------	2	5	22	29	69
5	101	100	-------	2	4	a 18	26	68
6	101	100	-------	2	22	a 15	16	71
7	97	106	-------	2	29	a 12	13	71
8	98	100	-------	1	33	12	a 38	65
9	96	106	-------	2	32	a 14	a 74	63
10	97	103	-------	2	31	a 18	31	64
11	97	103	-------	2	29	a 22	44	64
12	101	103	-------	2	23	a 24	54	66
13	98	104	-------	13	12	22	54	70
14	98	106	16	7	18	25	55	65
15	98	106	4	3	24	24	55	73
16	99	110	3	2	22	22	57	69
17	99	112	3	2	28	22	55	104
18	105	112	2	13	56	21	a 56	74
19	105	112	2	8	a 36	23	a 57	a 84
20	104	109	2	3	a 36	23	a 57	a 101
21	104	69	2	6	a 36	27	a 58	83
22	104	42	2	24	a 35	23	a 59	82
23	102	41	2	31	36	23	60	43
24	104	41	2	50	35	22	59	10
25	93	45	2	61	35	21	59	a 39
26	93	48	2	17	35	23	60	a 142
27	89	-------	44	20	34	21	61	a 80
28	90	-------	10	29	28	20	65	93
29	89	-------	3	30	30	13	62	a 84
30	89	-------	3	17	35	10	68	a 81
31	89	-------	-------	30	-------	10	64	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	105	89	98.1	June	56	1	26.8
November 1–26	112	41	91.7	July	34	10	20.4
April 14–30	44	2	6.12	August	74	13	49.2
May	61	1	12.5	September	142	10	72.5

a Estimated.

NOTE.—Practically no diversion Nov. 27 to Apr. 13.

SUGAR RIVER AT TALCOTTVILLE, N. Y.

LOCATION.—Staff gage 150 feet above crest of falls in Talcottville, Lewis County.
DRAINAGE AREA.—42 square miles.
RECORDS AVAILABLE.—July, 1926, to September, 1931.
EXTREMES.—Maximum discharge during year, about 1,120 second-feet Apr. 10 (gage height, 3.6 feet); minimum, 3.9 second-feet Oct. 16, 17 (gage height, 0.71 foot).

1926–1931: Maximum discharge, about 2,800 second-feet Jan. 8, 1930 (gage height, 5.3 feet); minimum, that of Oct. 16, 17, 1930.

REMARKS.—Records good except those for periods of ice effect Dec. 2–5, 12–24, Jan. 7 to Mar. 17, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	7.3	97	14	14	12	315	270	45	9.1	16	15
2	9.1	6.2	70	14	14	12	450	276	34	8.1	14	140
3	6.7	6.0	44	15	13	12	336	256	29	49	22	225
4	6.2	5.3	34	16	13	12	528	136	25	20	37	79
5	5.8	6.2	26	18	13	13	403	90	22	13	19	40
6	5.3	6.7	25	18	13	13	450	68	20	13	14	32
7	5.0	6.7	24	18	12	13	403	57	45	11	12	20
8	4.8	5.8	27	18	12	13	403	138	72	10	11	20
9	4.8	6.0	30	18	13	14	651	130	42	9.1	59	18
10	4.8	5.8	29	18	14	14	840	113	34	11	56	16
11	4.7	5.0	25	19	13	14	607	94	29	24	30	14
12	4.5	5.8	30	19	12	14	275	131	23	16	27	13
13	4.3	8.1	32	20	13	14	256	139	19	12	20	12
14	4.2	9.1	30	19	13	14	221	123	16	30	17	22
15	4.1	9.1	22	18	12	14	147	90	17	16	18	153
16	3.9	9.1	18	17	13	16	121	72	17	11	14	101
17	4.1	19	16	17	14	19	104	68	18	9.1	13	408
18	6.0	22	15	17	16	25	96	64	14	8.1	11	170
19	6.7	15	15	17	18	42	81	43	13	9.1	16	72
20	7.0	13	16	17	17	57	68	64	11	12	9.1	204
21	8.1	11	15	16	16	57	57	90	24	135	9.1	189
22	9.1	10	14	16	15	62	48	50	14	164	8.1	182
23	11	7.7	14	15	14	74	43	144	27	72	8.1	134
24	14	6.7	14	14	14	106	40	315	27	57	7.7	152
25	14	20	14	14	13	167	37	188	16	29	7.3	99
26	12	9.6	14	15	13	238	183	118	14	20	7.0	480
27	8.6	16	16	15	13	358	82	72	13	18	8.1	202
28	7.7	14	14	16	12	315	103	53	11	14	122	113
29	11	14	14	17	------	358	345	43	10	70	47	76
30	10	26	14	16	------	275	289	36	9.1	53	27	61
31	8.1	------	16	15	------	238	------	68	------	23	19	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	14	3.9	7.31	0.174	0.20
November	26	5.0	10.4	.248	.28
December	97	14	25.3	.602	.69
January	20	14	16.6	.395	.46
February	18	12	13.6	.324	.34
March	358	12	84.0	2.00	2.31
April	840	37	266	6.33	7.06
May	315	36	116	2.76	3.18
June	72	9.1	23.7	.564	.63
July	164	8.1	30.8	.733	.85
August	122	7.0	22.8	.543	.63
September	480	12	115	2.74	3.06
The year	840	3.9	60.9	1.45	19.69

MOOSE RIVER AT McKEEVER, N. Y.

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

DRAINAGE AREA.—364 square miles.

RECORDS AVAILABLE.—May, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,010 second-feet Apr. 11 (gage height, 9.34 feet); minimum, 90 second-feet Aug. 27 (gage height, 1.52 feet). 1922–1931: 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 periods of ice effect, Nov. 28, 29, Dec. 1–6, Dec. 15 to Mar. 23, which are fair. Flow regulated to some extent by storage in Fulton Chain of Lakes.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	391	246	320	170	220	240	576	930	604	255	476	142
2	405	238	600	170	200	220	600	961	572	249	412	174
3	396	228	460	170	200	200	661	1,810	512	866	400	322
4	418	212	400	170	200	200	800	1,780	436	972	380	628
5	346	209	360	170	220	190	1,020	1,370	408	908	514	396
6	360	224	320	170	220	190	1,250	1,110	494	526	368	298
7	344	207	288	170	220	180	1,220	1,020	518	420	320	255
8	354	211	301	200	220	180	820	946	462	404	289	187
9	360	211	270	190	220	180	924	1,190	699	342	268	191
10	350	202	269	180	220	180	2,220	1,320	856	334	286	182
11	332	194	264	180	220	180	4,910	1,630	588	876	422	182
12	310	194	256	190	220	180	4,370	1,880	470	1,360	273	200
13	329	194	261	200	220	190	3,060	1,990	361	670	306	211
14	316	205	280	200	220	190	3,570	1,570	322	635	251	236
15	324	212	260	200	220	180	3,310	1,290	346	735	252	1,830
16	349	206	240	220	220	180	2,740	1,110	389	568	242	3,630
17	324	212	220	220	220	170	2,190	1,060	440	452	208	1,580
18	372	258	200	220	260	170	2,480	1,000	568	370	226	1,540
19	328	348	200	240	260	170	2,490	816	468	342	272	989
20	366	351	190	240	240	170	2,320	1,760	353	360	245	760
21	358	320	190	240	240	180	2,360	1,850	275	1,040	205	863
22	370	310	180	240	240	180	2,300	1,340	344	1,740	136	1,020
23	349	268	180	240	280	200	2,150	1,170	334	1,600	128	1,430
24	336	260	170	240	280	238	1,700	1,700	331	1,150	125	1,120
25	344	288	150	240	260	258	1,240	1,700	376	862	123	918
26	320	278	170	240	260	284	1,000	1,450	356	685	107	785
27	265	276	180	220	240	380	1,590	1,140	356	568	105	1,270
28	249	260	180	220	240	525	1,450	941	342	492	178	1,130
29	236	240	180	220	-------	554	1,280	822	303	476	194	810
30	254	234	180	220	-------	580	1,020	572	272	509	198	660
31	250	-------	170	220	-------	572	-------	600	-------	289	138	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	418	236	336	0.923	1.06
November	351	194	243	.668	.75
December	600	150	254	.698	.80
January	240	170	207	.569	.66
February	280	200	231	.635	.66
March	580	170	248	.681	.79
April	4,910	576	1,920	5.27	5.88
May	1,990	572	1,280	3.52	4.06
June	856	272	438	1.20	1.34
July	1,740	249	679	1.87	2.16
August	514	105	260	.714	.82
September	3,630	142	798	2.19	2.44
The year	4,910	105	575	1.58	21.42

NOTE.—For effect of storage in Old Forge Reservoir in Fulton Chain of Lakes, see footnote under Middle Branch of Moose River at Old Forge, N. Y.

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

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

DRAINAGE AREA.—52 square miles.

RECORDS AVAILABLE.—November, 1911, to September, 1931.

EXTREMES.—Maximum discharge during year, 330 second-feet July 23; minimum, about 1.5 second-feet Aug. 22–30, Sept. 21–30.

1911–1931: Maximum discharge, 862 second-feet Mar. 23, 1921; minimum, 0.7 second-foot Oct. 20–23, 1928 (gage height, 0.11 foot).

REMARKS.—Records fair. Discharge Apr. 11–25 computed mostly from gate ratings; probably backwater from Thendara Dam. Flow regulated by storage in Fulton Chain of Lakes.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	225	66	34	20	48	81	7	6	5	43	149	40
2	225	67	18	20	46	76	7	6	5	43	146	40
3	225	66	19	20	46	76	7	6	5	50	143	40
4	225	65	19	20	46	60	7	6	58	55	142	40
5	225	66	19	40	46	47	7	6	86	56	115	39
6	216	66	19	50	46	47	7	6	86	100	81	39
7	216	65	19	50	46	47	7	6	86	148	82	38
8	216	65	19	50	46	47	7	6	86	110	79	38
9	216	64	19	50	46	46	7	6	86	104	80	38
10	216	63	19	50	46	46	7	6	86	104	79	85
11	207	63	19	50	46	46		6	81	110	79	124
12	207	63	20	50	46	46		6	76	110	77	124
13	246	63	20	50	46	44		6	86	104	76	124
14	244	63	20	50	46	44		6	98	104	74	124
15	244	63	20	50	46	44		6	104	104	74	124
							7					
16	234	63	20	50	46	44		6	69	104	73	74
17	234	63	20	50	45	44		6	51	104	73	4.3
18	225	77	20	50	45	44		6	49	98	31	2.6
19	225	98	20	50	45	44		6	48	92	1.7	1.9
20	216	98	20	50	45	44		6	44	92	1.7	1.7
21	216	98	20	50	66	43		6	43	164	1.7	1.6
22	216	98	20	49	98	43		6	43	225	1.5	1.5
23	207	92	20	49	92	38	6	7	43	267	1.5	1.5
24	207	92	20	49	92	33		4	43	238	1.5	1.5
25	128	80	20	49	92	33		3	44	158	1.5	1.5
26	65	57	20	49	86	33	6	3	44	158	1.5	1.5
27	66	57	20	49	86	33	5	3	44	158	1.5	1.5
28	67	57	20	49	86	19	5	4	44	150	1.5	1.5
29	67	57	20	49	------	7	6	4	44	150	1.5	1.5
30	67	57	20	49	------	7	6	4	43	152	1.5	1.5
31	67	------	20	49	------	7	------	4	------	150	13	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	246	65	189		
November	98	57	70.4		
December	34	18	20.1		
January	50	20	45.5		
February	98	45	57.7		
March	81	7	42.4		
April	7	5	6.60		
May	7	3	5.42		
June	104	5	57.7		
July	267	43	123		
August	149	1.5	54.3		
September	124	1.5	38.6		
The year	267	1.5	59.4	1.14	15.51

NOTE.—Elevation of water surface in Old Forge Reservoir in Fulton Chain of Lakes at end of year was 1.57 feet higher than at beginning of year, corresponding to an increase in storage of 217,970,058 cubic feet. This is equivalent to a yearly mean discharge of 6.91 second-feet, 0.133 second-foot per square mile, or 1.81 inches on drainage area.

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

LOCATION.—Water-stage recorder half a mile above 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, 1931.

EXTREMES.—Maximum mean daily discharge during year (estimated), 1,350 second-feet Apr. 11; minimum, about 42 second-feet Aug. 26 (gage height, 1.98 feet).

1925–1931: Maximum discharge, 2,100 second-feet Apr. 27, 1926 (gage height, 6.6 feet); minimum, that of Aug. 26, 1931.

REMARKS.—Records good except those for periods of ice effect, Nov. 27 to Dec. 5, Dec. 18 to Mar. 6, and those estimated Apr. 6–14, July 16, 17, which are fair. Flow partly regulated by storage in Fulton Chain of Lakes.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	298	119	160	70	100	130	130	360	262	119	273	50
2	292	119	150	70	100	120	133	367	232	123	259	74
3	295	117	140	70	100	120	142	390	197	165	254	120
4	289	114	130	65	100	110	173	390	190	161	240	138
5	284	112	120	65	100	110	199	383	254	146	240	123
6	281	110	102	75	100	100	235	357	272	137	199	111
7	275	108	98	85	100	102	280	325	125	161	177	99
8	273	110	94	95	100	91	350	310	138	194	163	85
9	267	128	91	90	100	89	600	298	281	179	167	85
10	264	116	92	90	100	91	900	301	351	182	171	85
11	264	106	98	90	100	91	1,350	322	252	201	171	110
12	251	102	88	95	100	87	1,300	331	95	199	167	149
13	243	101	85	100	100	87	1,050	374	94	186	157	177
14	275	101	85	100	110	89	975	408	138	197	149	201
15	287	101	85	100	110	96	975	439	175	182	146	466
16	278	101	85	100	100	85	920	460	201	175	137	368
17	275	105	85	100	100	88	920	432	179	171	128	240
18	287	112	85	100	110	96	790	390	161	163	128	182
19	281	119	80	100	110	101	715	360	149	157	120	135
20	281	131	80	110	110	87	670	387	140	155	84	133
21	275	130	80	110	120	102	625	354	138	211	53	149
22	267	117	80	110	130	104	602	322	130	476	47	169
23	259	125	80	110	130	91	560	313	123	456	44	222
24	256	131	80	110	140	109	540	322	125	460	43	173
25	248	137	75	110	140	98	492	344	122	380	43	153
26	180	149	75	110	140	106	460	357	128	307	42	153
27	133	150	75	110	140	122	453	360	127	284	48	177
28	112	160	75	110	130	137	422	351	127	273	69	171
29	106	160	75	110	------	144	408	325	123	270	56	171
30	108	160	75	110	------	140	383	292	114	292	50	157
31	108	------	75	110	------	133	------	278	------	292	48	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	298	106	245	1.66	1.91
November	160	101	122	.824	.92
December	160	75	92.8	.627	.72
January	110	65	96.1	.649	.75
February	140	100	111	.750	.78
March	144	85	105	.709	.82
April	1,350	130	529	4.00	4.46
May	460	278	355	2.40	2.77
June	351	94	171	1.16	1.29
July	476	119	228	1.54	1.78
August	273	42	131	.885	1.02
September	466	50	161	1.09	1.22
The year	1,350	42	201	1.36	18.44

NOTE.—For effect of storage in Old Forge Reservoir in Fulton Chain of Lakes see footnote under Middle Branch of Moose River at Old Forge, N. Y.

OTTER CREEK NEAR GLENFIELD, N. Y.

LOCATION.—Water-stage recorder 1¾ miles above mouth and 2½ miles northeast of Glenfield, Lewis County.

DRAINAGE AREA.—64 square miles.

RECORDS AVAILABLE.—July, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,020 second-feet Apr. 11 (gage height, 5.35 feet); minimum, about 23 second-feet Aug. 26.

1924–1931: Maximum discharge, about 2,130 second-feet Apr. 8, 1928 (gage height, 7.1 feet); minimum, that of Aug. 26, 1931.

REMARKS.—Records good except those for periods of ice effect (Nov. 28-30, Dec. 14–18, Jan. 9–11, 17–21, Feb. 8–12, 15, 16), period corrected for leakage through control (July 1 to Sept. 11), and those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	41	e 74	e 44	e 36	41	184	181	118	39	e 66	32
2	38	39	e 69	e 44	e 36	42	223	190	104	43	64	41
3	37	38	e 60	e 44	e 36	42	227	223	94	63	72	56
4	34	38	e 54	e 46	e 37	41	269	238	87	120	85	57
5	33	39	52	e 47	e 37	41	282	198	89	85	74	52
6	31	39	e 56	e 48	e 36	41	290	177	97	58	62	46
7	30	38	e 58	e 48	e 36	42	299	151	90	51	57	39
8	28	38	e 57	e 47	36	44	292	159	113	47	47	37
9	27	39	e 56	e 46	38	43	318	190	132	43	47	33
10	27	37	e 54	46	40	43	456	184	109	46	58	30
11	28	34	e 52	44	38	43	876	188	92	56	60	27
12	28	36	57	39	40	42	807	205	82	60	56	25
13	27	34	57	38	41	41	538	223	76	51	47	25
14	27	36	55	39	39	43	456	216	69	62	43	26
15	26	37	50	e 39	38	44	417	188	64	62	51	64
16	26	37	e 48	e 38	38	44	330	167	66	52	85	74
17	27	38	46	e 38	41	43	278	161	69	43	63	101
18	27	39	44	38	42	46	249	144	63	39	47	120
19	27	39	46	38	43	46	227	130	57	38	57	89
20	32	39	46	36	44	46	201	159	52	46	48	80
21	33	38	44	36	e 46	41	181	163	52	144	39	101
22	34	38	42	e 36	46	44	161	151	51	e 190	38	94
23	36	37	e 44	e 34	42	54	151	159	54	e 175	32	80
24	37	36	e 43	e 34	42	68	149	196	66	e 136	30	85
25	37	42	e 43	e 34	43	92	136	220	62	e 106	26	94
26	38	46	e 43	e 36	42	125	145	201	57	90	23	90
27	38	39	e 44	e 39	41	171	198	165	56	79	30	101
28	39	34	e 46	e 39	42	205	196	142	51	71	50	96
29	42	e 34	e 47	e 38	------	220	196	123	47	66	47	84
30	43	e 38	e 47	e 37	------	227	203	113	42	e 74	41	72
31	43	------	e 46	e 36	------	194	------	118	------	e 71	33	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	43	26	32.9	0.514	0.59
November	46	34	37.9	.592	.66
December	74	42	51.0	.797	.92
January	48	34	40.2	.628	.72
February	46	36	39.9	.623	.65
March	227	41	74.2	1.16	1.34
April	876	136	298	4.66	5.20
May	238	113	175	2.73	3.15
June	132	42	75.4	1.18	1.32
July	190	38	74.4	1.16	1.34
August	85	23	50.9	.795	.92
September	120	25	65.0	1.02	1.14
The year	876	23	84.5	1.32	17.95

e Estimated.

INDEPENDENCE RIVER AT SPERRYVILLE, N. Y.

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

DRAINAGE AREA.—85 square miles (revised).

RECORDS AVAILABLE.—December, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,150 second-feet Apr. 11 (gage height, 6.3 feet); minimum, 15 second-feet Aug. 26, 27 (gage height, 0.97 foot).

1927–1931: Maximum discharge, about 3,700 second-feet Apr. 8, 1928 (gage height, 8.1 feet); minimum, that of Aug. 26, 27, 1931.

