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Surface Water Supply of the United States 1946

Part 4. St. Lawrence River Basin

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

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1054

Prepared in cooperation with the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Vermont, and Wisconsin, and other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR
J. A. Krug, *Secretary*
GEOLOGICAL SURVEY
W. E. Wrather, *Director*

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1948

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price 55 cents (paper cover)

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Vermont, and Wisconsin, and other agencies, by personnel of the Water Resources Branch under the direction of:

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Figure 1. Gaging-station structures: A, Little Wolf River at Royslton, Wis.; B, Black River near Boonville, N. Y. 3

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SURFACE WATER SUPPLY OF ST. LAWRENCE RIVER BASIN, 1946

SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of stage and flow made on streams, lakes, and reservoirs in the United States during the water year ending September 30, 1946. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of the flow of streams and of the stage and contents of lakes and reservoirs have been made at about 10,900 gaging stations in the 48 States and also at many in the Territories of Alaska and Hawaii. In July 1946, 5,810 gaging stations, including those in Hawaii, were being maintained by the Geological Survey and cooperating organizations. Miscellaneous discharge measurements were made during the water year at many other points.

In the execution of the work many State and private organizations have cooperated, either by furnishing data or by assisting in collecting data. Cooperation of the first kind is acknowledged in connection with the description of each station affected; cooperation of the second kind is acknowledged, under the heading "Cooperation," in the introductory matter that precedes the gaging-station records in each volume. In the present volume, the section on cooperation of the second kind appears on page 12.

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the records of stage and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Typical structures in use at gaging stations are shown in figure 1.

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

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

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

For most of the gaging stations on streams in the area covered by this report the data presented comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and runoff. Skeleton rating

A. LITTLE WOLF RIVER AT ROYALTON, WIS.

B. BLACK RIVER NEAR BOONVILLE, N. Y.

FIGURE 1.—GAGING-STATION STRUCTURES.

tables are published for all stations except those at which the daily discharge for the greater part of the year was determined by the shifting-control method, the slope method, or other special methods.

The description of the station gives the type of gage, its latitude and longitude as determined from the best available maps, and information in regard to diversions that decrease the flow at the gage, artificial regulation from pondage or storage, and the accuracy of the records. Under "Average discharge" is given the average discharge for the number of years indicated. It is given only for stations for which there are 10 or more complete years of record. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). Unless otherwise qualified, the maximum discharge corresponds to the crest stage, obtained by use of a water-stage recorder or a nonrecording gage read at the time of the crest. Likewise the minimum discharge represents the lowest stage, unless otherwise qualified. Selected peak discharges with the times of their occurrence are given, below the table of monthly discharge, for some stations. This supplementary information is generally omitted for a station at which the drainage area of the stream is less than 10 or more than 10,000 square miles or at which, on most days, the peak discharge exceeds the mean discharge by less than 10 percent.

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily on (1) the permanency of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements and (2) the accuracy of observations of stage, measurements of flow, and interpretation of records.

The station description gives a statement in regard to the general accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more accurate than the daily records.

Yield at some stations as indicated by monthly means may vary widely from natural yield, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or other factors. For such stations figures of "second-feet per square mile" and "runoff in inches" are not published unless storage or diversion records are included indicating the extent of the regulation or diversion or unless satisfactory adjustments can be made for changes in contents or reservoirs or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless its inclusion is indicated. Figures of second-feet per square mile and runoff in inches are also omitted if the drainage area includes large noncontributing areas or if the average annual rainfall over the drainage area is less than 20 inches.

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

The table of monthly discharge presents in summary the distribution of the flow past the station. The table of daily discharge affords opportunity for more detailed studies of the variation in flow. As further observations in each succeeding year may be expected to throw new light on data previously published, it should be borne in mind that such data are subject to revision in succeeding water-supply papers.

PUBLICATIONS

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

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

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

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

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

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

East of the Mississippi River:
Albany, N. Y., 528 Federal Building.
Asheville, N. C., 220 Post Office Building.
Atlanta, Ga., 410 Grand Theater Building.
Augusta, Maine, Statehouse.
Baton Rouge, La., 124 Geology Building, Louisiana State University.
Boston, Mass., 939 Post Office Building.
Charleston, W. Va., 408 Union Building.
Charlottesville, Va., House G, Dawson Row, University of Virginia.
Chattanooga, Tenn., 442 Post Office Building.
College Park, Md., 105 Engineering Building, University of Maryland.
Columbia, S. C., 207 Creason Building.
Columbus, Ohio, 404 Engineering Experiment Station, Ohio State University.
Harrisburg, Pa., 490 Education Building.
Hartford, Conn., 203 Federal Building.
Indianapolis, Ind., 205 Underwriters Building.
Jackson, Miss., 208 Millsaps Building.
Knoxville, Tenn., 337 Post Office Building.
Louisville, Ky., 531 Federal Building.
Madison, Wis., 666 State Office Building.
Montgomery, Ala., 507 Post Office Building.
Morgantown, W. Va., 406 Mineral Industries Building.
New Philadelphia, Ohio, Muskingum Watershed Conservancy District Building.
Ocala, Fla, 304 Post Office Building.
Pittsburgh, Pa., 515 Plaza Building.
Raleigh, N. C., 908 Capital Club Building.
St. Paul, Minn., 1427 New Post Office Building.
Trenton, N. J., 228 Federal Building.
Urbana, Ill., 14 Post Office Annex, Elm Street.
Washington, D. C., Federal Works Agency Building.
Williamsburg, Ky., Kentucky Highway Building.

West of the Mississippi River:
Albuquerque, N. Mex., 723 North Second Street.
Austin, Tex., 302 West Fifteenth Street.
Bismarck, N. Dak., 7 Eltinge Building.
Boise, Idaho, 429 Federal Building.
Denver, Colo., 126 New Customhouse.
Fort Smith, Ark., 6 Post Office Building.
Helena, Mont., 408 Federal Building.
Honolulu, Hawaii, 225 Federal Building.
Idaho Falls, Idaho, 204 Federal Building.
Iowa City, Iowa, 508 Hydraulic Laboratory, University of Iowa.
Lincoln, Nebr., 510 Rudge-Guenzel Building.
Los Angeles, Calif. 429-F United States Post Office and Courthouse.
Oklahoma City, Okla., 535 State Capitol.
Pierre, S. Dak., City Hall.
Portland, Oreg., 606 Post Office Building.
Rolla, Mo., Ramsey Building.
St. Louis, Mo., 1004 New Federal Building.
Salt Lake City, Utah, 303 Federal Building.
San Francisco, Calif., 702 Appraisers Building.
Santa Fe, N. Mex., 204 United States Courthouse.
Tacoma, Wash., 207 Federal Building.
Topeka, Kans., 305 Federal Building.
Tucson, Ariz., 210 Post Office Building.

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

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

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

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

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

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

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

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

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

Numbers of water-supply papers containing results of stream measurements, 1899-1946

(For basins included see p. 5).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a...	35	b35, 36	36	36	36	c36, 37	37	37	d37, 38	38, e39	38, f39	38	38	38
1900 g...	47, h48	48	48, 149	49	49	49, j50	50	60	50	51	51	51	51	51
1901.....	65, 75	65, 75	65, 75	65, 75	k65, 66, 75	66, 75	k65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902.....	82	b82, 83	83	m82, 83	k83, 85	84	k83, 84	84	85	85	85	85	85	85
1903.....	97	b97, 98	98	97	k98, 99, n100	99	k98, 99	99	100	100	100	100	100	100
1904.....	o124, p125, q126	q126, 127	128	129	k128, 130	130, r131	k128, 131	132	133	133, s134	134	135	135	135
1905.....	o165, p166, q167	q167, 168	169	170	171	172	k169, 173	174	175, t177	176, s177	177	178	178	u177, 178
1906.....	o201, p202, q203	q203, 204	205	206	207	208	k205, 209	210	211, t213	212, s213	213	214	214	214
1907-8...	241	242	243	244	245	246	247	248	249	250, s251	251	252	252	252
1909.....	261	262	263	264	265	266	267	268	269	270, s271	271	272	272	272
1910.....	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911.....	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912.....	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913.....	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914.....	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915.....	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916.....	431	432	433	434	435	436	437	436	439	440	441	442	443	444
1917.....	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918.....	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20..	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921.....	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922.....	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923.....	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924.....	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925.....	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926.....	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927.....	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928.....	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929.....	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930.....	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931.....	711	712	713	714	715	716	717	718	719	720	721	722	723	724
1932.....	726	727	728	729	730	731	732	733	734	735	736	737	738	739
1933.....	741	742	743	744	745	746	747	748	749	750	751	752	753	754
1934.....	756	757	758	759	760	761	762	763	764	765	766	767	768	769
1935.....	781	782	783	784	785	786	787	788	789	790	791	792	793	794
1936.....	801	802	803	804	805	806	807	808	809	810	811	812	813	814
1937.....	821	822	823	824	825	826	827	828	829	830	831	832	833	834
1938.....	861	852	853	854	855	856	857	858	859	860	861	862	863	864
1939.....	871	872	873	874	875	676	877	878	879	880	881	882	883	884
1940.....	891	892	893	894	895	896	897	898	899	900	901	902	903	904
1941.....	921	922	923	924	925	926	927	928	929	930	931	932	933	934
1942.....	951	952	953	954	955	956	957	958	959	960	961	962	963	964
1943.....	971	972	973	974	975	976	977	978	979	980	981	982	983	984
1944.....	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014
1945.....	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044
1946.....	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064