REMARKS.—Records good except those for extremely high stages and period of ice effect, Nov. 27 to Mar. 20, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	38	70	38	30	30	289	217	137	32	42	21
2	40	34	65	38	30	30	344	262	111	30	37	28
3	35	32	48	38	30	30	330	475	95	163	31	67
4	33	29	60	38	30	30	421	480	83	235	51	65
5	31	30	55	40	30	32	421	330	74	123	43	45
6	28	33	55	40	30	32	455	240	70	66	33	34
7	26	30	55	38	28	32	472	185	77	47	27	25
8	25	33	55	36	28	32	405	185	116	40	24	22
9	24	31	60	36	30	32	490	276	146	47	25	20
10	25	31	60	36	30	32	815	264	137	45	35	19
11	24	26	60	36	30	34	1,840	289	109	61	45	18
12	24	31	55	36	28	34	1,380	374	86	72	36	18
13	22	32	55	38	28	34	807	490	67	60	34	17
14	21	31	50	38	32	34	853	405	55	67	27	16
15	22	30	46	36	30	34	759	289	55	75	25	28
16	21	31	44	34	32	34	527	228	61	55	27	49
17	21	33	42	36	32	36	438	240	92	40	30	62
18	25	44	40	36	32	36	421	206	92	33	25	128
19	31	48	40	36	34	36	421	165	67	30	27	83
20	38	49	42	36	36	36	374	196	55	36	23	62
21	35	47	42	36	36	38	330	206	53	244	20	101
22	33	38	42	34	34	51	264	217	45	405	19	92
23	33	35	42	32	32	53	251	217	45	371	18	80
24	35	34	40	32	32	67	228	289	98	206	17	84
25	37	40	40	32	32	120	175	389	74	128	16	100
26	40	45	40	32	32	196	185	389	72	90	15	86
27	38	44	40	34	30	240	316	276	76	67	15	118
28	39	40	40	34	30	302	316	206	57	55	20	111
29	41	36	42	32	-------	359	276	175	44	48	46	80
30	45	38	40	32	-------	344	251	128	36	66	31	65
31	41	-------	40	32	-------	316	-------	128	-------	57	25	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	45	21	31.5	0.371	0.43
November	49	26	35.8	.421	.47
December	70	40	48.5	.571	.66
January	40	32	35.5	.418	.48
February	36	28	31.0	.365	.38
March	359	30	88.6	1.04	1.20
April	1,840	175	495	5.82	6.49
May	490	128	271	3.19	3.68
June	146	36	79.5	.935	1.04
July	405	30	99.8	1.17	1.35
August	51	15	28.7	.338	.39
September	128	16	58.1	.684	.76
The year	1,840	15	109	1.28	17.33

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

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

DRAINAGE AREA.—172 square miles (revised).

RECORDS AVAILABLE.—May, 1908, to September, 1931.

EXTREMES.—1908–1931: Maximum discharge, 3,700 second-feet May 3, 1926; practically no flow at times when gates in dam are closed and there is no spilling.

REMARKS.—Records good. Flow completely regulated by storage in Stillwater Reservoir. Discharge determined from Stillwater Dam gate and spillway ratings. Record of gate openings and reservoir elevations furnished by Black River Regulating District.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	590	158	144	0	0	0	6	11	12	355	12	580
2	590	0	214	106	238	234	7	11	12	355	12	580
3	590	345	214	118	360	305	7	11	12	200	126	570
4	236	435	214	0	360	285	7	11	12	12	310	570
5	0	365	154	218	355	265	7	11	12	12	460	234
6	390	365	0	330	350	240	7	11	12	315	385	11
7	580	360	0	325	238	156	8	11	12	300	232	11
8	580	270	144	325	0	0	8	11	12	285	178	410
9	570	0	216	320	280	206	8	11	44	300	12	610
10	570	222	214	226	345	228	8	11	188	300	335	610
11	570	330	214	0	216	188	8	11	12	124	580	600
12	335	330	156	208	320	164	9	11	12	12	610	430
13	485	325	0	320	390	148	9	11	12	226	495	11
14	620	325	0	320	260	132	10	11	12	12	300	405
15	620	224	144	315	0	124	10	11	12	136	210	600
16	620	0	222	270	260	116	10	11	12	300	12	600
17	610	216	228	156	330	110	10	12	12	300	400	265
18	480	325	248	0	300	108	10	12	12	162	590	11
19	92	320	240	260	300	104	10	12	12	12	590	11
20	435	320	84	400	180	100	11	12	12	208	590	11
21	600	212	0	395	0	100	11	12	12	120	590	186
22	600	0	166	390	0	96	11	12	194	12	415	360
23	590	0	265	390	204	96	11	12	360	12	12	360
24	590	236	265	270	335	96	11	12	360	12	365	355
25	420	315	110	0	335	86	11	12	360	12	580	355
26	0	315	112	250	315	114	11	12	360	12	580	265
27	390	248	120	380	200	120	11	12	360	12	580	11
28	580	214	0	380	0	66	11	12	360	182	580	244
29	455	212	176	375	------	4	11	12	355	300	450	355
30	275	71	238	370	------	6	11	12	355	226	11	355
31	164	------	230	250	------	6	------	12	------	12	415	------

Month	Observed			Corrected for storage		
	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches
October	620	0	459	122	0.709	0.82
November	435	0	235	108	.628	.70
December	265	0	153	136	.791	.91
January	400	0	247	116	.674	.78
February	360	0	231	111	.645	.67
March	305	0	129	122	.709	.82
April	11	6	9.33	930	5.41	6.04
May	12	11	11.5	554	3.22	3.71
June	360	12	117	162	.942	1.05
July	355	12	156	139	.808	.93
August	610	11	355	84	.488	.56
September	610	11	333	154	.895	1.00
The year	620	0	203	227	1.32	17.99

NOTE.—Elevation of water surface in Stillwater Reservoir was 1,668.52 feet Oct. 1, 1930, and 1,672.18 feet Sept. 30, 1931. Corrections for storage based on data furnished by Black River Regulating District.

BEAVER RIVER AT CROGHAN, N. Y.

LOCATION.—Water-stage recorder about 1,000 feet above Black Creek and half a mile west of Croghan, Lewis County.
DRAINAGE AREA.—293 square miles.
RECORDS AVAILABLE.—September, 1930, to September, 1931.
EXTREMES.—Maximum discharge during period, 1,630 second-feet Apr. 13 (gage height, 4.31 feet); minimum, 48 second-feet May 3 (gage height, 1.13 feet).
REMARKS.—Records good except those estimated, which are fair. Flow of Beaver River completely regulated during year at Stillwater Dam and partly regulated by various forebay reservoirs, principally those at Moshier Creek and Soft Maple developments.

Daily and monthly discharge, in second-feet, 1930–31

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	720	346	276	a 270	326	99	600	286	288	488	250	a 580
2	-------	486	282	300	a 280	448	545	538	242	447	515	75	a 520
3	-------	635	308	274	a 225	662	612	471	78	320	222	212	a 660
4	-------	480	313	272	70	478	634	390	278	340	75	359	a 405
5	-------	266	a 300	276	225	477	510	134	346	321	68	267	a 545
6	-------	587	a 300	285	268	418	606	316	404	258	178	317	a 85
7	-------	641	296	112	326	274	538	470	430	82	257	271	a 360
8	-------	651	286	270	272	a 100	138	614	309	268	284	264	a 545
9	-------	620	81	282	270	a 530	592	526	298	284	282	81	a 700
10	-------	595	275	293	247	a 380	596	560	96	282	322	286	a 570
11	-------	532	360	280	92	a 410	724	544	302	268	270	445	a 445
12	-------	180	506	324	304	a 275	402	1,120	315	268	77	551	a 500
13	-------	446	531	283	266	a 270	324	1,280	386	246	262	347	239
14	-------	502	452	84	315	a 220	250	950	322	63	296	419	668
15	-------	624	353	264	454	79	70	827	308	235	292	352	600
16	-------	439	87	a 330	430	262	250	848	286	282	268	168	350
17	-------	502	302	a 275	294	302	303	502	87	270	477	578	418
18	-------	566	294	a 310	80	415	606	340	276	269	354	653	302
19	399	235	284	a 300	342	304	292	90	296	267	183	673	265
20	601	604	286	a 271	304	276	274	358	316	240	422	505	172
21	92	611	301	92	446	257	266	496	a 330	68	446	533	418
22	618	622	313	272	268	73	92	426	a 315	222	724	408	444
23	699	614	98	414	516	a 260	309	445	a 290	278	a 570	111	565
24	666	631	384	276	290	a 275	356	284	150	275	a 270	705	453
25	626	452	316	72	308	a 275	722	248	380	273	a 240	632	368
26	451	142	330	135	572	a 330	774	75	752	274	79	420	358
27	580	582	296	a 145	498	a 290	649	304	779	245	238	451	242
28	160	626	306	a 250	494	a 260	590	428	428	75	303	338	489
29	532	521	288	a 270	465	-------	242	460	326	198	268	326	473
30	672	389	85	a 275	347	-------	617	390	270	284	274	177	739
31	-------	322	-------	a 270	276	-------	651	-------	81	-------	283	520	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1930					
September 19–30	699	92	508	-------	-------
1930–31					
October	720	142	510	-------	-------
November	531	81	299	-------	-------
December	414	72	253	-------	-------
January	572	70	317	-------	-------
February	662	73	319	-------	-------
March	774	70	440	-------	-------
April	1,280	75	501	-------	-------
May	779	78	315	-------	-------
June	447	63	250	-------	-------
July	724	68	300	-------	-------
August	705	75	377	-------	-------
September	739	85	449	-------	-------
The year	1,280	63	361	1.23	16.73

NOTE.—For effect of Stillwater Reservoir regulation of flow see Beaver River below Stillwater Dam, near Beaver River, N. Y.

DEER RIVER AT COPENHAGEN, N. Y.

LOCATION.—Water-stage recorder at power plant half a mile northeast of Copenhagen, Lewis County.
DRAINAGE AREA.—88 square miles.
RECORDS AVAILABLE.—September, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 2,830 second-feet Apr. 10 (gage height, 7.3 feet); minimum, 5.6 second-feet Sept. 1 (gage height, 0.38 foot). 1929–1931: Maximum discharge, about 4,500 second-feet Jan. 8, 1930 (gage height, 9.3 feet); minimum, 5 second-feet Aug. 14, 1930 (gage height, 0.37 foot).
REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	38	70	55	50	60	600	510	176	20	20	11
2	42	34	80	55	70	60	750	612	120	16	20	12
3	38	36	85	55	60	70	750	785	94	121	20	26
4	32	34	85	60	55	65	750	449	78	82	18	22
5	28	34	90	46	60	60	800	302	68	44	18	18
6	24	34	100	40	60	60	1,000	219	63	30	20	14
7	26	32	95	44	60	50	1,100	174	165	24	18	11
8	28	30	100	55	55	60	1,200	240	358	31	16	11
9	28	30	100	55	55	65	1,680	327	259	28	16	11
10	26	30	100	60	50	65	2,330	319	183	27	16	11
11	26	30	85	55	50	65	1,910	378	155	30	18	12
12	24	30	120	50	48	65	1,120	358	98	29	18	12
13	22	28	150	50	60	65	1,280	319	78	29	21	11
14	26	28	120	40	50	65	1,330	256	63	33	16	11
15	26	28	80	65	55	60	880	195	88	38	16	27
16	26	28	65	65	65	70	660	207	122	28	15	71
17	24	30	44	55	60	70	602	521	73	25	18	79
18	26	32	50	50	65	65	620	170	49	100	20	118
19	22	36	55	56	60	75	550	292	39	82	17	75
20	40	34	48	50	65	75	456	598	34	110	16	63
21	60	34	44	50	65	70	414	637	33	458	15	78
22	44	34	42	50	65	180	361	378	28	620	15	103
23	44	34	42	55	65	220	319	572	54	288	15	87
24	42	36	50	65	65	240	272	1,060	63	126	16	78
25	42	32	50	46	70	280	219	661	38	75	16	82
26	40	32	50	70	65	420	378	413	33	56	18	66
27	38	32	50	65	65	500	547	257	26	36	21	198
28	40	32	50	60	65	550	550	174	21	28	28	155
29	40	34	50	65	------	650	639	137	21	23	16	91
30	44	40	50	65	------	600	513	114	20	22	16	47
31	40	------	55	65	------	500	------	173	------	21	16	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	60	22	34.1	0.388	0.45
November	40	28	32.5	.369	.41
December	150	42	72.7	.826	.95
January	70	40	55.2	.627	.72
February	70	48	59.9	.681	.71
March	650	50	177	2.01	2.32
April	2,330	219	819	9.31	10.39
May	1,060	114	372	4.23	4.88
June	358	20	90.0	1.02	1.14
July	620	16	86.5	.983	1.13
August	28	15	17.7	.201	.23
September	198	11	53.7	.610	.68
The year	2,330	11	156	1.77	24.01

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

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

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

DRAINAGE AREA.—144 square miles.

RECORDS AVAILABLE.—May, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, about 270 second-feet Oct. 1, 2; minimum, about 3 second-feet Apr. 9–16.

1923–1931: Maximum discharge, 1,590 second-feet May 15–21, 1924; minimum occurs when gages in dam are closed and there is no discharge over spillway.

REMARKS.—Records fair. Flow completely regulated by operation of gates in Cranberry Lake dam. Owing to presence of backwater from logs during most of year, daily discharge was computed principally from record of gate openings and reservoir gage heights at dam.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	270	214	170	166	158	152	154		150	186	180	238
2	270	212	170	166	158	150	142		150	186	180	238
3	265	210	170	164	156	150	110		150	186	218	238
4	265	208	170	164	156	150	110		150	186	232	238
5	265	206	170	164	156	150	110		150	186	232	236
6	260	204	170	164	156	150	110	6	150	186	232	236
7	260	202	170	164	154	150	112		146	186	232	236
8	255	200	170	164	154	150	87		146	186	232	236
9	255	200	170	162	154	150			196	186	232	234
10	255	198	170	162	154	150			150	186	230	234
11	250	196	170	162	154	150			150	186	230	234
12	250	194	170	162	154	148		71	150	186	230	232
13	248	180	170	162	154	148	3	146	150	198	238	232
14	246	174	170	162	154	148		148	150	198	246	150
15	244	174	170	162	154	148		148	150	198	246	99
16	242	172	168	162	154	148		148	150	186	244	105
17	240	172	168	162	154	148		148	178	192	244	105
18	238	172	168	162	152	148		148	150	186	244	118
19	236	172	168	162	152	148		148	150	186	244	94
20	234	172	168	160	152	148	5	148	150	204	244	140
21	232	172	168	160	152	148		148	150	222	244	226
22	230	172	168	160	152	148		148	158	206	244	245
23	230	172	168	160	152	146	17	148	226	198	242	245
24	228	172	168	160	152	146	98	148	186	186	242	245
25	226	172	168	160	152	146	55	148	186	210	242	245
26	224	170	168	160	152	146		148	210	186	240	245
27	222	170	168	160	152	146		150	186	210	240	245
28	220	170	168	160	152	146	6	150	186	180	240	245
29	220	170	168	158	------	148		150	186	180	240	233
30	218	170	168	158	------	150		150	186	180	238	233
31	216	------	166	158	------	152	------	150	------	180	238	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	270	216	242	----------	----------
November	214	170	185	----------	----------
December	170	166	169	----------	----------
January	166	158	162	----------	----------
February	158	152	154	----------	----------
March	152	146	149	----------	----------
April	154	3	39.6	----------	----------
May	150	6	95.4	----------	----------
June	226	146	164	----------	----------
July	222	180	191	----------	----------
August	246	180	234	----------	----------
September	245	94	209	----------	----------
The year	270	3	166	1.15	15.67

NOTE.—Elevation of water surface in Cranberry Lake at end of year was 0.83 foot higher than at beginning of year, corresponding to a gain in storage of 254,529,792 cubic feet. This is equivalent to a mean yearly discharge of 8.07 second-feet, 0.056 second-foot per square mile, or a run-off of 0.76 inch 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, 1931.

EXTREMES.—Maximum discharge during year not determined; minimum, about 15 second-feet occasionally when power plant shuts down.

1924–1931: Maximum discharge, 4,010 second-feet Apr. 6, 1928 (gage height, 7.1 feet); minimum, approaching zero flow occasionally following complete shutdown of power plant.

REMARKS.—Records excellent. Discharge estimated for Apr. 11–17. Seasonal regulation by storage in Cranberry Lake.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	384	265	272	214	177	202	409	255	506	344	312	280
2	316	173	269	260	288	218	686	402	582	216	106	417
3	272	274	224	221	251	296	454	494	418	184	405	314
4	206	356	360	86	386	328	518	475	394	158	323	330
5	300	478	250	268	474	246	458	540	290	208	214	136
6	337	452	248	287	238	232	850	439	156	206	428	229
7	345	252	170	313	209	127	1,100	468	126	226	228	246
8	373	230	378	293	178	190	1,010	246	397	197	187	282
9	308	114	386	216	252	271	764	290	443	303	190	380
10	206	353	382	250	218	348	1,010	149	594	104	224	347
11	202	430	369	93	226	211	1,750	270	495	128	347	261
12	88	402	318	225	225	160	1,110	634	256	196	362	391
13	242	304	272	230	188	185	1,340	582	228	258	394	136
14	260	234	164	304	156	130	890	361	182	416	216	268
15	372	150	244	168	212	217	630	312	459	278	82	392
16	202	204	313	292	144	202	650	266	591	284	120	236
17	269	173	296	214	239	236	335	200	374	190	374	301
18	207	202	408	104	205	240	282	436	380	251	476	225
19	183	298	299	283	146	180	258	552	184	123	488	272
20	322	196	170	219	136	183	516	430	110	310	422	104
21	418	297	181	284	207	198	530	355	202	324	328	230
22	511	106	336	209	180	167	308	338	240	370	182	202
23	452	189	230	240	235	192	350	347	440	432	149	197
24	200	248	287	226	351	187	258	305	394	316	400	356
25	185	386	112	203	304	371	246	960	245	152	355	232
26	154	294	256	196	144	456	64	989	203	118	306	334
27	320	148	228	262	187	536	286	666	154	374	321	217
28	314	268	203	252	132	451	338	604	116	284	262	336
29	454	225	222	277	-------	398	220	347	218	346	200	408
30	404	109	316	243	-------	858	211	148	283	270	130	380
31	346	-------	298	202	-------	727	-------	170	-------	206	362	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	511	88	295	1.13	1.30
November	478	106	260	.992	1.11
December	408	112	273	1.04	1.20
January	313	86	230	.878	1.01
February	474	132	225	.859	.89
March	858	127	288	1.10	1.27
April	1,750	64	594	2.27	2.53
May	989	148	420	1.60	1.84
June	594	110	322	1.23	1.37
July	432	104	251	.958	1.10
August	488	82	287	1.10	1.27
September	417	104	281	1.07	1.19
The year	1,750	64	311	1.19	16.08

OSWEGATCHIE RIVER NEAR HEUVELTON, N. Y.

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

DRAINAGE AREA.—967 square miles.

RECORDS AVAILABLE.—June, 1916, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,140 second-feet Mar. 28 (gage height, 5.17 feet); minimum, 251 second-feet Aug. 18 (gage height, 0.88 foot).

1916–1931: Maximum discharge, 15,600 second-feet Jan. 11, 1930 (gage height, 9.1 feet); minimum, 211 second-feet Sept. 2, 1925 (gage height, 0.67 foot).

REMARKS.—Records excellent except those for period of ice effect, Jan. 8 to Feb. 22, and those for Dec. 2–9, Sept. 23–30, which are fair. Seasonal flow slightly regulated by storage in Cranberry Lake.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	399	1,140	521	613	500	738	5,210	1,880	1,260	436	541	306
2	418	961	650	598	500	662	4,830	1,750	1,250	450	471	366
3	582	721	850	582	440	654	4,560	1,690	1,490	498	404	430
4	500	704	900	559	460	654	4,290	1,880	1,380	505	341	498
5	431	605	950	536	500	713	4,040	2,070	1,150	457	360	548
6	387	654	1,000	485	600	773	3,700	2,140	1,030	471	457	498
7	323	817	1,000	536	700	764	3,450	2,070	874	478	430	430
8	399	747	950	600	700	646	3,450	1,880	838	443	430	366
9	458	646	1,150	600	550	590	3,450	1,810	920	384	430	329
10	445	507	1,260	550	460	605	3,210	1,520	1,230	366	366	410
11	478	464	1,230	550	460	646	3,050	1,400	1,430	410	323	450
12	418	493	1,180	600	460	738	3,820	1,550	1,430	443	354	424
13	339	629	1,200	550	460	704	4,650	1,750	1,210	410	391	436
14	295	654	1,180	500	460	613	4,740	2,000	939	430	457	391
15	323	582	916	460	480	598	4,560	1,940	829	443	464	366
16	306	521	817	440	460	574	3,950	1,650	777	512	417	360
17	431	471	738	440	500	613	3,210	1,520	911	527	348	465
18	493	485	790	460	600	696	2,650	1,300	1,180	519	289	534
19	464	514	817	460	600	817	2,070	1,200	986	471	323	464
20	478	551	808	480	650	961	1,810	1,280	874	417	452	424
21	471	646	747	500	650	1,130	1,570	1,400	670	398	585	424
22	485	687	646	500	700	1,530	1,690	1,500	563	570	593	491
23	613	671	574	480	730	2,230	1,590	1,510	498	743	505	470
24	721	629	590	460	773	3,250	1,330	1,840	464	865	424	460
25	738	543	638	460	764	4,340	1,180	2,730	656	911	329	500
26	696	529	574	440	817	5,240	1,150	3,450	719	838	335	600
27	662	638	551	440	943	5,800	1,270	3,610	624	670	404	650
28	721	629	543	480	853	6,000	1,580	3,370	519	578	464	700
29	990	590	529	500	-------	5,800	1,810	2,810	464	541	430	700
30	1,370	543	536	500	-------	5,600	2,000	2,170	464	608	424	775
31	1,320	-------	551	500	-------	5,600	-------	1,610	-------	527	366	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,370	295	553	0.572	0.66
November	1,140	464	632	.654	.73
December	1,260	521	819	.847	.98
January	613	440	512	.529	.61
February	943	440	599	.619	.64
March	6,000	574	1,940	2.01	2.32
April	5,210	1,150	3,000	3.10	3.46
May	3,610	1,200	1,940	2.01	2.32
June	1,490	464	921	.952	1.06
July	911	366	526	.544	.63
August	593	289	416	.430	.50
September	775	306	476	.492	.55
The year	6,000	289	1,030	1.07	14.46

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 below Harrisville, Lewis County.

DRAINAGE AREA.—256 square miles.

RECORDS AVAILABLE.—July, 1916, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,500 second-feet Apr. 12 (gage height, 6.8 feet); minimum, 38 second-feet Aug. 25 (gage height, 1.06 feet).

1916–1931: Maximum discharge, 6,920 second-feet Jan. 9, 1930 (gage height, 9.6 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. 13–17, Jan. 5 to Feb. 17, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	226	226	132	100	170	1,220	845	652	108	115	63
2	100	214	326	150	100	180	1,170	790	575	86	108	71
3	83	180	342	141	100	170	1,520	900	458	101	115	77
4	63	160	359	141	100	180	1,600	1,080	377	252	93	124
5	82	160	295	140	100	180	1,600	1,080	326	252	93	141
6	82	150	239	140	100	160	1,440	1,020	295	226	67	108
7	86	150	202	130	100	160	1,360	790	266	108	93	93
8	86	132	310	130	100	180	1,440	652	458	124	71	100
9	81	132	326	130	100	170	1,420	625	600	124	68	74
10	80	124	310	130	95	150	1,850	652	600	124	51	56
11	77	141	280	130	95	170	2,800	680	525	150	82	56
12	80	115	326	130	100	170	3,500	680	458	226	69	58
13	71	124	360	120	110	170	2,960	708	377	180	78	67
14	67	108	340	100	120	170	2,480	735	310	191	68	57
15	67	108	340	100	160	180	1,920	735	310	226	67	68
16	63	115	260	100	170	180	1,600	708	415	226	63	82
17	65	124	220	120	180	191	1,310	625	415	160	76	62
18	93	148	191	120	202	191	1,120	550	342	132	69	93
19	115	277	180	120	252	180	1,020	502	280	124	93	115
20	124	295	202	120	280	214	900	600	226	115	115	108
21	115	266	180	110	266	238	845	652	180	132	100	124
22	115	214	170	110	252	295	790	652	180	346	108	141
23	160	150	170	100	239	342	652	625	180	480	57	141
24	191	160	141	100	214	502	625	708	202	435	60	132
25	191	170	170	100	202	701	600	1,190	214	377	57	150
26	202	191	160	110	191	1,030	525	1,570	202	310	59	180
27	191	170	150	120	180	1,150	625	1,210	191	226	56	202
28	202	150	150	110	150	1,360	708	845	191	180	53	239
29	280	150	150	110	------	1,680	845	735	180	115	66	226
30	326	160	124	110	------	1,840	845	600	150	108	69	191
31	295	------	132	110	------	1,520	------	550	------	108	65	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	326	63	128	0.500	0.58
November	295	108	165	.645	.72
December	360	124	236	.922	1.06
January	150	100	120	.469	.54
February	280	95	156	.609	.63
March	1,840	150	457	1.79	2.06
April	3,500	525	1,380	5.39	6.01
May	1,570	502	784	3.06	3.53
June	652	150	338	1.32	1.47
July	480	86	195	.762	.88
August	115	51	77.5	.303	.35
September	239	56	113	.441	.49
The year	3,500	51	345	1.35	18.32

GRASS RIVER AT PYRITES, N. Y.

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

DRAINAGE AREA.—334 square miles.

RECORDS AVAILABLE.—August, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,590 second-feet Apr. 12 (gage height, 7.81 feet); minimum, 72 second-feet Aug. 27 (gage height, 1.32 feet).

1924–1931: Maximum discharge, about 8,300 second-feet Nov. 18, 1927 (gage height, 13.0 feet); minimum, 40 second-feet Sept. 28, 1924 (gage height, 1.10 feet).

REMARKS.—Records good except those for periods of ice effect, Nov. 27 to Dec. 6, Dec. 13 to Mar. 15, and those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		277	240	150	a 140	a 180	1,120	a 750	49[illegible]	123	256	83
2		233	280	140	a 140	a 180	1,390	a 780	44[illegible]	117	185	118
3		202	280	150	a 140	a 180	1,440	1,060	35[illegible]	113	147	176
4		183	260	160	a 140	a 180	1,570	1,260	30[illegible]	186	125	180
5	a 113	178	260	150	a 140	a 180	a 1,600	1,140	a 28[illegible]		113	155
6		186	260	140	a 140	a 190	a 1,540	840	a 26[illegible]		104	136
7		178	273	140	a 140	a 180	a 1,440	645	30[illegible]		95	127
8		171	310	140	a 130	180	a 1,320	548	51[illegible]	a 125	92	123
9		166	307	140	a 140	180	a 1,320	538	67[illegible]		95	110
10		171	317	140	a 140	180	a 1,660	516	59[illegible]		100	100
11	a 117	171	335	140	a 140	180	a 2,770	556	49[illegible]	a 167	106	90
12	115	164	318	140	a 140	170	3,340	725	390	178	111	80
13	115	164	280	140	a 170	170	2,440	870	30[illegible]	198	108	76
14	113	161	260	140	a 240	170	1,860	900	257	229	98	75
15	110	157	240	140	a 220	160	1,680	752	241	215	95	97
16	108	152	240	130	a 200	169	1,410	620	298	202	92	155
17	110	155	220	150	a 200	186	1,140	530	351	171	88	224
18	133	199	200	160	a 200	194	930	460	275	149	102	232
19	a 214	261	a 200	160	a 200	202	780	408	221	136	135	234
20	a 236	251	a 220	160	a 200	227	698	525	190	306	132	198
21	224	216	200	150	a 190	239	620	725	a 175	524	115	228
22	213	191	190	140	190	296	561	670	a 164	468	102	365
23	213	181	180	140	190	507	498	620	153	404	90	376
24	233	169	170	140	190	1,040	452	866	169	320	82	296
25	290	159	160	150	190	1,620	412	1,270	192	254	77	386
26	307	164	160	a 160	180	1,480	a 420	1,290	185	208	75	365
27	293	150	160	a 160	180	1,190	a 550	990	185	176	73	476
28	280	140	a 160	a 160	180	1,320	a 725	664	178	144	73	516
29	314	140	a 160	a 150	-------	1,610	a 850	476	155	138	80	380
30	377	150	150	a 150	-------	1,670	a 750	390	136	180	92	280
31	343	-------	150	a 150	-------	1,380	-------	379	-------	282	88	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	377	108	180	0.539	0.62
November	277	140	181	.542	.60
December	335	150	230	.689	.79
January	160	130	147	.440	.51
February	240	130	171	.512	.53
March	1,670	160	516	1.54	1.78
April	3,340	412	1,240	3.71	4.14
May	1,290	379	734	2.20	2.54
June	670	136	298	.892	1.00
July	524	113	204	.611	.70
August	256	73	107	.320	.37
September	516	75	218	.653	.73
The year	3,340	73	353	1.06	14.31

a Estimated.

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, 1931.

EXTREMES.—Maximum discharge during year, 385 second-feet Apr. 14 (gage height, 3.0 feet); minimum, 1.9 second-feet Aug. 25, 26 (gage height, 0.66 foot).

1924–1931: Maximum discharge, about 700 second-feet Apr. 25, 1926 (gage height, 4.3 feet); minimum, that of Aug. 25, 26, 1931.

REMARKS.—Records good except those for period of ice effect, Nov. 27 to Mar. 25, and for extremely low stages, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	23	16	10	11	12	78	85	47	6.3	17	3.1
2	11	18	18	10	11	12	108	75	34	6.3	9.5	13
3	9.5	15	18	10	10	11	243	75	25	9.5	6.7	21
4	9.5	17	18	11	10	11	194	78	20	13	6.7	8.7
5	9.1	17	18	11	10	11	137	94	20	10	6.3	7.1
6	7.9	18	19	11	9	11	105	69	20	10	6.3	8.3
7	8.7	21	19	10	9	11	101	47	75	4.3	3.7	8.7
8	7.9	18	20	10	9	11	149	36	72	2.5	4.9	7.9
9	8.7	15	22	10	9	11	170	36	88	3.1	5.9	7.1
10	8.7	18	24	11	9	11	170	35	72	7.1	9.1	6.3
11	7.9	17	20	11	9	10	179	44	56	7.5	7.9	3.7
12	8.7	15	20	11	9	10	179	65	29	14	6.3	3.1
13	8.7	15	19	11	10	10	276	83	20	18	5.2	4.3
14	8.7	15	18	11	10	10	295	75	18	11	4.9	3.7
15	8.7	15	16	11	11	10	179	47	22	10	4.6	9.1
16	9.5	13	15	12	12	10	142	36	31	10	4.6	18
17	10	15	15	12	12	10	118	31	21	6.3	4.3	21
18	14	23	14	12	12	12	78	29	15	3.4	6.7	29
19	20	25	14	12	12	14	47	27	11	3.7	6.3	20
20	27	18	15	12	12	17	54	84	10	70	6.3	14
21	22	17	15	12	13	20	50	75	12	97	4.9	22
22	21	16	14	12	13	28	44	72	9.1	41	2.5	29
23	20	15	13	12	13	40	36	78	21	29	2.5	36
24	25	13	13	12	12	60	36	96	13	20	4.0	41
25	26	13	12	12	12	44	41	123	10	15	2.2	39
26	27	14	11	11	12	53	38	88	10	10	1.9	47
27	31	14	11	11	12	64	36	69	9.5	7.9	3.1	67
28	27	13	11	11	12	77	69	40	8.7	6.3	4.0	72
29	41	12	11	11	-------	101	81	36	6.3	19	4.9	29
30	41	13	11	11	-------	110	78	25	6.7	46	4.3	20
31	31	-------	10	11	-------	81	-------	38	-------	31	3.7	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	41	7.9	17.0	0.659	0.76
November	25	12	16.4	.636	.71
December	24	10	15.8	.612	.71
January	12	10	11.1	.430	.50
February	13	9	10.9	.422	.44
March	110	10	29.1	1.13	1.30
April	295	36	117	4.53	5.05
May	123	25	61.0	2.36	2.72
June	88	6.3	27.1	1.05	1.17
July	97	2.5	17.7	.686	.79
August	17	1.9	5.52	.214	.25
September	72	3.1	20.6	798	.89
The year	295	1.9	29.1	1.13	15.29

RAQUETTE RIVER AT PIERCEFIELD, N. Y.

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

DRAINAGE AREA.—723 square miles.

RECORDS AVAILABLE.—August, 1908, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,620 second-feet Apr. 22 (gage height, 8.75 feet); minimum (estimated), 65 second-feet Feb. 9.

1908–1931: 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 corrected for backwater from wood pulp during most of January, February, and March, and those estimated, 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	415	374	e 330	444	e 180	320	533	2,950	1,410	596	1,020	174
2	401	202	e 430	474	e 280	200	537	2,950	1,380	521	588	176
3	401	284	e 415	474	e 380	220	587	2,850	1,350	387	587	782
4	469	387	e 415	340	e 380	431	838	2,760	1,560	197	604	593
5	271	347	e 401	180	e 360	537	475	2,850	1,470	e 220	1,060	467
6	181	e 334	e 480	200	e 360	537	316	2,760	1,380	e 220	1,020	298
7	185	e 329	e 358	380	e 240	570	479	2,580	1,150	e 220	1,020	166
8	410	e 282	183	474	e 100	340	946	2,490	1,100	736	998	178
9	430	181	187	474	e 65	220	1,070	2,400	1,340	544	508	555
10	401	e 188	196	474	e 90	220	1,230	2,150	1,300	482	380	432
11	401	e 319	459	300	e 170	420	1,590	2,310	1,240	386	412	390
12	262	387	510	150	170	444	1,820	2,220	1,200	214	945	360
13	185	e 374	e 398	420	170	459	2,140	2,140	1,120	240	975	233
14	341	e 299	e 201	459	180	444	2,490	2,060	784	752	908	175
15	387	e 317	e 246	459	200	280	2,940	1,980	735	611	829	176
16	374	e 208	e 476	448	441	220	3,050	1,770	735	667	444	426
17	334	e 231	e 474	420	444	220	3,150	1,690	1,080	508	244	415
18	374	e 322	e 430	260	444	180	3,250	1,690	1,020	220	258	430
19	244	e 319	e 416	160	444	400	3,250	1,880	975	242	309	e 450
20	183	e 324	598	170	420	537	3,350	1,800	975	269	975	e 220
21	178	e 360	346	400	459	485	3,350	1,720	552	864	726	e 230
22	178	e 374	206	459	340	280	3,570	1,660	426	912	760	709
23	306	e 212	e 183	444	420	190	3,460	1,620	459	877	409	691
24	415	e 85	e 214	444	505	360	3,460	1,470	929	914	221	609
25	387	e 135	e 205	220	505	420	3,460	1,530	975	527	230	658
26	268	e 220	e 201	e 280	505	430	3,350	1,790	952	448	244	690
27	188	e 401	e 201	e 400	523	444	3,350	1,800	930	604	924	404
28	327	e 474	e 231	e 444	505	480	3,350	1,760	475	1,070	760	207
29	387	e 312	e 481	e 430	-------	320	3,350	1,720	520	1,040	521	840
30	374	e 147	459	430	-------	260	3,040	1,500	792	1,040	326	862
31	374	-------	444	e 420	-------	420	-------	1,470	-------	1,020	180	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	469	178	324	0.448	0.52
November	474	85	291	.402	.45
December	598	183	348	.481	.55
January	474	150	372	.515	.59
February	523	65	331	.458	.48
March	570	180	364	.503	.58
April	3,570	316	2,260	3.13	3.49
May	2,950	1,470	2,070	2.86	3.30
June	1,560	426	1,010	1.40	1.56
July	1,070	214	566	.783	.90
August	1,060	180	625	.864	1.00
September	862	166	433	.599	.67
The year	3,570	65	751	1.04	14.09

e Estimated.

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, 1931.

EXTREMES.—Maximum discharge during year, 5,420 second-feet Apr. 11 (gage height, 9.23 feet); minimum, 135 second-feet Aug. 17, 29 (gage height, 5.70 feet).

1910–1917, 1919–1931: Maximum discharge, about 16,200 second-feet Mar. 27, 1914 (gage height, 9.1 feet, old datum); minimum, about 74 second-feet Aug. 8, 1917 (gage height, 5.25 feet).

REMARKS.—Records good except those for period of ice effect, Jan. 7 to Mar. 16, and those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	262		384	e 262	240	340	1,540	1,370	776	236	339	210
2	289		384	e 289	240	320	1,970	1,530	701	230	289	262
3	242		418	e 332	260	300	2,050	2,060	614	276	242	384
4	213		443	332	260	300	2,270	2,620	551	434	249	376
5	230	e 400	451	316	260	360	2,080	2,290	560	401	276	419
6	207		e 451	302	240	360	2,080	1,870	702	269	255	276
7	219		e 443	300	240	340	2,000	1,390	796	249	339	262
8	230	e 296	e 477	280	260	360	1,970	1,080	1,060	255	289	354
9	230	349	e 486	260	260	360	2,110	1,040	1,270	249	249	316
10	e 309	346	e 551	260	260	380	2,660		1,290	230	236	249
11	276	339	e 496	280	260	400	e 4,600		1,100	288	255	223
12	242	346	e 434	280	260	360	e 5,120		864	465	249	174
13	201	346	e 346	260	260	320	e 4,260		716	513	346	155
14	258	339	e 332	240	280	320	e 3,580		620	496	354	155
15	282	339	e 324	200	320	340	e 3,030		570	560	296	e 249
16	e 324	346	e 324	220	340	340	e 2,600	e 975	903	496	190	e 255
17		376	e 324	260	360	339	e 2,190		838	460	145	302
18		418	e 339	260	360	354	1,950		712	443	190	650
19		560	e 362	280	360	376	1,760		551	e 392	276	460
20	e 320	580	e 384	300	380	401	1,510		486	e 550	225	409
21		514	e 362	300	360	434	1,330		434		225	677
22		434	e 354	280	360	551	1,190		401	e 2,700	196	859
23		384	e 339	240	340	754	1,050		392		169	1,280
24	269	354	e 332	220	340	1,040	958		362		196	1,170
25	304	475	309	240	340	1,470	849	e 1,590	339	e 1,100	179	1,340
26	443	295	339	260	360	1,480	870	1,500	324	551	179	1,100
27	324	242	e 346	300	360	1,310	1,080	1,240	316	426	169	1,020
28	486	196	e 309	300	340	1,440	1,180	1,000	309	412	145	1,100
29	531	262	e 302	280	------	1,680	1,430	870	269	276	145	914
30	723	289	e 289	260	------	1,940	1,370	681	225	334	184	734
31	532	------	e 269	260	------	1,740	------	754	------	339	207	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	723	201	318	0.516	0.59
November	580	196	374	.607	.68
December	551	269	378	.614	.71
January	332	200	273	.443	.51
February	380	240	304	.494	.51
March	1,940	300	671	1.09	1.26
April	5,120	849	2,090	3.39	3.78
May	2,620	681	1,210	1.96	2.26
June	1,290	225	635	1.03	1.15
July	------	230	701	1.14	1.31
August	354	145	235	.381	.44
September	1,340	155	544	.883	.99
The year	5,120	145	644	1.05	14.19

e Estimated.