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

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

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

Report	Period	Water-Supply Paper
STATE		
Alabama, Water powers of, with an appendix on stream measurements in Mississippi.	1895-1903	107
California, Water resources of, part 1, Stream measurements in Sacramento River Basin.	1887-1912	298
California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.	1878-1912	299
California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific Coast river basins.	1891-1912	300
California, southern, Surface water supply of Pacific slope of	1890-1918	447
California, Surface water supply of Sacramento River Basin	1895-1927	597-E
California, Surface water supply of San Joaquin River Basin	1895-1927	636-D
California, southern, Surface water supply of Pacific slope basins in	1894-1927	636-E
California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.	1895-1927	637-A
Colorado, Water resources of	1884-1900	74
Georgia, Water resources of	1895-1905	197
Massachusetts, Surface waters of	1845-1915	415
Nebraska, Surface water supply of	1894-1906	230
Oregon, Surface water supply of	1878-1910	370
Texas, Summary of records of surface waters of	1898-1937	850
Vermont, Surface waters of	1875-1916	424
Washington, Summary of hydrometric data in	1878-1919	492
Washington, Summary of records of surface waters of	1919-35	870
Wisconsin, northern, Water power of	1895-1905	156
Wyoming, Surface waters of, and their utilization	1894-1921	469
DRAINAGE BASIN		
Colorado River (Ariz., Colo., N. Mex., Utah, Wyo.) and its utilization	1888-1914	395
Colorado River, upper (Colo., Utah), and its utilization	1897-1927	617
Colorado River Basin (Ariz., Calif., Colo., Utah, Wyo.), Surface waters at base stations in.	1891-1938	918
Colorado River Basin (Ariz., Calif., Nev., N. Mex., Utah), Surface waters at stations on tributaries in lower.	1868-1938	1049
Columbia River Basin, upper (Mont., Idaho), Surface waters of	1898-1938	916
Great Salt Lake Basin, Water powers of	1889-1920	517
Green River (Colo., Utah, Wyo.) and its utilization	1894-1926	618
Kennebec River Basin (Maine), Water resources of	1890-1906	198
Milk River. See St. Mary and Milk Rivers		
Missouri and St. Mary River Basins (Mont.), Surface waters of	1881-1938	917
New-Kanawha River Basin (N. C., Va., W. Va.), Surface water supply of	1895-1920	536
Penobscot River Basin (Maine), Water resources of	1904-9	279
Potomac River Basin (D. C., Md., W. Va.)	1895-1906	192
Rio Grande Basin (Colo., N. Mex., Tex.), Water resources of	1888-1913	358
St. Mary and Milk Rivers (Mont., Canada), Water supply of	1898-1917	491
St. Mary River. See St. Mary and Milk Rivers; Missouri and St. Mary River Basin.		
Sevier Lake Basin (Utah), Utilization of surface water resources of	1889-1937	920
Snsquehanna River Basin (Pa., Md.), Hydrography of	1890-1904	109

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

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Alabama	1895-1915	Bull. 17, Water powers of Alabama	Geological Survey of Alabama.
Arkansas	1857-1928	Stream-gaging Rept. 1	Arkansas Geological Survey.
Colorado	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado.[1]	State Planning Commission, Water Conservation Board, State engineer.
Do	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Connecticut	1900-1927	Bull. 44, Water resources of Connecticut	State Geological and Natural History Survey.
Do	1912-33	5th biennial report[2]	State Water Commission.
Georgia	1895-1906	Bull. 16, Water powers of Georgia	Geological Survey of Georgia.
Do	1907-19	Bull. 38, Water powers of Georgia	Do.
Illinois	1908-11	Water resources of Illinois	Rivers and Lakes Commission.
Do	1900-1934	Stream-flow data of Illinois	Division of Waterways.
Indiana	1923-27	Pub. 72, Surface water supply of Indiana	Department of Conservation.
Do	1927-30	Pub. 112, Surface water supply of Indiana.	Do.
Iowa	1873-1932	Stream-flow records of Iowa	State Planning Board.
Do	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa streams.	Iowa Geological Survey.
Do	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.

1 Contains records of yearly discharge only.
2 Contains records of monthly discharge in second-feet per square mile.

State reports containing compilations of records of discharge--Continued

State	Period	Report	Issued by
Kansas	1895-1919	Surface waters of Kansas	Kansas Water Commission.
Do	1919-24	....do	Do.
Do	1924-28	Report of Division of Water Resources	State Board of Agriculture.
Do	1928-35	Stream-flow data of Kansas	Do.
Do	1935-39	....do	Do.
Kentucky	1910-20	Surface waters of Kentucky	Kentucky Geological Survey.
Louisiana	1903-38	Geol. Bull. 16, Surface water supply of Louisiana.	Department of Conservation.
Maine	1887-1920	1st annual report[2]	Maine Water Power Commission.
Maryland	1929-37	Flow data and draft storage curves for major streams in Maryland.	State Planning Commission and Water Resources Commission.
Do	1892-1943	Bull. 1, Summary of records of surface waters of Maryland and the Potomac River Basin.	Department of Geology, Mines, and Water Resources.
Minnesota	1909-12	Water-resources investigation of Minnesota.	State Drainage Commission.
Missouri	1857-1926	Vol. 20, 2d series, Water resources of Missouri.	Missouri Bureau of Geology and Mines.
Do	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Montana	1889-1911	5th biennial report	Office of the State Engineer.
Do	1881-1938	Special Rept. 10, vols. 1-4, Water resources of Montana.	Montana Agricultural Experiment Station.
Nebraska	1894-1914	1st hydrographic report	Bureau of Water Power, Irrigation, and Drainage.
Do	1914-28	2d hydrographic report	Do.
New Hampshire	1889-1922	Annual and statistical report, vol. 12[2]	Public Service Commission.
New Jersey	1892-1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do	1928-34	Special Rept. 5, Surface water supply of New Jersey.	State Water Policy Commission.
Do	1934-40	Special Rept. 9, Surface water supply of New Jersey.	Do.
New Mexico	1888-1925	Surface water supply of New Mexico	Office of the State Engineer.
North Carolina.	1889-1923	Bull. 34, Discharge records of North Carolina streams.[3]	Department of Conservation and Development.
Do	1889-1936	Bull. 39, Discharge records of North Carolina streams.[4]	Do.
Do	1866-1945	Hydrologic Data on the Neuse River Basin.	Do.
Do	1820-1945	Hydrologic Data on the Cape Fear River Basin.	Do.
North Dakota.	1919-21	Report to Governor of North Dakota on flood control.	State chief engineer.
Do	1882-1938	Surface water in North Dakota	State Planning Board.
Do	1882-1944	Supplement B, 4th biennial report	State Water Conservation Commission.
Ohio	1898-1921	Bull. 73, Ohio stream flow, Part 1	Engineering Experiment Station,
Do	1898-1944	Bull. 127, Ohio stream flow, Part 2	Do.
Do	1902-39	Bull. 200, Compilation of stream-flow records of Ohio.	Ohio State University. Department of Agriculture, Division of Conservation and Natural Resources.
Do	1898-1939	Bull. 111, Ohio stream-drainage areas and flow-duration tables.	Engineering Experiment Station, Ohio State University.
Oregon	1878-1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do	1914-24	Bull. 7, Water resources of the State of Oregon.	Do.
Do	1924-30	Bull. 8, Water resources of the State of Oregon.	Do.
Do	1930-36	Bull. 9, Water resources of the State of Oregon.	Do.
Pennsylvania.	1890-1911	Report of the Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do	1928-32	Stream-flow records of Pennsylvania	Department of Forests and Waters.
Rhode Island.	1929-41	7th annual report	Department of Public Works.
Tennessee	1874-1924	Bull. 34, Water resources of Tennessee	Department of Education.
Do	1920-30	Bull. 40, Surface waters of Tennessee	Do.
Utah	1889-1905	5th biennial report	Office of the State Engineer.
Do	1906-10	7th biennial report	Do.
Do	1911-16	10th biennial report	Do.
Virginia	1895-1927	Bull. 31, Water resources of Virginia	Virginia Geological Survey.
Do	1927-42	Bull. 4, Surface water supply of Virginia (Potomac, Rappahannock, and York River Basins).	Virginia Conservation Commission.
Do	1927-42	Bull. 5, Surface water supply of Virginia (James River Basin).	Do.
Do	1927-42	Bull. 6, Surface water supply of Virginia (Roanoke and Chowan River Basins).	Do.
Do	1927-42	Bull. 7, Surface water supply of Virginia (New, Tennessee, and Big Sandy River Basins).	Do.
Washington	1878-1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin	1888-1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do	1914-23	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

2 Contains records of monthly discharge in second-feet per square mile.
3 Contains records of weekly discharge.
4 Contains records of maximum and minimum daily, weekly, and monthly discharge and yearly mean discharge.

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

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

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

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table contains a list of gaging stations for the area covered by this report at which records of discharge were collected during the water year October 1945 to September 1946 by agencies other than the Geological Survey. The records for these stations are not contained in publications of the Geological Survey.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by
Cayuga Lake Outlet.....	Lock 1 (Mud lock), N. Y.....	1926-46	State Department of Public Works, Albany, N. Y.
Clyde River.....	Clyde, N. Y.....	1924-46	Do.
Indian River.....	Theresa, N. Y.....	1934-46	Central New York Power Corporation, Syracuse, N. Y.
New York Barge Canal†..	Brewerton, N. Y.....	1925-46	State Department of Public Works, Albany, N. Y.
Oneida River.....	Caughdenoy, N. Y.....	1929-46	Oswego River Watershed Corporation, Fulton, N. Y.
Oswegatchie River, East Branch.	Browns Falls, N. Y.....	1934-46	Central New York Power Corporation, Syracuse, N. Y.
Oswego River.....	Lower Dam, Fulton, N. Y.....	1928-46	Oswego River Watershed Corporation, Fulton, N. Y.
Do.....	High Dam, Oswego, N. Y.....	1940-46	Central New York Power Corporation, Syracuse, N. Y.
Raquette River.....	Colton, N. Y.....	1934-46	Do.
St. Regis River, West Branch.	Parishville, N. Y.....	1934-46	Do.
Salmon River.....	Bennetts Bridge, near Altmar, N. Y.	1934-46	Do.
Saranac River.....	Kents Falls, N. Y.....	1934-46	System Properties, Inc., New York, N. Y.
Seneca River.....	Baldwinsville, N. Y.....	1928-46	Oswego River Watershed Corporation, Fulton, N. Y.
Do.....	Jacks Reef, near Baldwinsville, N. Y.	1933-46	State Department of Public Works, Albany, N. Y.

† Diversion around station on Oneida River at Caughdenoy, N. Y.

Note.- Records for the stations given in the above table are unpublished but are available at the office of the organization by which the station was operated. In addition to the records listed in the above table, the Soil Conservation Service of the U. S. Department of Agriculture (beginning in 1940) has collected records of runoff from 3 areas of less than 5 acres each near East Lansing, Mich.

COOPERATION

The work in the several States was done under cooperative agreements with the organizations listed below.

Illinois: State Department of Public Works and Buildings, W. A. Rosenfield, director, through Division of Waterways, T. B. Casey, chief engineer.

Indiana: State Department of Conservation, Milton Matter, director, succeeded by J. H. Nigh, through Division of Water Resources, C. H. Bechert, director; State Highway Commission, J. H. Lauer, chairman, and C. E. Vogelgesang, chief engineer, Construction; State Board of Health, Dr. L. E. Burney, commissioner, and B. A. Poole, director, Bureau of Sanitary Engineering; and city of Fort Wayne Filtration Plant, L. R. Matthews, superintendent.

Michigan: State Department of Conservation, P. J. Hoffmaster, director, through Geological Survey Division, Dr. R. A. Smith, State geologist, succeeded by G. E. Eddy; Fish Division, F. A. Westerman, head, Game Division, H. D. Ruhl, head, and Parks Division, A. C. Elmer, head; State Stream Control Commission, M. P. Adams, executive secretary-engineer; and State Highway Department, C. M. Ziegler, commissioner.

Minnesota: State Department of Conservation, Division of Water Resources and Engineering, W. S. Olson, director; and Minnesota State Iron Range Resources and Rehabilitation Commission, R. E. Wilson, commissioner.

New York: State Department of Conservation, P. B. Duryea, commissioner; State Department of Public Works, C. H. Sells, superintendent; Board of Black River Regulating District, E. S. Cullings, chief engineer; Commission for the Improvement of Oswegatchie River and the Hydraulic Power Thereon, C. H. Lord, chairman; Water Department, city of Auburn, G. F. Train, city manager; and Department of Public Works, village of Lancaster, H. J. Huber, superintendent.

Ohio: State Cooperative Topographic Survey, P. L. Runkle, inspector-director; and State Water Supply Board, C. E. MacQuigg, chairman.

Vermont: State Development Commission, W. H. Smith, chairman.

Wisconsin: Public Service Commission of Wisconsin, G. P Steinmetz, chief engineer.

Financial assistance was furnished by the Corps of Engineers, United States Army, in the operation of 49 gaging stations, of which 9 were in Michigan, 1 in Indiana, 14 in New York, 14 in Ohio, 5 in Vermont, and 6 in Wisconsin.

Financial assistance was furnished also by the Fish and Wildlife Service, United States Department of the Interior, and by the United States Department of State.

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

Assistance in collecting records was rendered by the following organizations:

Michigan: Presque Isle County Board of Supervisors; cities of Allegan, Battle Creek, Niles, and Saginaw; Alpena Power Co.; Copper District Power Co.; Dow Chemical Co.; Michigan Gas & Electric Co.; Michigan Public Service Co.; and Wisconsin Michigan Power Co.

New York: City of Syracuse, N. F. Pitts, Jr., city engineer; Cornell University; Central New York Power Corporation; International Paper Co.; New York & Pennsylvania Co.; New York State Electric & Gas Corporation; Imperial Paper & Color Corporation; and Deer River Power Co.

Wisconsin: Wisconsin Public Service Corporation; Wisconsin Michigan Power Co.; and Lake Superior District Power Co.

DIVISION OF WORK

The stream-gaging work was conducted by the water resources branch of the Geological Survey, Glenn L. Parker, chief hydraulic engineer (until Feb. 12, 1946) succeeded by Carl G. Paulsen, and Joseph V. B. Wells, chief of the division of surface water since Sept. 17, 1946. The data for the stations in the several States were collected and prepared for publication under the supervision of district engineers as follows: In Illinois, J. H. Morgan; in Indiana and Michigan, D. M. Corbett; in Minnesota, P. R. Speer; in New York, A. W. Harrington; in Ohio, Tate Dalrymple (acting, until Sept. 9, 1946) succeeded by O. H. Jeffers (acting); in Vermont, H. B. Kinnison; in Wisconsin, F. C. Christopherson.

The records were reviewed and the manuscript prepared for publication under the direction of B. J. Peterson, hydraulic engineer in charge, and F. J. Flynn, associate engineer, section of reports.

ST. LAWRENCE RIVER MAIN STEM

Niagara River at Buffalo, N. Y.

Location.- Lat. 42°52'40", long. 78°53'25", at head of Niagara River at Buffalo. Flow computed by means of several U. S Lake Survey gages on river.

Drainage area.- 263,500 square miles.

Records available.- January 1905 to September 1946 (prior to October 1935, monthly discharge only).

Average discharge.- 42 years (October 1904 to September 1946), 192,000 second-feet (not including diversions from Lakes Michigan and Erie).

Extremes.- Maximum daily discharge during year, 252,000 second-feet Nov. 22; minimum daily, 180,000 second-feet Jan. 20, 23.
1905-46: Maximum monthly mean discharge, 242,000 second-feet May 1929; minimum monthly, 117,000 second-feet February 1936.

Remarks.- Records do not include flow diverted from Lake Michigan by Chicago Sanitary & Ship Canal and from Lake Erie by Welland Canal in Ontario, and Black Rock and New York State Barge (old Erie) Canals at Buffalo. Daily discharge of Niagara River computed from gage height at Buffalo and fall from Buffalo to Black Rock. As this reach is occasionally partly blocked by ice, all winter flows have been compared with daily flows computed from the Canadian gage at Morrison Street, corrected for diversion through Queenston power plant. The latter figures have been used whenever comparison indicated obstruction by ice in upper river.

Cooperation.- Records of daily discharge furnished by Corps of Engineers, War Department.