SALMON RIVER AT CHASM FALLS, N. Y.

LOCATION.—Water-stage recorder at Chasm Falls, Franklin County, one-fourth mile below power plant of Malone Light & Power Co.

DRAINAGE AREA.—131 square miles.

RECORDS AVAILABLE.—July, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,360 second-feet Apr. 11 (gage height, 3.57 feet; minimum, about 17 second-feet Sept. 13 (gage height, 0.59 foot).

1925–1931: Maximum discharge, 2,890 second-feet Apr. 25, 1926 (gage height, 5.0 feet); minimum, that of Sept. 13, 1931.

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

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	117	146	a 75	103	76	a 210	275	190	74	144	71
2	132	104	126	a 85	134	102	a 230	339	155	80	121	106
3	133	153	138	a 85	124	120	a 260	484	140	83	106	117
4	101	148	139	69	127	120	a 280	508	132	140	109	90
5	80	141	122	100	116	123	264	386	137	111	93	70
6	137	131	122	138	106	117	272	327	149	93	73	100
7	139	114	122	118	105	114	285	293	166	83	103	113
8	138	105	131	125	94	89	313	261	209	80	81	88
9	91	112	130	128	138	106	432	247	204	87	80	64
10	100	133	127	115	123	128	a 850	a 230	182	102	132	64
11	115	126	122	a 110	108	a 125	a 1,300	218	160	180	90	62
12	74	129	155	a 120	119	a 130	1,230	264	146	122	86	62
13	101	124	130	a 120	132	a 120	a 950	251	132	109	96	54
14	126	126	88	a 120	119	a 120	a 800	218	117	99	85	80
15	116	103	96	a 110	82	108	a 720	197	140	104	a 88	97
16	94	92	138	a 110	118	132	a 660	185	182	90	a 85	126
17	105	142	135	a 110	127	a 130	a 600	103	137	81	87	140
18	96	158	123	85	121	a 125	a 570	187	119	88	87	149
19	94	144	120	103	124	a 120	a 560	168	108	69	83	101
20	110	130	111	118	120	a 120	500	302	76	130	74	107
21	112	125	94	132	112	115	460	260	78	536	71	225
22	113	120	123	130	95	130	418	225	121	360	71	173
23	117	78	124	118	100	144	364	238	127	241	64	209
24	140	132	108	119	122	a 150	311	314	98	218	61	238
25	124	121	96	113	119	a 150	271	288	78	190	42	247
26	108	116	106	119	112	a 160	251	257	66	156	57	197
27	141	a 110	116	126	101	a 180	275	218	90	133	77	235
28	127	a 110	80	124	102	a 200	264	185	84	130	59	200
29	152	a 110	119	135	-------	212	293	170	85	127	76	171
30	127	106	126	126	-------	215	315	157	80	262	80	142
31	121	-------	110	112	-------	a 200	-------	188	-------	178	78	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	152	74	116	0.885	1.02
November	158	78	122	.931	1.04
December	155	80	120	.916	1.06
January	138	69	113	.863	.99
February	138	82	114	.870	.91
March	215	76	135	1.03	1.19
April	1,300	210	484	3.69	4.12
May	508	157	259	1.98	2.28
June	209	66	130	.992	1.11
July	536	69	146	1.11	1.28
August	144	42	85.1	.650	.75
September	247	54	130	.992	1.11
The year	1,300	42	163	1.24	16.86

a Estimated.

CHATEAUGAY RIVER NEAR CHATEAUGAY, N. Y.

LOCATION.—Water-stage recorder 150 feet below dam of International Paper Co., and 1 mile south of Chateaugay, Franklin County.

DRAINAGE AREA.—114 square miles.

RECORDS AVAILABLE.—September to December, 1908; October, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 500 second-feet Apr. 21 (gage height, 3.90 feet); minimum, 34 second-feet Aug. 24 (gage height, 0.89 foot).

1908, 1926–1931: Maximum discharge, 2,060 second-feet Apr. 8, 1928 (gage height, 7.3 feet); minimum, 6 second-feet Nov. 20, 1928 (gage height, 0.23 foot).

REMARKS.—Records good except those for periods of ice effect, Jan. 9, 10, 15, 16, Jan. 28 to Feb. 3, Feb. 10–17, 20–23, and that estimated for Nov. 16, which are fair. Flow regulated by storage in Upper and Lower Chateaugay Lakes.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	103	90	71	75	75	123	217	136	122	113	117
2	113	102	79	79	80	74	141	281	129	113	78	112
3	115	111	94	73	75	68	226	285	123	112	118	107
4	109	99	90	66	67	66	226	283	119	108	121	107
5	113	92	97	69	76	67	185	274	115	130	125	108
6	103	90	87	67	66	60	187	271	109	104	94	112
7	109	86	96	90	69	76	175	250	126	109	108	105
8	116	88	89	88	69	64	180	233	126	110	125	108
9	106	99	88	90	70	68	169	206	122	111	109	94
10	109	95	82	90	65	75	284	207	116	110	105	98
11	104	91	83	85	60	68	296	190	128	107	103	98
12	98	94	90	94	65	71	252	177	153	112	106	95
13	111	92	79	75	65	69	306	179	143	110	105	101
14	105	93	89	75	70	76	325	156	142	111	102	99
15	103	91	88	80	65	77	267	146	144	109	104	118
16	107	97	86	80	70	82	272	148	134	108	105	103
17	104	103	103	82	75	76	296	140	134	107	106	102
18	109	90	99	78	68	70	315	144	131	100	118	103
19	109	91	95	76	67	66	371	130	122	109	104	99
20	107	90	81	78	75	75	408	156	115	104	103	98
21	104	90	73	81	70	78	437	143	115	105	98	100
22	102	93	90	78	75	68	406	134	115	104	111	104
23	104	88	80	76	75	79	306	146	107	102	100	95
24	102	87	80	75	66	81	254	171	111	108	89	120
25	105	91	65	78	67	83	188	203	111	108	99	102
26	101	89	86	89	67	91	195	214	108	116	98	101
27	116	84	76	83	60	91	180	200	111	112	101	104
28	115	82	67	75	67	99	203	183	118	111	99	96
29	113	86	81	75	-------	124	213	173	110	112	112	97
30	111	92	74	75	-------	128	216	150	116	115	111	93
31	108	-------	74	75	-------	122	-------	164	-------	124	112	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	119	98	108	----------	----------
November	111	82	92.6	----------	----------
December	103	65	84.9	----------	----------
January	94	66	78.9	----------	----------
February	80	60	69.2	----------	----------
March	128	60	79.6	----------	----------
April	437	123	253	----------	----------
May	285	130	192	----------	----------
June	153	107	123	----------	----------
July	130	100	110	----------	----------
August	125	78	106	----------	----------
September	120	93	103	----------	----------
The year	437	60	117	1.03	13.90

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, 1931.

EXTREMES.—Maximum elevation during year, 97.07 feet Apr. 13; minimum, 92.75 feet Jan. 6.

1869–1931: Maximum elevation known, 103.28 feet Apr. 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.80	0.42	0.38	0.43	0.48	0.60	2.67	4.15	3.08	2.35	2.40	1.60
2	.78	.45	.47	.40	.45	.58	2.88	4.37	3.17	2.38	2.48	1.40
3	.76	.57	.60	.45	.48	.57	3.00	3.92	3.10	2.40	2.57	1.43
4	.70	.50	.40	.35	.42	.58	3.10	4.15	3.12	2.33	2.38	1.42
5	.68	.40	.55	.30	.43	.60	3.25	4.05	2.97	2.20	2.33	1.45
6	.65	.37	.57	.25	.44	.63	3.34	4.02	3.00	2.70	2.37	1.40
7	.70	.40	.57	.45	.45	.65	3.45	4.07	3.30	2.17	2.20	1.25
8	.90	.62	.52	.50	.48	.67	3.49	3.92	2.70	2.07	2.22	1.22
9	.73	.53	.60	.52	.47	.72	3.60	3.87	2.82	2.02	2.20	1.25
10	.68	.40	.50	.45	.48	.75	4.17	3.75	2.83	2.00	2.12	1.30
11	.65	.58	.52	.42	.50	.78	3.92	3.77	2.98	2.15	2.10	1.37
12	.65	.68	.60	.43	.52	.75	4.07	3.67	2.90	2.30	2.02	1.25
13	.67	.55	.38	.52	.54	.73	4.57	3.69	3.05	2.35	2.05	1.37
14	.63	.55	.48	.45	.55	.70	4.20	3.60	3.15	2.30	2.08	1.20
15	.63	.50	.37	.40	.55	.70	4.34	3.62	3.03	2.25	2.07	1.15
16	.55	.52	.55	.40	.55	.70	4.45	3.57	2.95	2.22	2.05	1.12
17	.70	.60	.52	.38	.55	.68	4.47	3.52	2.93	2.17	1.98	(a)
18	.73	.50	.50	.40	.57	.70	4.40	3.55	2.98	2.15	2.03	1.10
19	.75	.50	.48	.45	.60	.73	4.45	3.57	2.98	2.23	1.90	1.15
20	.50	.50	.47	.52	.62	.75	4.47	3.52	2.83	2.25	1.83	1.18
21	.50	.62	.52	.50	.60	.80	4.47	3.40	2.78	2.23	1.80	1.20
22	.53	.48	.52	.45	.60	.85	4.50	3.42	2.75	2.32	1.77	1.28
23	.65	.72	.43	.45	.60	.92	4.47	3.20	2.65	2.43	1.77	1.30
24	.45	.75	.43	.43	.60	1.05	4.39	3.47	2.63	2.40	1.80	1.20
25	(a)	.47	.60	.45	.62	1.22	4.42	3.62	2.65	2.42	1.75	1.33
26	.45	.52	.50	.45	.62	1.43	4.47	3.47	2.57	2.47	1.58	1.58
27	.65	.43	.38	.44	.60	1.62	4.17	3.45	2.50	2.50	1.58	1.45
28	.53	.37	.43	.44	.60	1.90	4.32	3.45	2.43	2.47	1.70	1.52
29	.43	(a)	.48	.46	-------	2.07	4.09	3.40	2.40	2.53	1.63	1.53
30	.50	(a)	.43	.47	-------	2.38	4.17	3.32	2.38	2.42	1.63	1.67
31	.48	-------	.50	.48	-------	2.58	-------	3.35	-------	2.40	1.52	-------

a Reading doubtful.

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, 1931.

EXTREMES.—Maximum gage height recorded during year, 4.51 feet Apr. 23; minimum, 0.40 foot Nov. 3.

1907–1931: 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.90	0.50	0.45				2.75	4.25	3.25	2.37	2.44	1.49
2	.87					0.68	2.85		3.20		2.47	1.47
3	.85	.40							3.10	2.27	2.43	1.43
4		.43	.49		0.54			4.09	3.05		2.41	1.47
5		.49						4.09	3.04	2.15		
6	.77						3.43	4.05	2.99		2.33	
7	.75						3.50	4.01		2.09	2.30	1.37
8		.45					3.56		2.85	2.03		1.35
9	.68		.52		.50	.66	3.61	3.93	2.95	2.07		1.35
10	.68	.51	.55						3.00	2.09		1.27
11	.68					.75	3.77	3.81	3.07	2.17		1.26
12		.45	.53	0.49		.73		3.81	3.10	2.27	2.13	1.25
13	.64	.47	.55				4.23	3.73	3.09			
14	.63	.47				.74		3.73		2.31	2.09	1.17
15		.51							3.01	2.31	2.04	1.15
16	.65				.54	.74		3.59	3.03	2.29		1.23
17	.65	.51	.51			.77	4.47		2.99	2.27	1.99	
18	.67	.53	.51			.78	4.49	3.55	2.99	2.24	1.95	1.15
19			.50			.79			2.91		1.92	1.15
20		.57				.80		3.45	2.87	2.19	1.94	
21		.57				.85	4.49	3.39	2.85	2.15	1.89	1.25
22	.50	.55					4.49	3.35	2.81		1.86	1.15
23						.97	4.51		2.84	2.35		1.27
24		.49			.65	1.10	4.49		2.73	2.37	1.76	1.43
25		.49				1.25	4.44	3.39	2.65	2.39	1.69	1.49
26		.49				1.47		3.45	2.59		1.67	1.51
27						1.69		3.47	2.59	2.41	1.66	1.59
28						1.90	4.30	3.43				
29							4.27		2.47	2.39	1.57	1.61
30						2.40	4.25	3.35	2.39	2.42		1.61
31						2.62					1.53	

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, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 2,340 second-feet Apr. 11 (gage height, 6.54 feet); minimum, 4.0 second-feet Nov. 28 (gage height, 1.60 feet).

1928–1931: Maximum discharge, 5,810 second-feet Mar. 16, 1929; maximum gage height, 11.2 feet Mar. 15, 1929; minimum discharge, that of Nov. 28, 1930.

REMARKS.—Records good except those for periods of ice effect, Nov. 22–25, Nov. 29 to Dec. 31, 1929; Jan. 1, Jan. 8 to Mar. 12, Mar. 23, 24, Dec. 1–31, 1930; Jan. 1 to Apr. 2, 1931; and those estimated, which are fair.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929-30												
1	31	39	55	420	a 240	600	1,060	316	264	119	70	31
2	31	64	70	575	a 240	550	1,290	399	222	119	85	35
3	71	73	60	732	a 240	420	1,140	751	194	107	77	43
4	151	96	55	815	a 240	400	1,080	591	169	85	84	55
5	172	65	50	652	a 220	380	1,040	370	115	83	73	51
6	130	50	55	690	a 220	400	1,470	290	101	96	66	38
7	76	48	50	1,110	a 220	440	2,620	243	105	127	64	27
8	62	34	50	3,000	a 220	500	3,440	234	98	101	66	31
9	61	46	48	4,000	220	750	1,390	246	98	91	48	37
10	56	39	46	1,500	220	900	815	202	140	96	42	32
11	37	91	44	1,000	200	1,000	866	186	148	100	37	22
12	39	55	42	1,000	200	1,100	1,350	182	117	113	44	27
13	62	52	40	1,100	200	1,210	1,630	133	100	109	37	29
14	73	66	65	1,000	200	1,060	1,580	121	91	111	30	24
15	43	210	110	1,100	190	a 900	1,000	129	84	133	30	32
16	36	256	95	700	190	a 800	640	208	78	105	39	38
17	38	192	75	460	180	a 750	483	243	185	85	44	47
18	84	168	65	380	180	a 700	483	182	497	77	36	42
19	73	264	55	360	180	a 650	704	184	541	84	42	44
20	61	282	55	340	340	a 600	708	704	1,670	75	36	38
21	73	111	50	340	1,300	a 550	491	874	1,240	82	37	28
22	65	90	48	320	1,600	a 550	614	470	1,110	89	44	33
23	52	80	46	300	1,800	550	631	323	534	107	38	49
24	78	70	44	300	2,200	550	458	237	313	89	28	33
25	99	60	44	280	1,800	522	415	233	231	98	41	26
26	68	60	70	280	1,000	845	454	590	182	72	42	23
27	40	86	120	260	750	1,030	430	564	148	125	38	30
28	50	78	130	260	700	920	377	458	144	151	39	19
29	45	65	120	260	-------	815	340	381	129	209	35	26
30	38	55	190	260	-------	740	323	407	115	188	31	28
31	41	-------	280	240	-------	850	-------	330	-------	105	22	-------

Daily and monthly discharge, in second-feet, of Great Chazy River at Perry Mills, N. Y., 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	31	42	a 55	75	130	130	700	348	115	48	82	23
2	23	24	a 42	75	130	130	900	296	95	27	70	28
3	29	27	a 34	85	130	120	1,030	264	78	27	72	29
4	30	37	a 24	95	130	120	1,410	306	77	66	73	31
5	21	36	a 22	110	130	120	1,090	258	77	82	58	40
6	26	33	a 19	130	120	120	910	205	87	53	47	31
7	28	36	20	170	120	120	822	186	98	38	49	32
8	24	33	26	180	120	120	740	162	111	37	34	35
9	25	27	30	170	120	120	940	129	127	34	28	31
10	27	48	34	170	120	130	1,350	121	140	34	41	30
11	20	52	38	170	120	120	2,170	124	116	88	64	27
12	11	36	42	170	120	120	1,430	122	98	93	56	22
13	20	33	40	170	140	120	795	125	84	60	38	24
14	24	31	30	160	170	120	1,080	115	84	45	34	23
15	22	36	26	160	170	120	690	107	183	36	34	20
16	21	30	28	150	160	120	487	109	283	32	27	68
17	29	36	38	150	160	130	410	115	153	30	34	71
18	36	49	60	160	150	130	450	107	116	28	27	64
19	34	49	70	160	150	140	512	98	97	27	33	54
20	43	47	65	170	150	150	403	111	81	36	31	41
21	48	45	75	160	140	170	348	125	67	286	15	71
22	27	41	85	160	140	220	283	113	76	258	21	123
23	38	26	85	150	140	300	240	112	58	207	21	240
24	30	40	80	150	140	420	228	239	48	254	26	135
25	47	37	75	140	140	600	219	386	43	196	22	211
26	43	35	75	150	140	600	169	332	42	136	25	192
27	41	37	85	160	130	550	194	239	46	94	28	415
28	50	22	70	150	130	600	215	182	41	76	25	255
29	36	a 19	90	150	------	750	269	145	53	67	19	182
30	48	a 30	80	140	------	850	434	105	47	136	24	132
31	47	------	80	140	------	750	------	87	------	115	21	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1929–30					
October	172	31	65.7	0.270	0.31
November	282	34	98.2	.404	.45
December	280	40	75.1	.309	.36
January	4,000	240	775	3.19	3.68
February	2,200	180	553	2.28	2.37
March	1,210	380	711	2.93	3.38
April	3,440	323	977	4.02	4.48
May	874	121	348	1.43	1.65
June	1,670	78	305	1.26	1.41
July	209	72	107	.440	.51
August	85	22	46.6	.192	.22
September	55	19	33.9	.139	.16
The year	4,000	19	340	1.40	18.98
1930–31					
October	50	11	31.6	0.130	0.15
November	52	19	35.8	.147	.16
December	90	19	52.4	.216	.25
January	180	75	146	.601	.69
February	170	120	137	.564	.59
March	850	120	268	1.10	1.27
April	2,170	169	697	2.87	3.20
May	386	87	177	.728	.84
June	283	41	94.1	.387	.43
July	286	27	88.6	.365	.42
August	82	15	38.0	.156	.18
September	415	20	89.3	.367	.41
The year	2,170	11	154	.634	8.59

a Estimated.