Discharge, in thousands of second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	221	208	204	211	206	189	194	203	203	228	211	218
2	245	207	206	208	211	193	211	203	210	226	212	204
3	218	221	213	206	190	192	203	182	217	221	215	206
4	221	215	204	203	182	193	222	198	217	221	218	201
5	223	215	201	201	188	187	216	215	217	222	216	204
6	220	211	201	207	200	190	209	210	219	224	215	207
7	222	212	214	203	213	192	203	206	215	223	216	205
8	228	212	207	196	191	187	202	209	223	225	216	199
9	221	221	226	208	196	218	210	211	215	221	216	204
10	218	211	214	212	187	193	204	204	213	221	233	218
11	224	203	212	204	190	195	199	209	222	226	217	208
12	234	210	208	228	192	196	204	207	217	224	213	194
13	221	221	205	232	192	196	206	204	215	225	213	194
14	214	210	218	214	214	196	203	205	210	227	210	200
15	227	223	235	205	207	192	214	205	214	209	213	202
16	227	220	250	204	192	188	207	206	216	217	215	202
17	222	220	233	214	195	194	205	199	220	219	214	203
18	217	217	207	218	187	193	212	208	220	220	210	202
19	226	208	187	201	184	199	206	210	212	223	226	201
20	220	208	215	180	200	202	207	209	223	222	216	202
21	213	201	209	206	190	203	202	218	229	222	213	203
22	214	252	199	196	198	203	205	211	227	222	210	200
23	192	218	196	180	189	195	207	208	224	225	210	202
24	208	233	190	187	193	200	206	210	226	225	209	207
25	218	207	201	207	190	204	205	212	223	220	210	208
26	243	204	241	205	184	199	205	206	224	222	209	203
27	217	202	203	195	185	204	209	206	222	217	210	199
28	212	200	200	185	190	201	207	206	225	220	214	202
29	220	192	201	190	-	201	205	211	222	221	208	203
30	209	202	208	196	-	192	205	213	223	216	210	197
31	223	-	206	225	-	190	-	210	-	209	218	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile †	Runoff in inches
		Maximum	Minimum	Mean		
October	6,838	245	192	221	0.839	0.97
November	6,384	252	192	213	.808	.90
December	6,514	250	187	210	.797	.92
Calendar year 1945	75,817	252	137	208	.789	10.71
January	6,327	232	180	204	.774	.89
February	5,436	214	182	194	.736	.77
March	6,077	218	187	196	.744	.86
April	6,193	222	194	206	.782	.87
May	6,414	218	182	207	.786	.91
June	6,563	229	203	219	.831	.93
July	6,863	228	209	221	.839	.97
August	6,636	233	208	214	.812	.94
September	6,098	218	194	203	.770	.86
Water year 1945-46	76,343	252	180	209	.793	10.79

† Expressed in second-feet.

St. Lawrence River at Ogdensburg, N. Y.

Location.- Lat. 44°41'55", long. 75°30'15". Flow computed by means of several U. S. Lake Survey gages on river.

Drainage area.- Above Ogdensburg, 298,100 square miles.

Records available.- January 1919 to September 1946 (prior to October 1935, monthly discharge only).

Average discharge.- 28 years (October 1918 to September 1946), 223,000 second-feet (does not include diversion from Lake Michigan).

Extremes.- Maximum daily discharge during year, 279,000 second-feet Oct. 2; minimum daily, 221,000 second-feet Feb. 28.
1919-46: Maximum monthly mean discharge, 295,000 second-feet June 1943; minimum monthly, 152,000 second-feet February 1936.

Remarks.- Records do not include flow diverted from Lake Michigan by Chicago Sanitary & Ship Canal. Water diverted from Lake Erie and Niagara River by Black Rock and New York State Barge (old Erie) Canals, except that lost by seepage and evaporation, is discharged into Lake Ontario at Oswego and at several points between Niagara River and Irondequoit Bay.

Cooperation.- Records of daily discharge furnished by Corps of Engineers, War Department.

Discharge, in thousands of second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	265	264	260	266	260	226	260	259	254	264	250	253
2	279	270	265	264	258	234	271	257	260	263	252	247
3	267	268	268	266	249	242	264	255	263	262	254	248
4	272	267	265	264	248	240	269	255	263	264	256	245
5	273	266	266	264	248	244	271	261	263	262	256	244
6	269	264	260	266	250	243	268	263	264	265	254	247
7	270	265	267	266	257	256	266	258	261	259	254	243
8	272	267	269	263	253	257	263	260	265	259	255	238
9	269	271	272	263	256	265	267	263	265	260	255	241
10	268	268	273	272	253	257	265	259	264	258	261	245
11	269	262	269	266	254	260	263	259	265	260	255	248
12	278	264	268	270	252	261	262	260	265	262	252	238
13	269	271	266	271	252	264	264	260	262	261	252	238
14	268	265	266	257	257	264	263	257	259	264	251	241
15	274	267	276	259	243	262	270	257	260	256	251	241
16	271	264	277	262	234	263	265	256	261	258	254	243
17	271	264	270	265	248	261	264	254	263	259	241	242
18	270	267	270	262	243	261	270	256	258	259	245	241
19	271	264	258	263	246	264	263	265	262	260	254	240
20	276	263	263	258	250	267	264	258	260	257	256	239
21	269	257	263	262	243	268	262	265	267	257	251	240
22	269	270	262	264	235	268	261	266	265	256	249	240
23	260	268	264	262	239	266	262	262	264	259	250	239
24	257	271	261	261	243	265	262	262	265	262	250	245
25	266	265	259	262	245	268	260	265	262	260	249	243
26	271	264	274	263	240	268	256	260	263	258	247	241
27	270	260	268	262	228	272	261	255	263	258	247	239
28	264	253	263	262	221	270	264	254	262	257	250	241
29	271	240	266	256	-	265	261	261	262	260	246	242
30	264	244	264	252	-	258	261	264	262	255	247	235
31	276	-	267	261	-	260	-	249	-	250	250	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile †	Runoff in inches
		Maximum	Minimum	Mean		
October	8,358	279	257	270	0.906	1.04
November	7,913	271	240	264	.886	.99
December	8,259	277	258	266	.892	1.03
Calendar year 1945	92,647	283	172	254	.852	11.57
January	8,154	272	252	263	.882	1.02
February	6,905	260	221	247	.829	.86
March	8,019	272	226	259	.869	1.00
April	7,922	271	256	264	.886	.99
May	8,035	266	249	259	.869	1.00
June	7,872	267	254	262	.879	.98
July	8,044	265	250	259	.869	1.00
August	7,794	261	241	251	.842	.97
September	7,267	253	235	242	.812	.91
Water year 1945-48	94,542	279	221	259	.869	11.79

† Expressed in second-feet.

Pigeon River at Middle Falls, below International Bridge, Minn.
(International gaging station)

Location.- Water-stage recorder, lat. 48°00'44", long. 89°36'58", in NE¼ sec. 24, T. 64 N., R. 6 E., 400 feet upstream from Middle Falls, 3½ miles upstream from mouth, and 5¾ miles downstream from International Bridge. Datum of gage is 789.58 feet above mean sea level, datum of 1929.

Drainage area.- 600 square miles at present site.

Records available.- October 1940 to September 1946. April 1924 to September 1940 at site at International Bridge, 5¾ miles upstream, published as Pigeon River at International Bridge, October 1923 to September 1932 in House Document 92, 73d Congress, 1st session. June 1921 to September 1946 in reports of Dominion Water and Power Bureau Department of Mines and Resources, Canada.

Average discharge.- 23 years (1923-46), 483 second-feet.

Extremes.- Maximum daily discharge during year, 2,600 second-feet Mar. 28; maximum gage height recorded, 6.36 feet Mar. 26 (backwater from ice); minimum discharge, 27 second-feet Nov. 4 (gage height, -0.08 foot).

1923-46: Maximum discharge observed, 11,000 second-feet May 5, 1934 (gage height, 7.6 feet, site and datum then in use), from rating curve extended above 7,000 second-feet; minimum, that of Nov. 4, 1945.

Remarks.- Records good except those for periods of ice effect, shifting control, or no gage-height record, which are fair.

Cooperation.- This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating tables, water year 1945-46, except period of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 29						May 30 to Sept. 30							
0.2	42	1.2	198	3.0	780	0.3	50	1.0	152	1.8	379	3.0	820
.3	50	1.5	274	4.0	1,300	.4	59	1.2	200	2.0	423	3.5	1,070
.6	81	2.0	422	5.0	2,010	.6	81	1.4	257	2.3	535	4.0	1,370
.9	132	2.5	565	5.7	2,620	.8	113	1.6	317	2.6	642	4.7	1,880

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	66	95	50		75	*h1,120	845	1,720	347	88	53
2	71	69	90	60		80	1,040	780	1,580	302	88	52
3	68	59	85	70	74	90	1,020	720	1,480	266	88	51
4	68	37	90	85		85	740	660	1,340	242	86	64
5	66	67	95	95		85	820	660	1,250	230	82	697
6	66	*69	110	90		85	870	760	1,160	211	80	945
7	64	69	95	90		85	800	760	1,070	203	79	589
8	65	69	80	90	70	80	720	700	1,020	203	79	427
9	63	67	75	85		75	640	740	945	326	88	357
10	61	49	70	85		75	585	760	870	369	92	491
11	61	87	65	80		85	568	760	820	360	90	507
12	59	88	75	*80		120	602	800	720	347	84	398
13	58	95	85	70	68	140	800	740	338	539	80	523
14	57	110	80	60		160	1,180	680	208	572	79	589
15	54	120	*75	44		180	1,390	660	198	539	74	556
16	54	136	65	48		200	1,270	640	200	507	65	507
17	54	120	50	50		240	1,100	585	203	475	60	475
18	54	100	42	50	74	280	1,120	550	195	475	80	443
19	55	90	40	50		340	1,150	534	188	556	80	411
20	56	90	38	50		420	1,100	534	185	507	81	459
21	60	80	38	50		500	995	640	200	459	75	491
22	59	75	38	65		600	995	680	222	427	66	475
23	54	80	38	80		800	1,070	680	219	353	61	680
24	54	85	40	80		1,100	1,070	970	214	305	57	745
25	57	90	42	75	72	*1,200	970	1,120	284	281	54	770
26	60	95	42			1,400	a930	970	556	260	53	606
27	61	100	42			1,800	f895	820	556	168	53	837
28	62	101	42		*h65	f2,600	a900	740	475	106	53	1,250
29	62	98	42	70	-	a2,520	895	680	491	92	52	945
30	61	95	42		-	2,440	870	1,580	427	90	52	680
31	63	-	42		-	f1,660	-	1,880	-	87	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,880	73	54	60.6	0.101	0.12
November	2,556	136	37	85.2	.142	.16
December	1,948	110	38	62.8	.105	.12
Calendar year 1945	183,339	5,700	37	502	.837	11.37
January	2,152	95	44	69.4	.116	.13
February	1,999	-	-	71.4	.119	.12
March	19,600	2,600	75	633	1.06	1.21
April	28,225	1,390	568	941	1.57	1.75
May	24,628	1,880	534	794	1.32	1.53
June	19,334	1,720	185	664	1.07	1.20
July	10,204	572	87	329	.548	.63
August	2,252	92	52	72.6	.121	.14
September	16,073	1,250	51	536	.893	1.00
Water year 1945-46	130,851	2,600	37	358	.597	8.11

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
f Computed on basis of partly estimated gage-height record.
h Computed from tape-gage readings.

Note.- Stage-discharge relation affected by ice Nov. 13-15, Nov. 17-27, Nov. 30 to Mar. 28 (no gage-height record Jan. 26 to Feb. 27; discharge computed on basis of records for Poplar River at Lutsen). Shifting-control method used July 28 to Sept. 3.

Poplar River at Lutsen, Minn.

Location.- Water-stage recorder and concrete control, lat. 47°38', long. 90°42', in sec. 33, T. 60 N., R. 3 W., 350 feet upstream from concrete bridge on U. S. Highway 61 at Lutsen, and 1,650 feet upstream from mouth. Datum of gage is 697.89 feet above mean sea level.

Drainage area.- 114 square miles.

Records available.- May to November 1911 (gage heights only), August 1912 to September 1917, July 1928 to February 1929, March 1930 to September 1946.

Average discharge.- 19 years (1913-17, 1930-32, 1933-46), 110 second-feet.

Extremes.- Maximum discharge during year, 505 second-feet during period Mar. 26 to Apr. 1, from range of stage on recorder chart; maximum gage height recorded, 5.59 feet Dec. 18 (backwater from ice); minimum discharge, 14 second-feet Aug. 6 (gage height, 2.20 feet).

1912-17, 1928-46: Maximum discharge observed, 1,390 second-feet Apr. 25, 1916, from rating curve extended above 1,100 second-feet; minimum discharge, 2.3 second-feet Dec. 3, 1939 (gage height, 1.73 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 18

2.6	30	3.0	77
2.7	40	3.1	97
2.8	50	3.2	128
2.9	62	3.3	168

Dec. 19 to Sept. 30

2.2	14	2.8	54	3.3	184
2.4	24	3.0	79	3.5	302
2.6	36	3.1	100	3.8	512

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	37	55	30	32	*37	211	246	144	94	20	23
2	49	43	50	32	32	37	211	232	144	79	20	21
3	46	34	50	36	34	36	a205	225	133	73	20	19
4	44	38	50	38	36	36	a195	211	127	71	18	20
5	43	44	55	42	38	35	a225	211	121	66	16	234
6	44	44	f65	42	36	35	a272	218	115	62	16	337
7	44	45		42	36		a270	204	112	61	15	197
8	42	65		44	38	a32	h253	197	112	57	21	130
9	41	90		44	34		232	183	100	52	25	115
10	40	60		46	34		218	170	94	50	54	161
			a58									
11	40	68		*46	32		204	157	90	47	47	147
12	37	72		44	32		197	147	85	43	37	112
13	36	140		42	30	a55	a250	144	85	40	36	90
14	35	90	*f60	38	30		a330	144	85	38	33	79
15	35	75	55	36	a32		365	154	85	36	30	73
16	36	70	46	36	a34		a320	144	140	34	26	66
17	35	60	36	40	34		288	137	164	32	27	62
18	35	55	32	40		a95	330	130	133	35	125	58
19	38	50	30	38			351	130	109	43	96	60
20	36	50	30	36			344	127	100	38	65	109
					a38							
21	35	50	30	36			309	127	121	38	54	106
22	35	48	30	38		a140	344	130	106	41	46	106
23	35	48	30	40			393	150	92	36	40	302
24	35	48	30	38			372	358	96	32	35	253
25	40	55	32	36		211	351	386	157	28	31	239
					a32							
26	41	55	32	34		211	323	288	157	26	29	197
27	40	60	30	34		a300	288	225	127	25	27	288
28	38	60	30	36		a400	274	197	133	25	26	379
29	36	60	30	36	-	a480	267	170	144	23	25	274
30	35	55	30	36	-	a390	260	154	115	22	24	211
31	35	-	28	34	-	a270	-	147	-	20	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,210	49	35	39.0	0.342	0.39
November	1,769	140	34	59.0	.518	.58
December	1,352	65	28	43.6	.382	.44
Calendar year 1945	44,281	1,080	24	121	1.06	14.43
January	1,190	46	30	38.4	.337	.39
February	954	-	30	34.1	.299	.31
March	3,916	480	-	126	1.11	1.28
April	8,452	393	195	282	2.47	2.76
May	5,843	386	127	188	1.65	1.91
June	3,526	164	85	118	1.04	1.15
July	1,367	94	20	44.1	.387	.45
August	1,108	125	15	35.7	.313	.36
September	4,468	379	19	149	1.31	1.46
Water year 1945-46	35,155	480	15	96.3	.845	11.48

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated, or computed on basis of record for Pigeon River at Middle Falls.
f Computed from partly estimated gage height.
h Computed from tape-gage reading.
Note.- Stage-discharge relation affected by ice N v. 9, 10, Nov. 14 to Dec. 6, Dec. 14 to Feb. 14, Feb. 17.

Baptism River near Beaver Bay, Minn.

Location.- Water-stage recorder, lat. 47°20', long. 91°12', in sec. 15, T. 56 N., R. 7 W., 260 feet upstream from highway bridge and 6 miles northeast of village of Beaver Bay. Datum of gage is 609.97 feet above mean sea level.

Drainage area.- 140 square miles.

Records available.- July 1928 to January 1929, March 1930 to September 1946.

Average discharge.- 16 years (1930-46), 156 second-feet.