NOTE.—Records for Oct. 1, 1929, to Sept. 30, 1930, supersede those published in Water-Supply Paper 699.

SARANAC RIVER AT SARANAC, N. Y.

LOCATION.—Water-stage recorder 500 feet above highway bridge at Saranac, Clinton County.
DRAINAGE AREA.—520 square miles.
RECORDS AVAILABLE.—September, 1930, to September, 1931.
EXTREMES.—Maximum discharge during period, 2,740 second-feet Apr. 11 (gage height, 5.14 feet); minimum, 105 second-feet Nov. 28 (gage height, 1.65 feet).
REMARKS.—Records good except those for period of ice effect, Dec. 3 to Mar. 28, and those estimated, which are fair. Flow regulated by storage in Lower Saranac Lake.

Daily and monthly discharge, in second-feet, 1930–31

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	349	315	354	130		130	532	1,080	497	387	290	264
2	-------	349	270	323	150		130	623	1,080	414	387	307	267
3	-------	358	264	200	190		a 130	748	1,150	464	421	318	282
4	-------	352	316	150	180		a 120	857	1,060	471	417	316	268
5	a 377	314	319	170	190		a 200	785	972	448	387	377	250
6	387	324	341	200	180		200	593	1,010	471	377	344	220
7	377	320	295	220			190	550	909	465	396	351	216
8	377	318	330	170			180	558	810	550	391	363	217
9	377	321	288	160			220	825	774	558	427	338	248
10	379	325	232	150			240	1,230	720	584	522	320	248
11	371	274	270	130			240	2,310	810	519	566	369	233
12	371	266	270	120		a 170	240	1,490	864	471	300	358	253
13	366	270	270	120	a 170		220	1,780	864	448	249	299	183
14	340	290	270	130			220	2,390	846	417	346	270	218
15	356	295	212	160			220	2,020	828	417	323	259	310
16	494	332	200	170			240	1,780	832	411	327	329	258
17	536	291	248	180			260	1,660	723	348	349	202	215
18	414	332	295	180			260	1,710	640	342	321	216	165
19	387	281	255	180	a 190		240	1,710	584	396	313	240	171
20	373	149	254	190	180		220	1,530	532	406	356	254	188
21	350	133	284	180	180		240	1,520	383	322	448	250	236
22	363	129	248	180			260	1,480	251	387	363	230	223
23	362	138	254	170		a 170	300	1,420	271	387	276	224	224
24	360	346	210	170		160	320	1,320	514		234	236	190
25	348	438	229	170		160	340	1,200	563		167	234	189
26	354	409	230	160	a 170	170	360	1,200	704	a 375	164	260	188
27	349	382	177	160		160	380	1,120	719		231	264	244
28	358	387	213	160		150	420	1,060	672		252	266	212
29	a 350	377	348	170		-------	450	1,130	602	331	318	224	209
30	343	349	464	180		-------	602	1,170	637	327	412	252	219
31	-------	332	-------	180		-------	574	-------	584	-------	349	222	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1930					
September 5–30	536	340	378	0.727	0.70
1930–31					
October	438	129	307	.590	.68
November	464	177	272	.523	.58
December	354	120	179	.344	.40
January	190	130	171	.329	.38
February	-------	150	168	.323	.34
March	602	120	269	.517	.60
April	2,390	532	1,280	2.46	2.74
May	1,150	251	742	1.43	1.65
June	584	322	424	.815	.91
July	566	164	348	.669	.77
August	377	202	283	.544	.63
September	310	165	227	.437	.49
The year	2,390	120	389	.748	10.17

a Estimated.

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

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

DRAINAGE AREA.—116 square miles.

RECORDS AVAILABLE.—June, 1916, to December, 1917; July, 1919, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,840 second-feet Apr. 11 (gage height, 6.03 feet); minimum, 26 second-feet Aug. 24, 25, 26.

1916–17; 1919–1931: Maximum discharge, 5,150 second-feet Oct. 1, 1924 (gage height, 9.0 feet); minimum, practically zero Sept. 13, 1920, caused by closing gates in logging dam (gage height, 1.60 feet).

REMARKS.—Records good except those for periods of ice effect, Nov. 28, Dec. 5, Dec. 14 to Mar. 28, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	84	114	44	30	46	125	244	140	48	89	35
2	80	62	113	48	30	32	132	272	130	51	78	56
3	50	59	98	40	32	44	152	702	108	95	62	84
4	55	68	77	46	34	44	178	470	112	72	66	76
5	52	79	70	44	28	36	137	446	111	63	59	57
6	55	81	66	42	32	46	139	604	132	50	53	54
7	46	76	72	42	28	38	140	650	134	46	51	49
8	47	77	73	60	28	40	118	715	321	46	48	45
9	48	66	70	44	36	38	173	620	290	46	53	43
10	45	63	68	55	32	50	375	493	283	106	66	42
11	48	57	62	48	28	44	1,560	512	208	714	64	38
12	46	60	82	40	30	50	922	396	146	323	57	37
13	52	61	62	42	36	42	990	339	123	172	56	35
14	47	58	60	48	34	48	1,340	316	102	152	55	38
15	43	69	55	44	28	50	815	265	111	124	62	117
16	69	95	55	40	30	50	625	276	189	102	58	174
17	62	320	50	34	32	48	610	316	144	82	49	119
18	86	204	48	38	50	55	785	225	104	68	50	123
19	92	144	65	40	50	50	845	206	86	63	54	83
20	89	113	55	44	50	55	948	355	77	62	48	75
21	55	96	60	40	46	55	1,250	367	77	272	46	185
22	68	82	48	46	46	60	1,400	286	78	717	42	146
23	50	82	60	46	42	75	1,150	365	71	410	38	148
24	58	74	46	34	55	70	686	655	76	217	39	145
25	66	72	44	36	42	85	462	517	67	156	33	180
26	69	78	60	40	44	100	426	363	61	119	36	153
27	74	44	55	38	44	110	702	272	60	101	35	233
28	73	50	46	46	42	130	418	215	57	83	58	160
29	74	46	55	34	-------	149	339	180	51	75	37	126
30	101	71	48	44	-------	169	283	154	50	164	35	102
31	84	-------	44	34	-------	152	-------	154	-------	128	39	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	101	43	62.6	0.540	0.62
November	320	44	86.4	.745	.83
December	114	44	63.9	.551	.64
January	60	34	42.6	.367	.42
February	55	28	37.1	.320	.33
March	169	32	66.5	.573	.66
April	1,560	118	608	5.24	5.85
May	715	154	385	3.32	3.83
June	321	50	123	1.06	1.18
July	717	46	159	1.37	1.58
August	89	33	52.1	.449	.59
September	233	35	98.6	.850	.95
The year	1,560	28	149	1.28	17.41

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, 1931.
EXTREMES.—Maximum discharge during year, 6,420 second-feet Apr. 11 (gage height, 6.19 feet); minimum, 78 second-feet Oct. 12 (gage height, 1.01 feet). 1924–1931: Maximum discharge, about 19,100 second-feet Oct. 1, 1924 (gage height, 10.55 feet); minimum, that of Oct. 12, 1930.
REMARKS.—Records good except those for period of ice effect, Nov. 29 to Mar. 26, which are fair. Flow partly regulated by storage, principally in Taylor Pond and Fern Lake.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	191	252	280	150	130	110	444	684	408	122	246	162
2	201	230	300	140	120	120	528	677	349	122	208	169
3	201	212	280	150	120	120	587	1,440	309	133	181	228
4	181	222	260	150	120	120	755	1,310	288	156	175	256
5	169	248	240	160	120	120	644	1,120	292	147	156	205
6	178	272	220	160	110	120	631	1,580	235	130	139	175
7	172	241	240	150	110	130	670	1,690	354	128	139	156
8	175	248	240	150	110	130	631	1,690	1,000	120	136	175
9	181	226	220	160	110	130	824	1,690	1,080	125	147	175
10	181	241	190	150	110	130	1,580	1,360	1,080	379	159	162
11	178	215	190	140	110	120	5,300	1,420	740	1,320	172	156
12	167	205	190	140	110	120	3,290	1,140	516	784	158	128
13	188	205	220	140	120	120	2,430	938	397	438	178	112
14	178	198	180	140	120	130	4,190	871	335	318	188	133
15	188	208	170	130	110	130	2,560	748	318	309	205	172
16	230	223	160	130	110	150	1,810	705	455	256	178	328
17	222	598	160	130	110	160	1,690	823	397	222	169	269
18	271	657	170	133	120	150	2,290	624	318	201	159	309
19	296	449	180	150	130	150	2,540	522	256	169	175	276
20	264	340	190	170	130	150	2,790	748	215	172	169	222
21	230	284	180	150	130	150	3,650	800	234	551	169	392
22	219	245	190	140	120	160	3,900	733	215	1,460	133	455
23	205	226	190	130	110	180	3,380	951	212	1,030	125	499
24	226	226	180	130	120	200	2,040	2,700	212	650	142	413
25	256	245	170	120	130	240	1,310	2,170	201	433	133	465
26	268	245	190	120	130	300	998	1,360	184	331	120	392
27	245	188	200	130	120	382	1,800	954	144	284	133	582
28	219	175	190	130	120	449	1,210	698	133	230	153	510
29	234	200	180	130	------	493	972	557	144	201	136	397
30	276	220	170	130	------	545	847.	460	125	270	122	318
31	272	------	170	130	------	449	------	433	------	349	147	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	296	167	215	0.480	0.55
November	657	175	265	.592	.66
December	300	160	203	.453	.52
January	170	120	141	.315	.36
February	130	110	118	.263	.27
March	545	110	199	.444	.51
April	5,300	444	1,880	4.20	4.69
May	2,700	433	1,080	2.41	2.78
June	1,080	125	375	.837	.93
July	1,460	120	372	.830	.96
August	246	120	160	.357	.41
September	582	112	280	.625	.70
The year	5,300	110	440	.982	13.34

BLACK BROOK AT BLACK BROOK, N. Y.

LOCATION.—Staff gage 100 feet below hydroelectric plant of Associated Gas & Electric System and three-fourths mile south of Black Brook, Clinton County.
DRAINAGE AREA.—49.3 square miles.
RECORDS AVAILABLE.—September, 1924, to September, 1931.
EXTREMES.—Maximum discharge during year, 380 second-feet Apr. 11 (gage height, 4.1 feet); minimum, 0.8 second-foot July 2, Aug. 29 (plant shut down).
1924–1931: Maximum discharge, 720 second-feet Apr. 25, 1926 (gage height, 5.6 feet); minimum, that of July 2, Aug. 29, 1931.
REMARKS.—Records good except those estimated, which are fair. Flow regulated by storage in Taylor Pond and Fern Lake and by operation of power plant.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	61	55	12	20	6	45	41	21	9	1.1	43
2	e 64	54	45	29	20	14	61	32	17	5	1.1	36
3	62	67	e 40	35	20	17	79	e 30	16	3.4	3.0	32
4	52	61	e 41	14	20	24	100	30	13	3.1	6	10
5	38	64	49	34	16	16	e 93	e 27	11	3.1	7	1.0
6	38	58	38	31	14	25	84	23	18	3.1	6	1.0
7	40	70	50	25	14	16	92	e 22	20	3.1	7	3.2
8	41	e 62	56	31	16	6	100	e 21	27	3.1	10	34
9	44	57	36	26	18	19	122	21	32	3.1	6	37
10	50	74	24	25	15	13	169	21	36	3.9	8	38
11	e 47	61	28	14	17	19	309	26	39	19	24	35
12	43	e 59	31	20	22	6	e 246	31	23	35	13	16
13	52	e 59	29	20	26	26	151	32	15	18	27	6
14	45	57	14	20	21	25	e 107	31	14	6	29	33
15	54	57	30	20	16	6	e 93	30	14	17	6	43
16	54	38	29	15	20	20	83	27	18	14	6	12
17	61	52	33	15	24	24	e 73	24	15	43	17	6
18	58	55	30	14	24	17	70	21	10	29	21	7
19	51	35	30	33	20	9	74	19	e 9	6	28	21
20	69	13	22	20	24	11	67	20	9	6	27	6
21	56	17	6	22	18	10	54	26	9	6	24	6
22	53	32	20	20	15	6	48	26	24	6	6	16
23	55	e 13	38	20	23	12	44	33	17	6	6	17
24	61	49	24	20	19	10	35	57	18	6	28	13
25	66	55	7	12	19	11	31	75	14	7	29	11
26	59	e 48	57	20	19	8	e 30	62	15	7	32	11
27	47	e 44	64	28	20	21	e 30	50	9	7	36	6
28	40	e 41	30	21	18	28	30	37	6	7	26	14
29	57	54	20	29	------	39	36	32	12	7	5	12
30	e 64	54	37	20	------	47	e 45	23	12	6	2.9	6
31	60	------	39	20	------	58	------	21	------	1.1	35	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	70	38	53.3	----------	----------
November	74	13	50.7	----------	----------
December	64	6	33.9	----------	----------
January	35	12	22.1	----------	----------
February	26	14	19.2	----------	----------
March	58	6	18.4	----------	----------
April	309	30	86.7	----------	----------
May	75	19	31.3	----------	----------
June	39	6	17.1	----------	----------
July	43	1.1	9.65	----------	----------
August	36	1.1	15.6	----------	----------
September	43	1.0	17.7	----------	----------
The year	309	1.0	31.3	0.635	8.61

e Estimated.

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, 1931.
EXTREMES.—Maximum discharge during year, 3,340 second-feet Apr. 11 (gage height, 4.0 feet); minimum, about 34 second-feet Feb. 8, 9, 25, 26, Mar. 2, 3. 1924–1931: Maximum stage, 11.4 feet Mar. 28, 1925 (discharge not determined). Minimum discharge, that of Feb. 8, 9, 25, 26, Mar. 2, 3, 1931.
REMARKS.—Records good except those for period of ice effect, Nov. 26 to Mar. 28, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	64	95	44	38	36	165	304	161	45	121	47
2	40	62	90	42	38	34	218	298	140	40	93	57
3	40	57	85	42	38	34	252	627	118	50	84	84
4	40	54	80	44	36	36	354	570	107	45	73	107
5	40	64	75	50	36	38	252	528	107	47	64	90
6	38	87	75	55	36	40	246	770	132	45	59	76
7	38	84	75	50	36	42	257	830	140	40	54	70
8	37	73	75	48	34	46	263	790	647	40	54	59
9	37	70	70	48	34	42	320	790	640	45	57	54
10	35	62	65	48	36	44	754	675	675	246	70	47
11	35	57	65	46	36	46	2,740	712	413	661	67	45
12	38	54	70	46	38	44	1,440	570	274	268	64	38
13	38	59	65	46	40	42	939	479	203	165	70	38
14	38	54	60	46	42	44	1,850	439	157	118	73	38
15	40	57	55	46	40	48	1,160	361	136	104	118	54
16	54	67	50	44	38	50	830	335	194	90	90	118
17	57	240	50	44	38	50	830	406	169	78	64	84
18	73	348	50	44	38	50	1,140	286	136	62	57	140
19	84	235	55	44	38	50	1,190	235	118	57	62	110
20	78	165	70	44	36	55	1,290	317	96	52	62	90
21	70	128	75	44	36	55	1,680	348	100	286	57	179
22	57	107	75	42	36	60	1,760	311	90	612	54	208
23	50	96	70	42	36	65	1,490	434	73	432	50	240
24	52	90	65	40	36	70	955	1,540	81	268	47	179
25	64	87	60	40	34	85	605	1,120	73	189	42	208
26	78	80	60	40	34	110	472	712	70	144	38	161
27	67	65	55	40	36	140	874	465	64	100	38	323
28	67	50	55	40	38	170	570	348	57	100	54	240
29	67	55	50	38	-------	213	458	252	52	76	62	179
30	78	65	50	38	-------	263	380	198	45	118	57	136
31	76	-------	48	38	-------	174	-------	174	-------	157	52	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	84	35	53.0	0.266	0.31
November	348	50	94.5	.475	.53
December	95	48	65.7	.330	.38
January	55	38	44.0	.221	.25
February	42	34	36.9	.185	.19
March	263	34	73.4	.369	.43
April	2,740	165	858	4.31	4.81
May	1,540	174	523	2.63	3.03
June	675	45	182	.915	1.02
July	661	40	154	.774	.89
August	121	38	64.7	.325	.37
September	323	38	117	.588	.66
The year	2,740	34	189	.950	12.87

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, 1931.
EXTREMES.—Maximum discharge during year, 3,230 second-feet Apr. 11 (gage height, 6.02 feet); minimum, 33 second-feet Aug. 9 (gage height, 2.15 feet).
1923–1931: 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 period of ice effect, Nov. 26 to Mar. 29, and those estimated for Oct. 19, 20, Apr. 12, July 20–22, Sept. 21–24, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	71	75	60	55	48	582	307	160	56	67	46
2	63	71	110	60	55	50	742	276	156	50	56	50
3	60	65	100	60	50	48	633	317	134	52	55	58
4	63	62	95	65	50	48	859	395	116	53	55	60
5	60	77	90	75	48	48	732	312	111	58	53	60
6	58	130	90	90	48	48	607	344	130	46	55	65
7	58	100	90	80	46	50	581	361	123	45	47	60
8	60	100	90	75	46	55	607	333	393	50	39	53
9	62	90	90	70	48	55	659	344	486	50	38	50
10	62	81	85	70	48	60	938	302	532	66	39	52
11	63	79	85	70	46	55	2,530	319	363	406	43	50
12	62	73	80	70	48	55	1,830	328	247	280	45	50
13	60	73	75	75	50	55	1,020	276	193	156	45	52
14	54	69	65	70	55	50	1,650	266	149	138	45	50
15	62	67	60	70	55	55	1,070	252	130	119	47	52
16	69	65	60	65	55	60	766	220	149	113	46	60
17	79	71	60	70	50	60	702	206	149	87	55	74
18	95	156	60	70	50	60	730	176	123	72	56	72
19	95	134	65	70	50	65	877	172	105	67	60	65
20	90	106	65	70	48	65	775	160	87	58	55	67
21	85	90	85	70	48	70	882	164	70	115	50	89
22	73	85	100	65	46	80	883	168	70	226	52	113
23	73	81	100	65	48	100	856	191	68	305	50	134
24	73	77	85	65	48	120	574	925	70	164	49	172
25	92	85	85	65	50	170	418	798	74	141	45	168
26	114	80	80	65	48	240	344	550	65	119	38	145
27	98	70	75	65	48	340	564	386	72	91	42	130
28	77	60	70	60	46	500	502	286	72	80	52	134
29	69	60	65	60	------	800	400	228	67	68	52	99
30	67	75	65	60	------	756	361	193	56	67	55	87
31	65	------	60	55	------	562	------	176	------	67	52	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	114	54	71.6	0.264	0.30
November	156	60	83.4	.308	.34
December	110	60	79.4	.293	.34
January	90	55	67.7	.250	.29
February	55	46	49.4	.182	.19
March	800	48	156	.576	.66
April	2,530	344	822	3.03	3.38
May	925	160	314	1.16	1.34
June	532	56	154	.568	.63
July	406	45	112	.413	.48
August	67	38	49.6	.183	.21
September	172	46	80.6	.297	.33
The year	2,530	38	170	.627	8.49

LAKE GEORGE AT ROGERS ROCK, N. Y.

LOCATION.—Staff gage about 500 feet north of Hoopers Dock on south side of Stones Bay, Rogers Rock, Essex County.

RECORDS AVAILABLE.—July, 1913, to September, 1931.

EXTREMES.—Maximum gage height during year, 4.45 feet July 11; minimum, 1.39 feet Mar. 7.

1913–1931: Maximum gage height, 5.07 feet Apr. 18, 1922; minimum, 1.06 feet Dec. 29, 1922.

REMARKS.—Gage height estimated for Apr. 17–19; gage apparently read 1 foot too low. 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, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.71	2.07	1.91	1.59	1.47	1.47	2.03	3.17	4.07	3.91	3.97	3.57
2	2.67	2.09	1.89	1.57	1.49	1.45	2.13	3.27	4.09	3.90	3.91	3.55
3	2.63	2.07	1.89	1.55	1.47	1.43	2.27	3.31	4.07	3.89	3.89	3.53
4	2.59	2.05	1.87	1.53	1.45	1.41	2.31	3.29	4.05	3.87	3.87	3.51
5	2.57	2.06	1.85	1.51	1.46	1.43	2.33	3.31	4.11	3.87	3.85	3.49
6	2.55	2.07	1.87	1.49	1.45	1.41	2.37	3.33	4.13	3.87	3.83	3.47
7	2.53	2.05	1.85	1.51	1.46	1.39	2.47	3.31	4.15	3.86	3.81	3.45
8	2.49	2.07	1.89	1.50	1.45	1.41	2.59	3.33	4.13	3.85	3.79	3.17
9	2.47	2.06	1.87	1.49	1.43	1.43	2.73	3.35	4.07	3.83	3.85	3.45
10	2.45	2.05	1.77	1.51	1.47	1.41	2.77	3.39	4.09	3.95	3.78	3.43
11	2.43	2.03	1.79	1.53	1.49	1.43	2.95	3.39	4.13	4.45	3.77	3.43
12	2.41	2.02	1.83	1.52	1.53	1.41	3.01	3.43	4.17	4.37	3.75	3.42
13	2.39	2.01	1.81	1.51	1.55	1.43	3.09	3.45	4.19	4.35	3.77	3.41
14	2.40	2.00	1.79	1.52	1.53	1.43	3.15	3.47	4.17	4.31	3.75	3.43
15	2.37	1.99	1.77	1.51	1.55	1.45	3.13	3.49	4.15	4.27	3.73	3.45
16	2.39	1.97	1.79	1.50	1.51	1.43	3.15	3.51	4.13	4.23	3.71	3.47
17	2.17	2.06	1.77	1.49	1.49	1.45	3.47	3.53	4.11	4.21	3.69	3.45
18	2.39	1.97	1.75	1.48	1.47	1.46	3.49	3.57	4.09	4.19	3.68	3.43
19	2.41	1.99	1.75	1.49	1.47	1.45	3.51	3.61	4.07	4.17	3.67	3.37
20	2.39	2.01	1.73	1.48	1.49	1.46	3.37	3.65	4.07	4.27	3.65	3.35
21	2.27	2.03	1.71	1.50	1.51	1.45	3.57	3.67	4.05	4.25	3.63	3.33
22	2.25	2.05	1.73	1.51	1.53	1.47	3.37	3.69	4.03	4.23	3.61	3.35
23	2.23	1.97	1.71	1.55	1.55	1.46	3.17	3.77	4.05	4.19	3.59	3.33
24	2.21	2.01	1.70	1.57	1.57	1.49	3.15	3.89	4.03	4.17	3.61	3.31
25	2.19	2.00	1.69	1.59	1.57	1.53	3.13	3.91	4.01	4.15	3.59	3.29
26	2.17	2.03	1.67	1.61	1.55	1.59	3.17	3.95	3.99	4.13	3.57	3.27
27	2.17	2.01	1.65	1.59	1.53	1.67	3.37	3.99	3.97	4.11	3.55	3.25
28	2.15	1.97	1.64	1.57	1.49	1.75	3.57	4.01	3.93	4.09	3.57	3.23
29	2.13	1.95	1.63	1.53	-------	1.81	3.37	4.03	3.93	4.05	3.61	3.21
30	2.13	1.93	1.64	1.51	-------	1.89	3.27	4.05	3.92	4.03	3.63	3.23
31	2.11	-------	1.61	1.49	-------	1.95	-------	4.07	-------	3.99	3.59	-------

POULTNEY RIVER BELOW FAIR HAVEN, VT.

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

DRAINAGE AREA.—187 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,140 second-feet July 22 (gage height 10.60 feet); minimum, 16 second-feet Dec. 19 (gage height, 1.87 feet). 1928–1931: Maximum discharge, 3,190 second-feet Mar. 16, 1929 (gage height, 13.48 feet); minimum, 14 second-feet Oct. 26, 27, 1928.

REMARKS.—Records excellent except those for ice period, Jan. 8 to Mar. 24, and for July 22 to Sept. 30, which are good. Lake Bomoseen may produce seasonal storage.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	108	50	252	48	32	83	766	174	204	75	168	66
2	75	42	171	65	45	70	792	188	188	83	140	93
3	78	76	140	50	40	65	716	136	170	130	170	96
4	104	78	137	29	32	80	766	150	125	65	260	102
5	80	101	117	69	50	62	716	154	188	36	226	80
6	72	224	111	106	45	51	618	140	152	76	198	54
7	79	137	88	72	35	56	618	137	88	77	174	50
8	92	116	150	22	58	53	870	117	152	104	152	54
9	98	72	100	32	73	64	818	122	204	114	124	76
10	92	82	117	37	50	55	666	139	337	304	123	103
11	63	68	106	39	58	73	1,030	188	226	534	140	104
12	72	76	100	49	50	79	818	164	176	418	139	95
13	86	68	64	43	40	79	594	147	134	218	108	53
14	90	72	86	35	49	85	522	210	132	222	102	46
15	90	52	103	33	43	70	429	304	116	222	64	68
16	90	29	106	36	63	50	360	249	102	172	106	90
17	72	100	88	38	83	68	304	212	326	142	80	96
18	93	106	76	20	80	95	262	186	406	102	126	91
19	85	108	20	45	85	138	238	174	210	68	131	84
20	94	104	65	40	74	187	228	186	148	131	134	68
21	90	100	71	42	70	244	196	159	134	258	123	100
22	70	94	88	45	75	325	184	184	136	1,550	116	104
23	84	76	72	39	88	510	184	238	123	1,060	110	103
24	92	80	69	55	108	680	213	475	152	546	47	103
25	70	108	56	30	102	974	154	406	144	418	104	91
26	82	102	70	39	93	922	161	475	132	372	106	78
27	49	89	74	31	90	1,030	249	452	110	275	110	142
28	76	76	28	21	89	870	231	394	86	220	108	159
29	72	54	62	22	------	1,210	186	326	74	186	46	134
30	102	70	59	32	------	1,490	173	238	79	269	39	121
31	86	------	72	37	------	896	------	214	------	241	54	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	108	49	83.4	0.446	0.51
November	224	29	87.0	.465	.52
December	252	20	94.1	.503	.58
January	106	20	42.0	.225	.26
February	108	32	64.3	.344	.36
March	1,490	50	346	1.85	2.13
April	1,030	154	469	2.51	2.80
May	475	117	227	1.21	1.40
June	406	74	165	.882	.98
July	1,550	36	280	1.50	1.73
August	260	39	123	.658	.76
September	159	46	90.1	.482	.54
The year	1,550	20	173	.925	12.57

OTTER CREEK AT CENTER RUTLAND, VT.

LOCATION.—Water-stage recorder at highway bridge in Center Rutland, Rutland County, 100 feet below dam and 1 mile below mouth of East Creek.

DRAINAGE AREA.—307 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 4,520 second-feet July 23 (gage height, 7.96 feet); minimum, 54 second-feet Dec. 14 (gage height, 0.39 foot).

1928–1931: Maximum discharge, 8,070 second-feet Apr. 30, 1929 (gage height 8.47 feet); minimum, 14 second-feet about midnight on Saturday nights during August and September, 1929, 1930 (gage height, 0.24 foot, from regulation).

REMARKS.—Records good. Seasonal storage on East Creek at Pittsford and Chittendon.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	172	175	1,030	115	96	156	1,020	864	496	190	376	142
2	186	108	700	204	210	294	1,050	708	376	192	279	136
3	192	158	340	181	212	254	1,110	760	290	165	412	540
4	184	110	362	122	214	288	1,380	890	262	142	512	432
5	106	241	290	225	206	260	1,420	708	209	146	399	216
6	210	1,010	317	139	159	246	1,290	708	262	147	333	163
7	194	513	235	154	148	192	1,290	683	224	124	280	208
8	187	348	315	148	151	191	1,260	683	781	276	308	183
9	186	200	268	121	196	166	1,450	838	1,260	446	256	210
10	173	236	251	153	211	302	1,730	708	1,700	600	302	194
11	150	200	272	113	200	298	2,920	812	1,190	1,390	288	201
12	86	219	279	172	202	326	3,410	760	786	812	298	164
13	190	182	250	128	189	286	2,430	601	529	551	360	90
14	139	189	129	154	200	294	2,430	804	394	638	301	184
15	179	152	214	137	169	212	2,350	1,510	412	653	244	308
16	199	140	130	121	287	320	1,980	1,070	507	442	184	408
17	176	556	188	119	285	308	1,610	786	1,310	330	244	272
18	196	802	200	96	280	332	1,550	683	1,440	234	285	248
19	115	495	202	155	273	327	1,610	654	857	199	298	188
20	182	300	226	144	243	321	1,640	558	562	258	251	212
21	178	283	136	210	192	343	1,640	557	398	737	192	816
22	178	247	202	176	148	417	1,710	640	386	3,000	158	393
23	182	177	228	178	345	590	1,640	788	281	3,680	128	458
24	168	237	219	172	287	716	1,380	1,700	388	1,940	205	328
25	190	238	118	114	217	887	1,140	1,360	312	1,150	179	415
26	163	246	236	201	284	810	996	1,120	273	890	165	345
27	255	166	235	206	232	941	1,780	812	252	658	176	694
28	204	200	127	206	167	968	1,520	601	202	504	162	546
29	196	128	222	207	-------	1,200	1,170	474	230	432	118	408
30	216	176	226	201	-------	1,420	1,200	360	171	773	108	254
31	206	-------	207	186	-------	1,110	-------	382	-------	532	152	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	255	86	179	0.583	0.67
November	1,010	108	281	.915	1.02
December	1,030	118	269	.876	1.01
January	225	96	160	.521	.60
February	345	96	214	.697	.73
March	1,420	156	477	1.55	1.79
April	3,410	996	1,640	5.34	5.96
May	1,700	360	793	2.58	2.97
June	1,700	171	558	1.82	2.03
July	3,680	124	717	2.34	2.70
August	512	108	257	.837	.96
September	816	90	312	1.02	1.14
The year	3,680	86	488	1.59	21.58

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.

RECORDS AVAILABLE.—April, 1903, to May, 1907; October, 1910, to January, 1920; October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,410 second-feet Apr. 18 (gage height, 6.02 feet); minimum, 234 second-feet Jan. 12, 19 (gage height, 1.86 feet).

1903–1907, 1910–1920, 1928–1931: Maximum discharge, 10,100 second-feet Mar. 30, 1913 (gage height, 21.07 feet); minimum, 93 second-feet Mar. 5, 1929.

Maximum known discharge, 13,600 second-feet Nov. 4, 1927 (gage-height, 23.3 feet).

REMARKS.—Records fair. Slight diurnal regulation. Small seasonal storage in Chittenden Reservoir of East Creek.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	388	388	502	310	502	475	2,510	1,970	765	435	1,030	320
2	365	365	1,270	290	400	425	2,510	1,790	798	388	820	410
3	365	300	735	310	502	502	2,510	1,440	705	365	660	460
4	365	320	645	270	475	530	2,510	1,360	585	388	755	630
5	365	388	585	250	502	530	2,510	1,360	585	342	788	722
6	268	1,110	585	352	530	530	2,510	1,190	645	320	660	515
7	320	1,350	585	330	502	530	2,510	1,110	585	365	600	388
8	365	1,190	530	375	450	475	2,600	1,040	765	388	542	435
9	365	660	530	400	375	450	2,600	1,040	1,610	435	488	410
10	365	542	502	290	450	530	2,690	1,110	2,060	1,030	542	388
11	342	488	425	270	475	558	3,140	1,190	2,150	1,880	570	388
12	280	460	425	234	502	558	3,050	1,190	2,060	1,970	570	435
13	222	460	425	290	475	558	3,050	1,190	1,610	1,790	570	410
14	264	410	330	290	558	558	3,140	1,190	1,110	1,350	600	342
15	320	410	290	352	558	502	3,230	1,610	970	1,270	570	388
16	340	400	310	330	530	450	3,320	1,970	970	1,110	488	600
17	388	375	310	352	585	475	3,410	1,610	1,110	890	410	630
18	410	830	290	290	705	530	3,410	1,440	1,790	755	488	542
19	410	970	310	234	675	585	3,410	1,110	1,790	600	542	460
20	300	765	330	330	675	615	3,320	970	1,440	515	570	410
21	342	585	310	352	675	675	3,230	970	970	722	515	820
22	320	530	290	352	558	900	3,140	1,040	735	1,520	460	1,030
23	320	425	310	450	450	1,190	3,050	1,110	645	2,060	365	788
24	342	425	330	585	475	1,700	2,960	1,880	645	2,150	300	660
25	342	425	352	558	585	2,150	2,960	2,060	675	2,330	365	600
26	410	502	310	530	585	2,150	2,690	2,150	585	2,330	365	660
27	388	450	290	352	585	2,240	2,510	2,060	530	2,330	388	820
28	410	352	310	400	558	2,330	2,420	1,700	502	2,150	542	960
29	435	352	290	425	-------	2,420	2,330	1,270	425	1,970	488	788
30	410	352	310	425	-------	2,510	2,240	900	450	1,520	388	630
31	388	-------	330	450	-------	2,510	-------	765	-------	1,350	300	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	435	222	352	0.561	0.65
November	1,350	300	553	.881	.98
December	1,270	290	431	.683	.79
January	585	234	355	.565	.65
February	705	375	532	.847	.88
March	2,510	425	1,000	1.59	1.83
April	3,410	2,240	2,850	4.54	5.06
May	2,150	765	1,380	2.20	2.54
June	2,150	425	1,010	1.61	1.80
July	2,330	320	1,190	1.89	2.18
August	1,030	300	540	.860	.99
September	1,030	320	568	.901	1.01
The year	3,410	222	896	1.43	19.36

WINOOSKI RIVER AT MONTPELIER, VT.

LOCATION.—Water-stage recorder 1 mile downstream from Montpelier, Washington County, and three-eighths mile above mouth of 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, 1931.

EXTREMES.—Maximum discharge during year, 6,650 second-feet Apr. 11 (gage height, 10.18 feet); minimum, 19 second-feet Oct. 22 (gage height, 2.78 feet).

1909–1923, 1928–1931: 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 those for periods of ice effect, Dec. 14–21, 23–25, Dec. 29 to Jan. 1, Jan. 7 to Mar. 22, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	145	657	164	138	171	1,200	777	392	139	174	144
2	195	88	343	152	138	176	1,600	665	315	140	136	158
3	184	134	363	136	138	133	2,040	995	266	118	149	278
4	158	97	275	153	138	188	2,290	802	245	114	165	227
5	163	897	252	172	138	192	1,840	616	247	91	175	136
6	130	1,560	228	194	133	195	1,650	537	333	139	185	116
7	100	497	226	170	133	196	1,650	474	299	185	161	111
8	118	312	258	170	133	171	1,790	435	747	219	172	147
9	138	256	239	165	133	180	1,890	464	2,780	405	118	149
10	90	270	232	163	133	187	2,140	452	1,840	1,940	146	132
11	107	198	239	160	135	192	4,830	621	1,040	1,890	190	140
12	64	181	169	165	130	191	2,620	648	682	768	192	137
13	93	186	178	170	130	185	1,840	561	500	436	208	105
14	84	212	165	165	155	179	1,940	695	395	368	206	139
15	135	220	164	155	192	160	1,460	1,200	380	333	163	218
16	62	180	164	150	193	153	1,200	724	425	279	120	288
17	138	578	174	150	183	170	1,120	622	636	237	124	264
18	137	732	182	150	184	182	1,120	477	392	211	182	241
19	119	412	188	150	187	200	1,080	385	321	180	216	127
20	100	317	190	150	188	205	955	363	311	132	151	140
21	136	288	190	147	187	206	955	382	236	216	133	430
22	98	247	190	145	186	340	876	495	260	543	92	558
23	84	202	188	145	188	660	756	1,560	297	389	62	637
24	100	202	186	145	182	876	690	2,450	316	250	109	333
25	94	236	182	145	194	1,040	579	1,330	227	223	131	334
26	321	389	169	145	209	1,040	598	1,040	226	250	116	366
27	254	251	149	145	215	1,460	1,380	718	204	199	134	682
28	208	184	157	145	195	1,510	1,040	562	180	156	169	360
29	258	125	176	145	------	1,700	955	447	176	185	147	263
30	244	156	178	145	------	1,840	1,040	370	141	389	153	217
31	173	------	170	145	------	1,330	------	409	------	243	130	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	321	62	145	.345	.40
November	1,560	88	325	.774	.86
December	657	149	220	.524	.60
January	194	136	155	.369	.43
February	215	130	164	.390	.41
March	1,840	153	505	1.20	1.38
April	4,830	579	1,500	3.57	3.98
May	2,450	363	719	1.71	1.97
June	2,780	141	495	1.18	1.32
July	1,940	91	367	.874	1.01
August	216	62	152	.362	.42
September	682	105	253	.602	.67
The year	4,830	62	416	.990	13.45

WINOOSKI RIVER NEAR ESSEX JUNCTION, VT.

LOCATION.—Water-stage recorder half a mile below mouth of Muddy Brook and 2 miles southwest of Essex Junction, Chittenden County.

DRAINAGE AREA.—1,070 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 22,600 second-feet Apr. 11 (gage height, 13.22 feet); practically no flow at times when power plant upstream shuts down.

1928–1931: Maximum discharge, that of Apr. 11, 1931 (maximum discharge for Jan. 9, 1930, revised, 21,300 second-feet); practically no flow at times when power plant upstream shuts down.

Maximum discharge known, 116,000 second-feet Nov. 4, 1927 (gage height, about 50.4 feet).