Extremes.- Maximum discharge during year, 1,240 second-feet May 24 (gage height, 4.52 feet); minimum, 6.8 second-feet Aug. 7 (gage height, 1.89 feet).
1928-29, 1930-46: Maximum discharge, 9,350 second-feet Aug. 9, 1939 (gage height, 8.11 feet), from rating curve extended above 2,600 second-feet; minimum daily, 0.3 second-foot Jan. 5, 6, 1940.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 10						Apr. 11 to Sept. 30					
2.0	10	2.5	44	3.5	391	1.9	7.1	2.4	34	3.6	412
2.1	14	2.7	68	3.7	548	2.0	10	2.6	54	4.0	725
2.2	20	2.9	101	3.9	738	2.1	14	2.9	96	4.2	916
2.3	27	3.1	157	4.0	850	2.2	20	3.1	146	4.4	1,120
2.4	35	3.3	261	4.2	1,110	2.3	27	3.3	230		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	90	42	32	22	14	16	350	246	216	96	14	23
2	78	48	30	24	13	16	406	221	202	75	14	19
3	70	45	30	26	13	16	350	202	183	60	13	18
4	64	46	28	30	14	16	292	183	168	53	10	17
5	59	64	30	28	15	15	292	179	143	47	8.8	23
6	55	52	30	28	14	14	298	176	124	39	7.4	41
7	53	62	28	30	14	14	317	172	119	36	7.1	35
8	58	96	26	30	14	13	298	168	108	33	31	39
9	56	103	24	30	14	14	h304	157	98	28	62	50
10	55	65	22	30	14	14	h273	143	91	28	225	141
11	53	94	20	30	14	16	a265	132	86	24	230	161
12	50	115	19	*30	13	17	h258	124	72	19	202	141
13	46	250	19	26	13	19	a450	117	64	17	161	112
14	44	170	18	24	13	33	a760	117	71	18	112	91
15	43	150	17	22	13	54	h916	130	146	17	79	75
16	41	100	16	24	14	60	h896	127	216	14	58	66
17	41	85	14	24	14	70	h682	119	216	13	241	53
18	40	75	*13	22	14	80	926	117	188	25	463	44
19	42	60	13	20	15	110	886	122	150	56	340	42
20	46	60	13	17	15	150	725	127	130	33	241	78
21	47	55	13	17	15	190	584	141	157	28	176	93
22	46	50	12	16	14	280	592	146	130	46	138	122
23	44	46	13	16	14	360	657	316	101	39	101	274
24	43	42	14	15	a14	500	592	1,100	130	31	76	297
25	43	40	18	14	a14	550	538	946	346	26	60	297
26	44	38	22	14	a14	*584	463	624	334	23	50	236
27	42	36	20	14	*14	760	392	478	252	20	42	456
28	42	36	20	15	14	1,080	346	359	202	20	39	657
29	41	36	20	15	-	1,030	309	274	164	21	32	538
30	40	34	20	14	-	698	268	216	130	17	28	143
31	40	-	18	14	-	414	-	216	-	18	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,556	90	40	50.2	0.359	0.41
November	2,195	250	34	73.2	.523	.58
December	632	32	12	20.4	.146	.17
Calendar year 1945	55,927.6	3,800	9.6	153	1.09	14.87
January	681	30	14	22.0	.157	.18
February	390	15	13	13.9	.099	.10
March	7,203	1,080	13	232	1.66	1.91
April	14,685	926	258	490	3.50	3.90
May	7,895	1,100	117	255	1.82	2.10
June	4,737	348	84	158	1.13	1.26
July	1,020	96	13	32.9	.235	.27
August	3,289.1	463	7.1	106	.757	.87
September	4,382	857	17	146	1.04	1.16
Water year 1945-46	46,665.1	1,100	7.1	133	.950	12.91

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated, or computed on basis of records for Poplar River at Lutsen.
h Computed from tape-gage readings.
Note.- Stage-discharge relation affected by ice Nov. 10, Nov. 14 to Feb. 23, Feb. 28, 29, Mar. 4-10, 16-25.

St. Louis River near Aurora, Minn.

Location.- Water-stage recorder, lat. 47°29'30", long. 92°14'20", in SW¼ sec. 22, T. 58 N., R. 15 W., at highway bridge, three-quarters of a mile downstream from Partridge River and 1½ miles south of Aurora.

Drainage area.- 312 square miles.

Records available.- August 1942 to September 1946.

Extremes.- Maximum discharge during year, 1,040 second-feet Apr. 25; maximum gage height, 4.29 feet Mar. 22 (backwater from ice); minimum daily discharge, 19 second-feet Feb. 22 to Mar. 1; minimum gage height, 0.87 foot Aug. 7.

1942-46: Maximum discharge observed, 3,960 second-feet June 6, 1944 (gage height, 7.30 feet); minimum daily discharge, 7.5 second-feet Feb. 29, Mar. 1, 1944; minimum gage height observed, 0.82 foot Mar. 2, 3, 1944 (backwater from ice).

Remarks.- Records good except those for period of ice effect or shifting control, which are fair.

Rating table, water year 1945-46, except period of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

0.7	16	1.2	62	2.6	428
.8	24	1.4	86	3.0	605
.9	32	1.7	142	3.4	802
1.0	42	2.0	220	3.8	1,040
1.1	52	2.3	316		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	235	98	80	60	30	19	857	600	405	568	46	66
2	209	95	80	60	30	22	776	500	381	488	44	60
3	189	94	80	80	30	22	700	460	359	408	42	56
4	171	90	80	60	30	24	628	420	340	351	38	54
5	161	90	80	60	32	24	628	380	313	302	36	53
6	164	90	80	60	32	22	605	360	285	263	33	54
7	169	90	80	60	32	22	628	360	276	235	33	52
8	182	90	80	55	30	20	628	340	260	212	62	51
9	167	90	75	55	30	20	652	320	241	200	65	53
10	187	90	75	55	30	20	652	300	229	192	77	67
11	182	90	*70	55	30	22	676	280	217	171	62	70
12	179	90	70	50	30	24	700	280	203	156	92	68
13	169	85	70	50	28	28	700	260	187	140	101	67
14	161	85	65	48	28	34	750	240	179	122	103	65
15	156	85	65	*46	26	40	802	240	276	112	105	61
16	147	65	65	46	26	55	802	240	466	101	100	59
17	142	85	65	44	24	75	802	240	652	94	98	57
18	135	85	65	42	24	95	776	240	700	92	133	55
19	133	85	65	42	22	190	725	240	700	92	152	58
20	129	85	65	40	20	*300	676	240	652	88	174	70
21	124	85	65	40	*20	400	628	240	628	85	184	71
22	118	85	60	40	19	550	676	240	582	80	179	76
23	114	85	60	38	19	650	886	260	532	75	164	88
24	112	85	60	36	19	700	1,000	420	328	68	142	101
25	109	80	60	36	19	800	1,040	550	700	62	124	120
26	107	80	60	36	19	857	1,000	628	776	58	112	154
27	109	80	60	34	19	850	950	628	750	55	100	256
28	105	80	60	34	19	*850	800	605	700	53	69	366
29	103	80	80	34	-	850	700	536	676	52	82	424
30	105	80	60	32	-	850	650	466	652	51	77	470
31	98	-	60	32	-	850	-	428	-	48	70	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,591	235	98	148	0.474	0.55
November	2,597	98	80	86.6	.278	.31
December	2,120	80	60	68.4	.219	.25
Calendar year 1945	91,244	1,940	24	250	.801	10.88
January	1,440	60	32	46.5	.149	.17
February	717	32	19	25.6	.082	.09
March	9,285	857	19	300	.962	1.11
April	22,493	1,040	605	750	2.40	2.68
May	11,541	628	240	372	1.19	1.38
June	13,845	776	179	462	1.48	1.65
July	5,074	568	48	164	.526	.60
August	2,939	184	33	94.8	.304	.35
September	3,322	470	51	111	.356	.40
Water year 1945-46	79,964	1,040	19	219	.702	9.54

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 4, 5, Nov. 8 to Mar. 25, Mar. 27-31. Shifting-control method used Apr. 26 to May 25.

Partridge River near Aurora, Minn.

Location.- Water-stage recorder, lat. 47°31'00", long. 92°11'20", on line between secs. 12 and 13, T. 58 N., R. 15 W., at highway bridge, 1 mile downstream from unnamed tributary, 1½ miles east of Aurora, and 2½ miles upstream from mouth.

Drainage area.- 156 square miles.

Records available.- August 1942 to September 1946.

Extremes.- Maximum discharge recorded during year, 764 second-feet Mar. 29 (gage height, 4.49 feet); minimum daily discharge, 9.5 second-feet Mar. 7-9; minimum gage height, 1.12 feet Feb. 21, Aug. 7.

1942-46: Maximum discharge observed, 2,930 second-feet June 6, 1944 (gage height, 7.51 feet); minimum daily discharge, 6.5 second-feet Feb. 26 to Apr. 5, 1944.

Remarks.- Records fair.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 28						Mar. 29 to Sept. 30			
1.1	10	2.0	57	3.4	241	1.1	10	2.1	70
1.2	12	2.3	81	3.6	298	1.2	13	2.6	117
1.3	15	2.6	108	3.8	368	1.3	16	3.0	173
1.4	18	2.8	130	4.1	515	1.4	20	3.5	290
1.6	28	3.0	158	4.5	770	1.5	25	4.0	480
1.8	41	3.2	195			1.7	37	4.5	770