REMARKS.—Records excellent below and good above 2,500 second-feet except those for periods of ice effect, Dec. 2, 3, Dec. 13 to Mar. 21, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	345	524	683	288	270	334	3,380	2,300	1,310	645	646	284
2	332	323	765	275	372	710	3,940	1,960	989	566	482	357
3	254	386	870	278	350	715	4,700	2,950	826	446	588	464
4	157	318	774	345	390	620	6,320	2,840	725	346	536	566
5	294	460	722	400	325	605	4,990	2,160	570	256	472	386
6	220	2,100	487	470	300	550	4,420	2,160	388	346	508	199
7	208	1,880	751	530	200	400	4,140	2,020	686	326	439	288
8	270	1,000	920	495	265	300	4,230	1,800	1,060	334	354	280
9	260	728	900	300	400	182	4,800	1,790	5,000	348	362	330
10	155	743	878	333	350	470	5,940	1,700	6,630	905	432	360
11	156	655	732	202	272	180	17,200	1,840	3,040	6,940	434	386
12	140	1,020	642	335	272	520	12,800	1,910	2,080	3,080	404	324
13	253	697	470	375	370	530	5,560	1,740	1,530	1,700	398	136
14	256	570	370	275	187	370	6,890	1,870	1,210	1,180	392	333
15	252	473	580	335	258	180	4,980	2,580	1,200	644	301	402
16	409	264	470	282	360	620	3,850	2,220	1,130	644	334	442
17	213	566	382	300	490	690	3,470	1,960	897	588	456	465
18	546	784	290	338	660	670	3,850	1,660	1,200	492	480	522
19	176	1,310	380	368	545	853	4,320	1,330	1,010	444	423	387
20	246	1,010	318	380	425	950	3,940	1,250	683	708	481	417
21	393	851	250	472	182	927	4,320	1,100	690	606	392	912
22	388	646	503	370	300	1,160	4,230	950	974	1,030	306	1,180
23	378	534	570	368	533	2,140	3,660	1,120	894	4,446	355	1,190
24	376	930	512	237	552	2,070	2,760	7,840	616	933	376	1,160
25	528	782	304	328	426	3,190	2,020	4,140	476	821	316	1,130
26	295	767	446	345	460	3,020	1,700	3,020	614	648	354	914
27	542	273	400	427	662	3,760	3,800	2,160	422	728	315	2,180
28	785	542	330	455	470	4,420	3,280	1,660	452	695	287	1,640
29	682	569	470	420	------	4,230	2,600	1,300	768	478	148	972
30	650	328	300	175	------	5,370	2,930	1,130	701	1,180	169	702
31	648	------	290	338	------	3,760	------	1,030	------	948	302	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	785	140	349	0.326	0.38
November	2,100	264	734	.686	.77
December	920	250	541	.506	.58
January	530	175	350	.327	.38
February	662	182	380	.355	.37
March	5,370	180	1,440	1.35	1.56
April	17,200	1,700	4,830	4.51	5.03
May	7,840	950	2,110	1.97	2.27
June	6,630	388	1,290	1.21	1.35
July	6,940	256	950	.888	1.02
August	646	148	395	.369	.43
September	2,180	136	644	.602	.67
The year	17,200	136	1,170	1.09	14.81

DOG RIVER AT NORTHFIELD, VT.

LOCATION.—Water-stage recorder at highway bridge at Norwich University, at Northfield, Washington County, 1 mile above Union Brook.

DRAINAGE AREA.—52 square miles.

RECORDS AVAILABLE.—May, 1909, to October, 1920; October, 192° to September, 1931.

EXTREMES.—Maximum discharge during year, 2,190 second-feet Apr. 11 (gage height, 6.48 feet); minimum discharge recorded, 7.0 second-feet Aug. 25 (gage height, 1.55 feet).

1910–1920, 1928–1931: Maximum discharge, 3,400 second-feet Mar. 25, 1913 (gage height, 8.50 feet); minimum discharge (estimated), 2.0 second-feet several times during August and September, 1929.

Maximum known discharge, 8,000 second-feet Nov. 3, 1907 (gage height, 10.9 feet).

REMARKS.—Records good except those estimated for Nov. 29 to Jan. 15, May 28 to July 11, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.8	17	121	19	20	24	156	114	58	18	18	12
2	9.3	16	52	18	20	24	215	100	50	17	17	15
3	11	14	47	20	20	23	292	132	38	16	18	23
4	12	13	49	22	20	25	341	93	34	16	18	20
5	9.3	77	42	23	20	24	294	89	37	18	16	17
6	8.8	135	35	22	20	24	289	79	40	18	16	16
7	8.0	50	33	21	20	23	289	74	39	11	16	14
8	8.4	38	37	21	20	24	302	72	100	12	16	12
9	9.3	35	34	20	20	26	382	74	255	45	21	10
10	9.8	33	31	20	20	26	464	77	230	300	33	9.0
11	9.3	27	29	23	19	25	1,390	96	170	200	23	8.6
12	8.8	27	27	20	19	25	449	89	110	138	23	8.2
13	9.8	27	26	21	20	25	395	81	66	83	23	8.2
14	9.3	27	25	20	24	25	382	121	39	63	20	9.0
15	10	27	25	19	25	25	269	143	37	52	18	14
16	13	27	25	20	25	27	222	104	40	45	17	14
17	13	66	27	21	23	28	204	89	39	36	15	18
18	26	70	27	20	23	31	210	76	37	32	14	18
19	18	49	27	19	23	34	190	66	34	30	16	13
20	16	42	28	21	23	36	178	70	31	28	15	17
21	13	39	29	20	23	42	162	68	29	38	12	40
22	11	37	25	20	23	55	136	60	28	52	10	31
23	11	35	24	20	23	74	114	343	28	35	10	28
24	12	33	24	20	22	102	100	325	34	27	10	21
25	26	36	24	20	23	108	87	192	28	34	9.0	20
26	35	38	25	21	23	114	169	151	24	28	8.6	32
27	30	32	26	21	24	154	239	117	39	23	12	50
28	26	26	26	20	24	162	154	90	25	20	19	30
29	25	24	25	20	------	201	147	72	21	21	16	23
30	23	25	23	20	------	210	136	60	19	26	16	20
31	18	------	21	20	------	158	------	68	------	20	13	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	35	8.0	14.8	0.285	0.33
November	135	13	38.1	.733	.82
December	121	21	32.9	.633	.73
January	28	18	20.4	.392	.45
February	25	16	21.8	.419	.44
March	210	23	61.4	1.18	1.36
April	1,390	87	279	5.37	5.99
May	343	60	109	2.10	2.42
June	255	19	58.6	1.13	1.26
July	300	11	48.5	.933	1.08
August	33	8.6	16.4	.315	.36
September	50	8.2	19.0	.365	.41
The year	1,390	8.0	59.9	1.15	15.65

MAD RIVER NEAR MORETOWN, VT.

LOCATION.—Water-stage recorder at highway bridge 2.4 miles north of Moretown, Washington County.

DRAINAGE AREA.—131 square miles.

RECORDS AVAILABLE.—November, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 7,030 second-feet Apr. 11 (gage height, 9.18 feet); minimum, 1.4 second-feet Oct. 1 (gage height, 1.73 feet).

1928–1931: Maximum discharge, that of Apr. 11, 1931; minimum, that of Oct. 1, 1930.

Maximum known stage, about 20.5 feet on Nov. 3, 4, 1927 (discharge not determined).

REMARKS.—Records good except those for ice period, Nov. 29, Dec. 3–6, Dec. 11 to Mar. 27, and those estimated for Oct. 23 to Nov. 20, Aug. 19–28, Sept. 9–30, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	56	304	48	48	49	343	333	159	40	48	31
2	18	54	130	45	45	46	544	306	127	34	41	37
3	20	52	118	51	44	43	788	527	106	35	44	68
4	16	50	122	56	40	47	830	392	92	29	43	64
5	18	275	105	57	37	48	659	362	106	40	39	47
6	26	492	95	55	38	47	616	392	127	40	32	41
7	21	173	84	54	40	47	586	362	115	28	33	44
8	23	127	95	52	35	47	709	324	191	34	28	44
9	20	117	84	50	31	56	909	382	959	312	45	40
10	20	112	79	50	28	55	1,490	333	709	1,090	140	38
11	24	85	73	57	37	54	4,130	423	362	924	64	36
12	11	83	69	51	31	52	1,400	372	249	306	62	27
13	26	80	66	53	30	50	1,170	310	188	199	74	22
14	23	77	64	50	33	50	1,450	482	149	162	61	27
15	18	78	62	47	42	51	879	550	143	139	50	35
16	34	77	64	47	44	53	696	387	169	121	50	42
17	34	260	67	52	43	57	659	367	156	92	44	52
18	74	247	69	51	41	60	974	279	121	75	52	52
19	58	170	70	50	45	67	894	229	92	62	55	35
20	43	132	72	50	47	76	937	210	79	68	48	48
21	39	98	72	50	47	94	1,090	222	75	143	42	148
22	30	84	62	51	47	115	937	206	68	210	38	127
23	28	71	58	51	46	147	762	951	62	176	39	110
24	27	68	57	50	46	180	556	923	71	101	37	83
25	84	68	58	51	44	230	387	544	58	115	27	56
26	114	79	63	57	43	248	464	408	54	90	25	110
27	93	60	65	60	45	365	865	297	129	67	20	188
28	78	60	66	57	46	418	516	237	62	58	32	118
29	76	60	63	54	------	444	465	195	51	57	42	84
30	71	64	57	51	------	504	433	162	47	106	32	66
31	58	------	53	48	------	367	------	184	------	63	39	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	114	11	40.0	0.305	0.35
November	492	50	117	.893	1.00
December	304	53	82.8	.632	.73
January	60	45	51.8	.395	.46
February	48	28	40.8	.311	.32
March	504	43	134	1.02	1.18
April	4,130	343	905	6.91	7.71
May	951	162	376	2.87	3.31
June	959	47	169	1.29	1.44
July	1,090	28	162	1.24	1.43
August	140	20	46.0	.351	.40
September	188	22	64.0	.489	.55
The year	4,130	11	182	1.39	18.88

LAMOILLE RIVER AT JOHNSON, VT.

LOCATION.—Water-stage recorder at falls nine-tenths mile above bridge in Johnson, Lamoille County, and 1⅛ miles above mouth of Gihon River.

DRAINAGE AREA.—289 square miles.

RECORDS AVAILABLE.—April, 1912, to December, 1913; September, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,880 second-feet Apr. 11 (gage height, 11.92 feet); minimum, 18 second-feet Aug. 31 (gage height 0.92 foot).

1912–13, 1928–1931: Maximum discharge 8,500 second-feet Mar. 27, 1913 (gage height, 13.0 feet); minimum, 18 second-feet Sept. 15 1930, and Aug. 31, 1931.

REMARKS.—Records good. Ice corrections applied Dec. 15 to Mar. 24.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	161	173	445	110	116	150	888	706	422	142	350	120
2	143	71	422	120	112	176	1,220	576	159	138	244	156
3	159	166	348	142	102	176	1,610	840	168	160	231	194
4	149	172	334	64	96	192	2,320	794	195	114	262	206
5	67	292	334	86	98	190	1,580	577	201	42	242	162
6	119	1,290	230	112	90	168	1,340	460	121	153	212	152
7	174	706	236	150	104	138	1,220	390	92	156	237	133
8	162	422	285	160	102	94	1,330	355	522	178	248	126
9	167	288	276	158	96	162	1,520	228	2,750	144	82	134
10	150	319	226	138	98	166	1,800	252	2,390	922	194	136
11	155	256	266	108	138	162	5,410	319	918	2,690	236	136
12	82	246	232	166	130	154	2,890	344	553	792	244	126
13	94	262	296	162	122	160	1,580	372	376	357	194	54
14	162	253	137	160	122	170	1,610	418	295	134	158	110
15	114	179	138	156	144	142	1,110	648	306	224	344	183
16	112	195	146	176	220	176	821	518	373	230	450	233
17	118	302	168	156	200	200	696	477	394	198	260	188
18	114	560	166	110	182	178	843	398	314	156	220	218
19	52	373	144	148	208	166	865	310	254	94	240	202
20	118	320	132	150	198	374	758	258	175	182	178	94
21	165	252	112	162	174	360	737	266	154	281	200	359
22	167	240	136	142	157	450	655	300	250	502	188	548
23	176	208	158	148	198	708	553	561	210	556	58	988
24	132	244	142	140	166	686	452	1,870	184	296	168	786
25	183	254	116	110	166	857	363	960	160	228	172	756
26	196	220	142	130	178	852	351	710	131	196	161	468
27	278	224	128	140	186	1,220	849	468	158	220	134	812
28	207	250	104	128	196	1,320	840	344	122	183	117	512
29	202	202	152	120	---- --	1,330	894	381	208	173	103	345
30	214	115	140	122	-------	1,680	1,040	169	152	1,610	36	308
31	222	-------	126	118	-------	1,080	-------	191	-------	780	118	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	278	52	152	0.526	0.61
November	1,290	71	302	1.04	1.16
December	445	104	204	.706	.81
January	176	64	135	.467	.54
February	220	90	146	.505	.53
March	1,680	94	453	1.57	1.81
April	5,410	351	1,270	4.39	4.90
May	1,870	169	499	1.73	1.99
June	2,750	92	424	1.47	1.64
July	2,690	42	395	1.37	1.58
August	450	36	203	.702	.81
September	988	54	298	1.03	1.15
The year	5,410	36	373	1.29	17.53

LAMOILLE RIVER NEAR MILTON, VT.

LOCATION.—Water-stage recorder 2½ miles north of Milton, Chittenden County.
DRAINAGE AREA.—692 square miles.
RECORDS AVAILABLE.—August, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 12,800 second-feet Apr. 12 (gage height 8.86 feet); minimum, 170 second-feet Oct. 13 (gage height, 1.23 feet).
1929–1931: Maximum discharge, that of Apr. 12, 1931; minimum, 149 second-feet Sept. 2, 1929 (gage height, 1.23 feet).
REMARKS.—Records excellent except those for ice period, Dec. 12 to Mar. 28, and for estimated period, Sept. 4–8, which are good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	484	950	324	288	425	2,700	1,900	563	345	1,060	300
2	308	390	880	308	296	410	3,230	1,600	685	280	650	272
3	316	340	664	292	296	375	4,000	2,420	440	276	544	300
4	308	328	678	312	296	415	4,900	2,630	355	284	692	370
5	280	390	657	304	296	425	4,000	1,840	375	222	550	430
6	308	1,830	671	296	296	420	3,230	1,600	570	284	456	420
7	296	1,780	596	304	296	420	2,860	1,370	435	260	462	330
8	312	1,020	622	300	268	400	2,780	1,160	567	284	430	320
9	304	760	650	316	308	365	3,160	1,120	2,960	300	440	308
10	304	700	596	324	300	380	3,760	1,030	5,520	300	446	292
11	268	650	490	312	300	440	9,510	950	2,370	3,500	490	280
12	250	550	440	320	324	430	10,400	950	1,420	2,380	473	268
13	260	522	400	336	328	425	4,360	841	980	1,070	456	236
14	264	539	360	360	308	410	4,360	1,030	745	664	435	228
15	280	528	336	345	365	405	3,300	1,230	796	446	390	304
16	272	451	292	340	451	415	2,420	1,280	1,010	550	478	332
17	280	506	312	350	473	410	2,100	1,270	850	456	636	435
18	365	841	308	360	451	440	2,360	1,080	745	400	490	534
19	539	920	324	340	473	495	2,780	841	596	264	490	456
20	380	708	316	324	468	528	2,300	715	500	300	495	390
21	336	615	332	320	462	685	2,360	685	430	468	390	517
22	324	528	336	320	451	787	2,300	700	410	1,410	365	958
23	332	495	328	320	430	1,150	1,970	739	473	1,440	332	2,300
24	350	473	345	324	430	1,780	1,600	3,200	446	760	316	1,970
25	400	484	316	328	425	2,230	1,220	2,680	400	563	316	2,160
26	664	506	288	328	415	2,420	980	1,900	350	451	308	1,250
27	576	528	300	320	420	3,160	1,720	1,420	332	405	300	1,660
28	550	370	312	332	420	3,760	2,160	980	256	400	280	1,540
29	500	380	300	328	------	4,360	2,100	760	370	443	256	990
30	563	405	300	312	------	4,720	2,560	722	324	3,660	214	745
31	528	------	324	308	------	3,460	------	490	------	2,110	284	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	664	250	366	0.529	0.61
November	1,830	328	634	.916	1.02
December	950	288	452	.653	.75
January	360	292	323	.467	.54
February	473	268	369	.533	.56
March	4,720	365	1,190	1.72	1.98
April	10,400	980	3,250	4.70	5.24
May	3,200	490	1,330	1.92	2.21
June	5,520	256	876	1.27	1.42
July	3,660	222	806	1.16	1.34
August	1,060	214	449	.649	.75
September	2,300	228	696	1.01	1.13
The year	10,400	214	894	1.29	17.55

GREEN RIVER AT GARFIELD, VT.

LOCATION.—Staff gage in pool at dam at Garfield, Lamoille County. Zero of gage is 1,100.60 feet above mean sea level.

DRAINAGE AREA.—18 square miles.

RECORDS AVAILABLE.—January, 1915, to March, 1921; December, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 446 second-feet Apr. 11 (gage height, 3.40 feet); minimum, 3.3 second-feet Aug. 24, 27, 30, 31 (gage height, 0.00 foot).

1915–1921, 1922–1931: Maximum stage, 7.6 feet Nov. 3, 1927 (discharge not known); minimum, 2.2 second-feet Aug. 11, 12, 1923, Sept. 6, 1925.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	17	21	7.8	5.7	6.0	78	73	24	6.6	19	4.4
2	6.6	17	24	7.8	5.7	6.0	78	69	14	6.3	15	6.0
3	6.0	15	21	7.8	5.7	6.3	73	90	9.6	6.0	12	13
4	6.0	10	18	7.8	5.7	6.3	84	90	9.0	5.7	27	25
5	5.5	8.7	14	7.5	5.7	6.0	114	48	9.0	4.6	14	21
6	5.5	21	13	6.9	5.7	6.0	101	34	15	4.9	9.6	7.8
7	5.5	114	14	6.6	5.7	6.0	107	26	27	4.4	9.0	7.2
8	5.5	68	12	6.3	5.7	6.0	114	23	38	4.4	7.2	6.0
9	5.5	33	12	6.0	5.7	6.0	148	19	114	4.4	9.0	5.5
10	5.2	26	11	6.0	5.7	6.0	170	19	177	6.6	11	4.9
11	5.2	17	11	5.7	5.7	6.0	424	25	127	127	13	4.4
12	4.9	15	11	5.7	5.7	6.0	209	26	49	45	11	3.8
13	4.6	15	11	5.7	5.7	6.0	184	24	25	23	13	3.8
14	4.4	14	10	5.7	5.7	6.0	184	34	15	16	11	5.7
15	5.5	14	9.6	5.7	5.7	6.6	114	33	14	12	10	18
16	6.6	15	9.3	5.7	5.7	7.2	84	28	23	10	9.6	19
17	9.0	20	9.3	5.7	5.7	9.6	68	34	18	9.0	8.4	23
18	12	33	9.0	5.7	6.0	9.0	62	25	13	7.2	7.2	23
19	16	24	9.0	5.7	6.3	9.0	62	22	9.6	5.5	6.0	14
20	14	22	9.0	5.7	6.3	9.0	49	17	9.0	4.9	6.0	13
21	12	17	8.7	5.7	6.3	9.6	40	21	9.0	6.9	5.5	27
22	11	16	8.7	5.7	6.3	11	35	26	9.0	14	4.4	29
23	11	16	8.7	5.7	6.6	14	33	28	9.3	22	3.8	90
24	10	13	8.7	5.7	6.6	21	26	127	9.0	14	3.3	65
25	17	14	8.4	5.7	6.6	30	24	68	9.0	10	3.3	73
26	40	17	8.4	5.7	6.6	43	21	43	8.1	8.4	3.3	35
27	27	19	8.4	5.7	6.6	68	52	33	7.8	7.2	3.3	62
28	22	14	8.4	5.7	6.6	72	53	22	7.8	9.0	5.5	38
29	19	11	8.4	5.7	------	78	58	15	6.6	184	4.1	20
30	19	13	8.1	5.7	------	78	84	13	6.6	114	3.3	19
31	18	------	8.1	5.7	------	78	------	16	------	42	3.3	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	40	4.4	11.1	0.617	0.71
November	114	8.7	22.3	1.24	1.38
December	24	8.1	11.3	.628	.72
January	7.8	5.7	6.14	.341	.39
February	6.6	5.7	5.99	.333	.35
March	78	6.0	20.4	1.13	1.30
April	424	21	97.8	5.43	6.06
May	127	13	37.8	2.10	2.42
June	177	6.6	27.4	1.52	1.70
July	184	4.4	24.0	1.33	1.53
August	27	3.3	8.75	.486	.56
September	90	3.8	22.9	1.27	1.42
The year	424	3.3	24.6	1.37	18.54

MISSISQUOI RIVER NEAR RICHFORD, VT.