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	44	44	15	11	11	663	350	196	353	20	29
2	108	42	44	15	11	11	541	300	182	287	19	25
3	99	40	44	16	11	11	462	258	170	228	18	22
4	90	41	43	16	11	10	392	228	160	187	15	21
5	82	41	42	16	13	10	356	206	146	157	14	20
6	79	41	40	17	16	10	328	194	132	134	12	19
7	77	40	40	16	15	9.5	325	185	124	118	12	17
8	79	40	38	16	14	9.5	318	178	114	104	39	16
9	83	40	36	16	14	9.5	322	170	107	100	37	17
10	86	41	36	15	14	10	325	157	103	98	44	24
11	85	41	*35	15	13	11	328	146	97	91	51	24
12	83	45	34	15	12	12	336	136	91	88	64	23
13	81	50	32	15	12	14	353	127	84	79	73	22
14	78	55	32	15	11	15	384	122	82	71	75	22
15	74	59	30	*15	11	17	423	117	127	65	74	22
16	70	62	30	15	11	25	462	115	210	56	69	25
17	68	63	28	15	11	38	476	113	360	52	88	22
18	65	64	26	15	10	37	462	113	462	51	85	20
19	63	63	28	15	10	59	423	114	495	50	89	24
20	61	62	24	14	10	*80	388	116	458	47	103	52
21	59	60	22	14	10	124	342	118	431	46	116	31
22	55	57	20	14	10	202	367	118	378	40	116	33
23	54	55	20	13	10	346	500	127	339	38	108	43
24	53	53	19	13	10	482	621	185	322	32	95	54
25	51	51	18	13	*10	601	699	258	374	27	84	68
26	49	49	18	13	10	a670	718	342	415	24	72	98
27	49	48	17	12	11	a710	669	392	435	22	62	141
28	47	47	17	12	11	a740	574	378	444	25	54	190
29	46	45	16	12	-	764	476	332	431	24	47	258
30	44	43	16	12	-	757	407	266	403	23	40	325
31	41	-	15	11	-	744	-	225	-	22	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,183	124	41	70.4	0.451	0.52
November	1,482	64	40	49.4	.317	.35
December	902	44	15	29.1	.187	.22
Calendar year 1945	47,668	1,560	11	131	.840	11.38
January	446	17	11	14.4	.092	.11
February	323	16	10	11.5	.074	.08
March	6,549.5	764	9.5	211	1.35	1.58
April	13,440	718	318	448	2.87	3.20
May	6,184	392	113	199	1.28	1.47
June	7,872	495	82	262	1.68	1.88
July	2,733	353	22	88.2	.565	.65
August	1,810	116	12	58.4	.374	.43
September	1,683	325	16	58.1	.360	.40
Water year 1945-46	45,607.5	764	9.5	125	.801	10.87

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for St. Louis River near Aurora.

Note.- Stage-discharge relation affected by ice Nov. 8, 9, 13, 14, Dec. 2, 6-10, 12-22, Dec. 24 to Jan. 4, Jan. 6 to Feb. 4, Feb. 8 to Mar. 14.

Embarrass River at Embarrass, Minn.

Location.- Water-stage recorder, lat. 47°39'30", long. 92°11'50", in NW¼ sec. 25, T. 60 N., R. 15 W., at Embarrass, 30 feet upstream from highway bridge and 100 feet upstream from railway bridge.

Drainage area.- 93.8 square miles.

Records available.- August 1942 to September 1946.

Extremes.- Maximum discharge during year, 300 second-feet Mar. 29, June 18; maximum gage height, 5.34 feet June 18; minimum discharge not determined; minimum gage height recorded, 0.81 foot Aug. 7.

1942-46: Maximum discharge observed, 1,160 second-feet June 6, 1944; minimum daily discharge, 2.0 second-feet Feb. 12, 16-18, Mar. 19, 1944; minimum gage height observed, 0.68 foot on several days in winters of 1943 and 1944.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.8	6.6	1.6	53	4.0	216
.9	9.0	2.0	86	4.5	242
1.0	12.1	2.5	127	5.0	276
1.2	24	3.0	160	5.3	300
1.4	38	3.5	189		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	21	18	6.5		7.5	f242	178	76	194	11	12
2	41	22	17	6.5		7.5	221	160	81	160	10	11
3	37	20	17	6.5		8.0	211	141	75	120	9.6	10
4	34	19	16	7.0		8.3	194	127	68	91	8.8	11
5	32	20	16	7.5	6.5	8.5	189	114	61	72	8.0	12
6	36	21	17	8.5		8.5	194	110	54	59	7.6	12
7	41	22	18	8.5		7.8	200	109	52	50	7.6	12
8	47	22	18	8.5		8.5	200	102	50	44	22	11
9	50	20	19	8.5		9.0	200	93	45	46	30	12
10	48	20	18	9.0		9.0	200	86	40	65	a30	18
11	43	21	17	*9.5		9.3	194	78	38	56	a27	22
12	40	23	15	9.0		8.0	194	71	34	47	a26	21
13	36	24	*15	8.5		7.6	194	67	30	39	a34	19
14	34	24	13	8.5		7.6	194	64	29	32	a50	17
15	33	24	13	8.0	6.0	27	200	64	160	26	a50	15
16	32	28	12	8.0		40	206	61	242	22	a50	13
17	31	31	12	8.0		78	200	57	284	19	a48	12
18	30	29	12	8.0		160	189	56	300	24	a60	11
19	30	24	11	8.0		200	178	58	276	48	a56	11
20	32	21	9.5	7.5		f211	166	56	236	41	f52	17
21	31	20	9.0	7.5		f231	160	54	221	34	42	21
22	29	17	8.0	7.5	6.5	248	178	51	206	30	35	41
23	28	16	7.5			f268	226	55	178	26	29	69
24	25	15	6.5	7.5		a272	254	120	154	21	23	76
25	25	15	6.5		*6.5	276	276	151	206	17	19	82
26	25	16	6.5		6.5	284	276	148	254	15	16	75
27	24	17	6.5		6.5	f292	254	134	254	13	16	160
28	23	17	6.5		7.0	a296	226	114	254	12	18	216
29	22	17	7.0	7.0	-	f300	211	92	248	12	17	216
30	22	18	7.0		-	292	194	76	226	12	16	211
31	20	-	7.0		-	f276	-	69	-	12	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,027	50	20	33.1	0.353	0.41
November	624	31	15	20.8	.222	.25
December	381.5	19	6.5	12.3	.131	.15
Calendar year 1945	26,421.4	774	5.5	72.4	.772	10.48
January	239.5	9.5	6.5	7.73	.082	.09
February	177.5	7.0	-	6.34	.068	.07
March	3,866.1	300	7.5	125	1.33	1.53
April	6,221	276	160	207	2.21	2.47
May	2,916	178	51	94.1	1.00	1.16
June	4,432	300	29	148	1.58	1.76
July	1,459	194	12	47.1	.502	.58
August	842.6	60	7.6	27.2	.290	.33
September	1,446	216	10	48.2	.514	.57
Water year 1945-46	23,632.2	300	-	64.7	.690	9.37

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of record for Dark River near Chisholm.
f Computed on basis of partly estimated gage-height record.
Note.- Stage-discharge relation affected by ice Nov. 8-10, 13-16, Nov. 24 to Mar. 2 (no gage-height record Jan. 23 to Feb. 24; discharge computed on basis of records for Dark River near Chisholm).

Amnicon Lake near South Range, Wis.

Location.- Staff gage, lat. 46°29', long. 92°04', in sec. 12, T. 46 N., R. 14 W., in northwest corner of lake, 15 miles southwest of South Range. Datum of gage is 1,188.00 feet above mean sea level (State Highway Commission levels). Gage readings have been reduced to elevation above mean sea level.

Drainage area.- 5 square miles.

Records available.- August 1936 to September 1946 (fragmentary).

Extremes.- Maximum elevation observed during year, 1,197.45 feet Apr. 8; minimum, 1,196.36 feet Sept. 4, 7, 18.

1937-46: Maximum elevation observed, 1,199.23 feet June 5, 1944; minimum, 1,196.04 feet Aug. 24, Oct. 3, 1936.

Remarks.- Lake has natural outlet.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-	7.04				7.39	-	6.79	-	-	-
2	-	-	-				-	-	-	7.23	-	-
3	-	6.90	-				-	-	-	7.19	6.62	-
4	-	-	-				-	7.01	6.75	-	-	6.36
5	-	-	-				-	-	-	-	-	-
6	7.08	-	-				7.43	-	-	7.11	-	-
7	-	-	-				-	-	-	-	6.56	6.36
8	-	-	7.18				7.45	6.97	-	-	-	-
9	-	-	-				-	-	-	7.03	-	-
10	-	6.90	-				7.39	-	6.87	7.02	6.54	-
11	-	-	-				-	6.91	-	-	-	6.46
12	-	-	-				-	-	6.85	-	-	-
13	7.08	-	-				7.37	6.87	-	6.98	-	-
14	-	-	-				-	-	-	-	6.52	6.38
15	-	-	7.20				-	-	6.83	-	-	-
16	-	-	-				7.31	6.83	-	-	-	-
17	-	6.90	-				-	-	-	6.88	6.50	-
18	-	-	-				-	6.79	-	-	-	6.36
19	-	-	-				-	-	6.79	-	-	-
20	-	-	-				7.25	-	-	6.86	-	-
21	-	-	-				-	-	-	-	6.50	6.44
22	-	-	7.20				-	-	6.95	-	-	-
23	-	-	-				7.19	6.81	-	-	-	-
24	-	6.98	7.20				-	-	-	6.78	6.48	-
25	-	-	-				-	-	7.23	-	-	-
26	-	-	-				-	6.87	7.27	-	-	-
27	6.98	-	-				7.15	-	-	6.72	-	-
28	-	-	-				-	-	-	-	-	6.50
29	-	-	-				7.13	6.83	7.29	-	6.44	-
30	-	-	-				-	-	-	-	-	-
31	-	-	-				-	-	-	6.68	6.38	-

Note.- Add 1,190 feet to obtain elevation above mean sea level.

Bois Brule River at Brule, Wis.