LOCATION.—Water-stage recorder 2 miles above mouth of Trout River, 3 miles below mouth of North Branch, and 3 miles south of Richford, Franklin County.

DRAINAGE AREA.—445 square miles.

RECORDS AVAILABLE.—June, 1911 to September, 1923; October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 10,800 second-feet Apr. 11 (gage height, 12.11 feet); minimum, 49 second-feet Oct. 14, 15 (gage height, 2.35 feet).

1911–1923; 1928–1931: Maximum discharge, 16,000 second-feet Apr. 7, 1923 (gage height, 14.38 feet); minimum, about 8 second-feet July 14, 1911.

Maximum discharge known, 45,000 second-feet, flood of November, 1927.

REMARKS.—Records good except those for period of ice effect, Nov. 29 to Mar. 26, and for estimated period, June 21 to July 9, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	223	432	192	153	195	2,650	1,380	324	182	1,220	107
2	105	189	771	168	153	198	3,290	1,190	289	168	771	103
3	121	162	647	183	150	195	4,250	1,990	236	164	614	118
4	92	147	526	180	147	192	4,770	2,170	204	162	800	165
5	89	159	455	174	144	189	4,120	1,500	220	162	636	147
6	100	1,010	407	192	144	186	3,180	1,190	246	160	419	174
7	74	950	390	195	150	189	2,750	980	263	160	328	308
8	76	536	382	189	144	189	2,650	830	586	172	270	243
9	78	460	377	189	139	192	2,960	890	2,840	182	256	150
10	78	516	348	186	141	201	3,640	860	4,120	406	230	139
11	76	419	270	189	144	207	8,770	742	2,650	2,120	293	94
12	70	328	263	195	150	210	8,250	680	1,300	1,080	239	87
13	78	304	260	198	159	217	4,770	598	860	473	214	83
14	72	328	246	198	180	220	3,760	581	603	328	207	83
15	65	304	230	189	210	220	2,850	641	597	274	204	100
16	78	274	217	183	223	236	1,900	692	980	246	183	186
17	89	320	217	195	233	253	1,620	860	771	198	198	332
18	192	415	223	195	230	312	1,820	714	469	195	189	536
19	207	424	217	183	223	328	2,080	571	344	168	147	373
20	195	361	226	210	220	348	1,820	531	274	162	230	246
21	159	320	204	214	210	407	1,900	566	260	494	180	373
22	139	285	195	217	210	498	1,820	581	252	3,040	144	3,200
23	121	253	195	217	204	647	1,500	602	266	1,900	109	4,250
24	109	236	192	210	102	920	1,160	1,860	254	1,080	114	3,400
25	192	233	180	210	195	1,300	860	1,660	228	950	114	2,850
26	352	304	174	207	195	1,940	692	1,190	212	725	109	1,940
27	352	285	186	204	195	2,850	1,190	860	194	516	100	2,550
28	263	223	183	198	195	3,290	1,580	636	186	386	98	1,780
29	270	204	186	192	------	4,000	1,780	483	198	2,310	85	1,120
30	324	183	186	174	------	4,000	1,940	398	200	4,540	76	800
31	285	------	177	156	------	3,400	------	344	------	2,450	98	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	352	65	149	0.335	0.39
November	1,010	147	345	.775	.86
December	771	174	296	.665	.77
January	217	156	193	.434	.50
February	233	139	180	.404	.42
March	4,000	186	894	2.01	2.32
April	8,770	692	2,880	6.47	7.22
May	2,170	344	928	2.09	2.41
June	4,120	186	681	1.53	1.71
July	4,540	160	824	1.85	2.13
August	1,220	76	289	.649	.75
September	4,250	83	868	1.95	2.18
The year	8,770	65	709	1.59	21.66

LAKE MEMPHREMAGOG AT NEWPORT, VT.

LOCATION.—Chain gage on highway bridge at Newport, Orleans County. Zero of gage is 673.15 feet above mean sea level.
RECORDS AVAILABLE.—May to September, 1931.
EXTREMES.—Maximum gage height, 10.29 feet June 10; minimum, 8.80 feet Sept. 13, 20–21.

Daily gage height, in feet, 1931

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	-------	10.04	9.30	9.57	8.98	16	-------	10.02	9.07	9.39	8.83
2	-------	9.96	9.24	9.54	8.99	17	-------	10.00	9.06	9.39	8.84
3	-------	9.96	9.21	9.50	9.00	18	-------	9.96	8.98	9.37	8.86
4	-------	9.92	9.20	9.59	8.98	19	-------	9.88	8.96	9.36	8.88
5	-------	9.91	9.14	9.61	8.95	20	10.25	9.86	8.90	9.31	8.80
6	-------	9.94	9.10	9.57	9.00	21	10.26	9.84	8.96	9.26	8.80
7	-------	9.92	9.07	9.59	9.03	22	10.26	9.76	9.13	9.25	9.12
8	-------	9.92	9.04	9.56	9.02	23	10.22	9.68	9.20	9.26	9.38
9	-------	10.12	9.05	9.53	8.94	24	10.22	9.50	9.21	9.22	9.56
10	-------	10.29	9.06	9.52	8.86	25	10.24	9.44	9.26	9.17	9.75
11	-------	10.25	9.10	9.50	8.85	26	10.26	9.42	9.22	9.17	9.83
12	-------	10.28	9.15	9.50	8.84	27	10.24	9.46	9.15	9.13	9.97
13	-------	10.19	9.11	9.45	8.80	28	10.22	9.41	9.17	9.07	9.99
14	-------	10.12	9.10	9.41	8.82	29	10.12	9.34	9.10	9.02	9.86
15	-------	10.04	9.06	9.39	8.82	30	10.09	9.33	9.40	9.02	9.82
						31	10.06	-------	9.53	8.99	-------

CLYDE RIVER AT NEWPORT, VT.

LOCATION.—Water-stage recorder just below plant of Newport Electric Light Co., Newport, Orleans County, 1¾ miles above mouth of river.

DRAINAGE AREA.—150 square miles.

RECORDS AVAILABLE.—May, 1909, to September, 1924; November, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 982 second-feet Apr. 13 (gage height, 3.75 feet); practically no flow at times when power plant is closed.

1909–1924, 1928–1931: Maximum discharge, 4,500 second-feet Mar. 25–30, 1913 (gage height, 5.8 feet); practically no flow at various times when water was held back by dams.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a125	123	117	92	a 83	47	344	445	224	a 100	230	98
2	a120	88	126	88	a 82	98	368	452	209	a 100	235	96
3	a115	126	a 135	105	a 80	72	432	284	185	a 99	250	88
4	a105	126	a 140	92	a 79	83	534	362	163	a 98	271	98
5	80	166	a 150	94	a 78	60	571	386	155	a 95	230	105
6	98	204	159	94	a 77	51	564	261	138	117	204	69
7	100	256	138	90	a 76	67	556	a 250	138	115	176	75
8	100	288	148	98	a 76	35	534	a 265	132	110	145	100
9	105	293	138	100	a 76	80	a 530	282	240	a 105	123	90
10	102	266	148	102	a 77	81	a 580	282	298	110	110	96
11	85	256	148	102	a 80	80	720	250	344	a 150	112	96
12	76	209	a 150	92	a 83	76	870	245	380	a 70	92	112
13	105	185	155	96	88	59	944	240	393	88	98	100
14	115	163	123	98	88	64	934	230	374	88	110	107
15	112	163	132	a 100	67	34	860	245	344	90	100	110
16	107	159	132	a 98	56	65	780	266	320	83	75	102
17	100	159	129	a 96	87	73	694	304	298	88	117	105
18	100	152	132	a 95	94	76	611	315	293	107	100	110
19	76	155	132	a 95	92	87	586	326	a 266	69	110	83
20	94	155	115	a 94	81	a 85	534	298	a 282	98	a 107	69
21	98	a 150	117	a 93	55	a 78	499	304	245	85	a 105	105
22	96	a 140	112	a 93	a 85	70	492	277	209	85	102	115
23	102	135	110	a 92	85	72	478	271	180	76	98	185
24	105	126	110	a 92	85	80	472	282	a 160	75	105	344
25	107	132	87	a 91	94	95	472	288	a 140	90	115	380
26	22	135	92	a 90	94	138	a 450	309	a 115	110	115	380
27	3.0	96	98	a 89	88	200	438	320	a 100	155	117	400
28	90	138	96	a 88	96	250	412	315	110	142	112	412
29	123	148	92	a 87	-------	338	412	a 300	96	180	110	400
30	138	107	94	a 86	-------	356	426	a 280	100	180	88	298
31	108	-------	92	a 85	-------	338	-------	261	-------	204	110	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	138	3.0	97.2	0.648	0.75
November	293	88	167	1.11	1.24
December	159	87	124	.827	.95
January	105	85	93.8	.625	.72
February	96	55	81.5	.543	.57
March	356	34	109	.727	.84
April	944	344	570	3.80	4.24
May	452	230	297	1.98	2.28
June	393	96	221	1.47	1.64
July	204	69	108	.720	.83
August	271	75	135	.900	1.04
September	412	69	164	1.09	1.22
The year	944	3.0	180	1.20	16.32

a Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

Discharge measurements of streams in the St. Lawrence Basin at points other than regular gaging stations, made during the year ending September 30, 1931, are listed in the following table:

Miscellaneous discharge measurements in St. Lawrence River drainage basin during the year ending September 30, 1931

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
July 15	St. Joseph River	Lake Michigan	Sec. 22, T. 6 S., R. 3 W., at Hillsdale, Mich.		3.0
15	do	do	Sec. 4, T. 6 S., R. 3 W., at Jonesville, Mich.		13.4
15	do	do	Sec. 26, T. 4 S., R. 7 W., 1 mile southwest of Burlington, Mich.		24.4
16	do	do	Sec. 19, T. 6 S., R. 11 W., at Three Rivers, Mich.		251
Sept. 8	do	do	Mishawaka Avenue Bridge, Mishawaka, Ind.		[a] 1,060
July 15	Coldwater River	St. Joseph River	On line between secs. 10 and 15, T. 5 S., R. 7 W., 1½ miles northeast of Union City, Mich.		45.8
16	Portage River	do	Sec. 4, T. 6 S., R. 11 W., 2 miles northeast of Three Rivers, Mich.		[a] 26.3
16	Rocky River	do	On line between secs. 12 and 13, T. 6 S., R. 12 W., 1 mile northwest of Three Rivers, Mich.		[a] 42.2
16	Prairie River	do	On line between secs. 31 and 32, T. 6 S., R. 11 W., 1½ miles south of Three Rivers, Mich.		[a] 36.6
17	White Pigeon River.	do	Sec. 13, T. 8 S., R. 13 W., 2 miles southwest of Mottville, Mich.		100
Aug. 25	do	do	do		[a] 81.0
25	Elkhart River	do	3½ miles above Elkhart, Ind.		[a] 75.9
July 17	Dowagiac Creek	do	Sec. 23, T. 7 S., R. 17 W., at Niles, Mich.		12.2
20	Kalamazoo River	Lake Michigan	Bridge on U. S. highway 27 at Marshall, Mich.		70.8
20	do	do	20th street bridge in Battle Creek, Mich.		276
Aug. 28	do	do	do		190
28	do	do	1,000 feet below dam in Battle Creek, Mich.		[a] 9.4
May 8	do	do	Sec. 15, T. 2 S., R. 11 W., at bridge on highway 13 in Kalamazoo, Mich.		554
July 2	do	do	do		542
Apr. 24	do	do	On line between secs. 3 and 10, T. 2 S., R. 11 W., at Kalamazoo, Mich.		654
June 10	do	do	do		1,360
July 21	Battle Creek	Kalamazoo River	Sec. 18, T. 2 N., R. 4 W., at Charlotte, Mich.		9.4
July 21	Portage Creek	do	Sec. 15, T. 2 S., R. 11 W., at Main Street Bridge in Kalamazoo, Mich.		25.0
Aug. 27	do	do	do		[a] 28.3
July 9	Grand River	Lake Michigan	Bridge Street Bridge in Jackson, Mich.		16.6
Aug. 22	do	do	do		[a] 4.8
July 9	do	do	On line between secs. 15 and 22, T. 2 S., R. 1 W., 1½ miles north of Jackson, Mich.		32.0
Aug. 22	do	do	do		[a] 13.4
July 10	do	do	Sec. 35, T. 1 S., R. 1 W., 5 miles north of Jackson, Mich.		[a] 45.9
10	do	do	On line between secs. 8 and 9, T. 1 S., R. 1 W., 1½ miles northwest of Rives Junction, Mich.		[a] 49.5
13	do	do	Sec. 28, T. 1 N., R. 2 W., 200 feet below Michigan Central railroad bridge in Onondaga, Mich.		[a] 65.9
13	do	do	On line between secs. 6 and 7, T. 2 N., R. 2 W., 10 miles south of Lansing, Mich.		[a] 113
14	do	do	150 feet below Seymour Street Bridge in north Lansing, Mich.		124

[a] Furnished by Michigan Stream Control Commission.

Miscellaneous discharge measurements in St. Lawrence River drainage basin during the year ending September 30, 1931—Continued

Date	Stream	Tributary to—	Locality	Gage Height	Discharge
				Feet	*Sec.-ft.*
Apr. 24	Grand River	Lake Michigan	Sec. 25, T. 7 N., R. 12 W., at sewage pumping plant in Grand Rapids, Mich.	−2.22	1,810
May 22	do	do	do	−2.38	1,640
June 11	do	do	do	−.86	2,160
11	do	do	do	−1.04	2,210
25	do	do	do	−2.23	1,050
July 8	do	do	do	−2.87	1,020
Aug. 8	Cedar River	Grand River	On line between secs. 2 and 3, T. 3 N., R. 2 E., half a mile east of Williamston, Mich.		[a] 6.7
10	do	do	Sec. 35, T. 4 N., R. 1 E., 100 feet below bridge on U. S. highway 16 at Williamston, Mich.		[a] 7.1
June 6	Maple River	do	Sec. 13, T. 7 N., R. 1 W., at highway bridge at Ovid, Mich.		12.4
Aug. 11	Muskegon River	Lake Michigan	On line between secs. 14 and 15, T. 10 N., R. 16 W., at Muskegon, Mich.		[a] 357
12	Pere Marquette River.	do	Sec. 24, T. 18 N., R. 17 W., at Scottville, Mich.		[a] 389
June 23	Big Creek	Au Sable River	Sec. 1, T. 26 N., R. 1 E, at mouth, 4 miles south of Red Oak, Mich.		36.6
Mar. 17	Shiawassee River	Saginaw River	Sec. 24, T. 6 N., R. 3 E., at Newburg, Mich.	3.75	121
Apr. 7	do	do	do	3.89	166
May 12	do	do	do	3.85	143
June 6	do	do	do	3.66	92.6
Aug. 3	do	do	do	3.43	17.8
31	do	do	do	3.74	[a] 14.8
July 14	South Branch of Shiawassee River.	Shiawassee River	Sec. 3, T. 2 N., R. 4 E., one-fourth mile southwest of Howell, Mich.		3.4
Aug. 3	do	do	do		2.7
July 14	do	do	Sec. 9, T. 3 N., R. 4 E., 3½ miles northwest of Howell, Mich.		3.4
Aug. 3	do	do	do		3.0
July 28	Flint River	do	3d Avenue bridge in Flint, Mich.		10.6
Apr. 16	Cass River	do	Sec. 16, T. 12 N., R. 9 E., at power plant 2 miles south of Caro, Mich.	1.69	206
16	do	do	do	.31	11.2
May 15	do	do	do	1.75	209
16	do	do	do	2.90	418
July 29	do	do	do	.65	10.9
Sept. 11	Pine River	Tittabawassee River.	Sec. 25, T. 12 N., R. 3 W., 200 feet below O'Melia Mills at St. Louis, Mich.		[a] 19.0
Aug. 5	Black River	St. Clair River	On line between secs. 6 and 7, T. 10 N., R. 16 E., 3 miles northwest of Croswell, Mich.		3.1
Apr. 17	do	do	In sec. 2, T. 6 N., R. 16 E., 6 miles west of Port Huron, Mich.	5.15	54.6
May 28	do	do	do	4.74	13.6
Aug. 4	do	do	do	4.80	14.3
Feb. 19	Lake Huron-Black River Canal.	Diverts from Lake Huron. Tributary to Black River.	Sec. 26, T. 7 N., R. 17 E., at Port Huron, Mich.		182
Mar. 12	do	do	do		184
Apr. 18	do	do	do		253
May 28	do	do	do		235
Aug. 5	do	do	do		239
Sept. 3	do	do	do		184
Aug. 6	Clinton River	Lake St. Clair	On line between secs. 26 and 35, T. 3 N., R. 10 E., at Pontiac, Mich.		13.5
Sept. 4	do	do	do		[a] 16.8
Aug. 6	do	do	On line between secs. 19 and 20, T. 2 N., R. 13 E., 3 miles east of Mt. Clemens, Mich.		[a] 30.5
Aug. 6	North Branch of Clinton River.	Clinton River	Sec. 10, T. 2 N., R. 13 E., 2 miles west of Mount Clemens, Mich.		[b] .8
July 24	Huron River	Lake Erie	Sec. 2, T. 2 S., R. 3 E., at Delhi Mills, Mich.		68.9

[a] Furnished by Michigan Stream Control Commission. [b] Estimated.

Miscellaneous discharge measurements in St. Lawrence River drainage basin during the year ending September 30, 1931—Continued

Date	Stream	Tributary to—	Locality	Gage Height	Discharge
				Feet	*Sec.-ft.*
Aug. 7	Huron River	Lake Erie	Sec. 2, T. 2 S., R. 3 E., at Delhi Mills, Mich.		53.2
19	do	do	do		[a] 54.1
19	do	do	Fuller Street Bridge in Ann Arbor, Mich.		[a] 18.3
19	do	do	Peninsular road bridge at northeast city limits of Ypsilanti, Mich.		[a] 11.7
May 26	Raisin River	do	Sec. 31, T. 7 S., R. 5 E., at southwest edge of Blissfield, Mich.	8.69	141
June 11	do	do	do	10.14	261
July 22	do	do	do	8.96	63.8
Aug. 20	do	do	do	8.84	55.3
May 27	do	do	Bridge on highway 56 in Monroe, Mich.	577.12	127
June 12	do	do	do	577.56	423
July 23	do	do	do	576.98	79.1
May 19	Miami & Erie Canal.	Maumee River	NW. ¼ sec. 22, T. 4 N., R. 5 E., one-fourth mile below head gate at Independence, Ohio.		16.5
July 28	do	do	do		27.0
Oct. 28	Black River	Lake Ontario	Glenfield, N. Y.	4.16	626
Dec. 5	do	do	do	[c] 5.14	1,080

[a] Furnished by Michigan Stream Control Commission. [c] River under complete ice cover.

INDEX