Location.- Cantilevered chain gage, lat. 46°32', long. 91°36', in NW¼SW¼ sec. 23, T. 47 N., R. 10 W., 1¼ miles southwest of Brule Post Office, 1½ miles downstream from Nebagamon Creek, and 1½ miles upstream from Little Brule River.

Drainage area.- 130 square miles.

Records available.- January 1943 to September 1946.

Extremes.- Maximum discharge observed during year, 387 second-feet Mar. 21; maximum gage height observed, 3.57 feet Dec. 23 (backwater from ice), minimum daily, 115 second-feet Jan. 13-14.

1943-46: Maximum discharge observed, 1,130 second-feet June 5, 1944 (gage height, 5.14 feet), from rating curve extended above 350 second-feet; minimum observed, 67 second-feet Mar. 13, 1943 (gage height, 1.39 feet).

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	149	142	149	125	128	128	267	149	157	183	135	118
2	149	149	150	128	128	122	308	149	149	165	128	116
3	142	149	150	128	128	128	306	149	149	165	128	116
4	142	142	150	130	130	122	293	149	149	157	128	116
5	142	142	148	140	130	122	306	149	149	149	122	116
6	142	142	146	160	134	128	306	149	149	149	122	122
7	142	142	142	157	136	128	306	149	149	149	122	122
8	157	142	138	149	140	116	333	142	157	149	135	122
9	157	149	135	142	140	128	306	142	157	142	135	122
10	149	a146	132	135	144	128	267	142	165	149	135	135
11	149	142	130	124	144	118	267	142	165	157	135	135
12	149	142	128	118	144	128	254	135	174	149	128	122
13	149	183	126	*115	146	135	241	135	165	149	122	122
14	142	174	124	115	146	135	228	135	165	149	122	122
15	142	174	124	116	146	149	226	135	149	142	122	122
16	149	157	124	118	146	185	226	135	149	135	122	122
17	142	149	124	120	*145	183	204	135	149	135	122	122
18	142	149	122	125	146	194	204	135	149	135	128	122
19	149	142	120	130	146	254	204	135	142	142	128	116
20	142	149	120	130	146	306	194	135	142	142	122	135
21	135	149	118	132	146	387	183	142	157	142	122	135
22	135	142	118	132	146	360	183	142	149	135	116	128
23	135	135	118	132	148	293	183	149	157	135	116	135
24	135	130	118	132	152	267	183	228	174	135	116	135
25	142	130	118	130	157	280	174	216	333	128	116	128
26	135	132	120	130	135	267	174	204	306	128	116	128
27	135	136	120	130	142	267	165	194	293	128	116	165
28	135	144	122	128	142	280	165	174	254	128	122	149
29	135	149	122	128	-	267	165	157	228	149	122	142
30	135	149	124	128	-	254	157	157	204	142	116	135
31	135	-	124	128	-	287	-	149	-	142	116	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,418	157	135	143	1.10	1.27
November	4,402	183	130	147	1.13	1.26
December	4,004	150	118	129	.992	1.14
Calendar year 1945	67,437	472	105	185	1.42	19.29
January	4,035	160	115	130	1.00	1.15
February	3,961	157	128	141	1.08	1.12
March	6,204	387	116	200	1.54	1.78
April	6,980	333	157	233	1.79	2.00
May	4,738	228	135	153	1.18	1.36
June	5,334	333	142	178	1.37	1.53
July	4,484	183	126	145	1.12	1.29
August	3,835	135	116	124	.954	1.10
September	3,823	165	116	127	.977	1.09
Water year 1945-46	56,218	387	115	154	1.18	16.09

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.- Stage-discharge relation affected by ice Nov. 23-28, Dec. 2 to Jan. 6, Jan. 11 to Feb. 24.

Montreal River near Saxon, Wis.

Location.- Water-stage recorder, lat. 46°32'45", long. 90°24'5", in NW¼ sec. 23, T. 48 N., R. 49 W., 2 miles upstream from mouth and 3½ miles north of Saxon.

Drainage area.- 281 square miles.

Records available.- September 1938 to September 1946.

Extremes (regulated).- Maximum discharge during year, 5,250 second-feet June 25 (gage height, 6.62 feet); minimum, 14 second-feet Oct. 1 (gage height, 1.37 feet).
1938-46: Maximum discharge, 5,700 second-feet July 18, 1942 (gage height, 6.93 feet); minimum, 2 second-feet Sept. 21, Oct. 8, 1939.

Remarks.- Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by Saxon Falls power plant, 1½ miles upstream. Flow regulated by Gile Reservoir on West Branch Montreal River (capacity, 1.29 billion cubic feet).

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.9	89	3.0	566	5.0	2,870
2.1	145	3.5	928	5.5	3,600
2.3	218	4.0	1,450	6.3	4,800
2.6	355	4.5	2,140		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	180	160	165	195	220	461	191	188	1,310	191	173
2	173	207	145	165	190	225	604	195	247	690	199	173
3	173	195	152	165	190	230	555	199	176	472	199	170
4	188	a160	195	170	205	235	543	191	162	321	191	170
5	191	a190	200	200	215	240	526	210	184	283	191	170
6	166	a195	210	195	215	245	543	210	173	251	188	195
7	170	a190	175	220	215	245	509	207	222	306	195	162
8	218	a210	150	300	215	250	488	199	170	380	207	156
9	274	a210	140	300	215	250	420	191	145	321	176	148
10	239	a215	150	300	215	250	365	191	170	297	188	191
11	207	a210	155	295	215	260	311	188	188	243	188	188
12	176	184	185	*283	220	270	278	184	166	226	191	159
13	159	180	170	275	220	310	260	188	188	195	191	159
14	152	176	170	255	220	740	252	191	170	195	188	159
15	142	180	165	240	225	1,160	235	191	159	214	188	142
16	148	180	150	215	225	1,400	214	188	110	207	188	156
17	173	156	155	195	225	1,770	199	188	136	231	188	159
18	170	152	155	175	*221	1,570	180	195	148	235	188	159
19	166	156	150	170	220	1,640	166	195	142	235	191	159
20	159	170	155	165	215	1,640	152	195	148	235	188	162
21	156	176	160	160	215	1,770	142	207	148	226	184	156
22	159	124	165	160	220	1,840	199	203	152	226	184	159
23	159	148	145	165	220	1,450	203	210	115	218	180	173
24	156	170	150	170	220	1,110	184	243	2,830	210	180	199
25	148	200	170	180	220	928	191	274	4,870	207	176	159
26	156	180	160	175	220	808	203	231	3,690	207	173	156
27	188	160	160	175	220	734	156	180	1,920	203	188	145
28	156	160	170	180	220	670	173	199	1,150	188	199	124
29	124	180	165	185	-	629	203	184	1,370	195	180	76
30	159	170	155	200	-	545	199	173	1,640	195	180	121
31	159	-	170	200	-	461	-	199	-	191	176	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,274	274	110	170	0.605	0.70
November	5,364	215	124	179	.637	.71
December	5,037	210	140	162	.577	.67
Calendar year 1945	129,640	2,720	86	355	1.26	17.14
January	6,398	300	160	206	.733	.85
February	6,031	225	190	215	.765	.80
March	24,093	1,840	220	777	2.77	3.19
April	9,114	604	142	304	1.08	1.20
May	6,190	274	173	200	.712	.82
June	21,277	4,870	110	709	2.52	2.81
July	9,093	1,310	188	293	1.04	1.20
August	5,814	207	173	188	.669	.77
September	4,778	199	76	159	.568	.63
Water year 1945-46	108,463	4,870	76	297	1.06	14.35

Peak discharge.- Mar. 17 (8 a.m.) 1,920 sec.-ft.; Mar. 22 (5 a.m.) 1,990 sec.-ft.; June 25 (1 p.m.) 5,250 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of power-plant records at Superior Falls power plant.

Note.- Stage-discharge relation affected by ice Nov. 24 to Dec. 1, Dec. 4 to Mar. 14 (no gage-height record Nov. 26 to Dec. 1).

West Branch Montreal River at Gile, Wis.

Location.- Staff gage, lat. 46°25'35", long. 90°13'35", in sec. 34, T. 46 N., R. 2 E., immediately below outlet structure of Gile Reservoir at Gile and 4 miles upstream from mouth.

Drainage area.- 78 square miles.

Records available.- October 1942 to September 1946, April 1918 to November 1925 at site 1,600 feet downstream.

Average discharge.- 11 years (1918-25, 1942-46), 78.4 second-feet.

Extremes (regulated).- Maximum discharge during year, 975 second-feet June 28 (computed from gate openings); minimum daily, 9 second-feet May 25.
1918-25, 1942-46: Maximum discharge observed, 1,480 second-feet Apr. 21, 1923 (gage height, 7.20 feet, site and datum then in use); minimum daily, 1.2 second-feet Mar. 31, 1945, reservoir gates closed.

Remarks.- Records good. Flow regulated by Gile Reservoir. Gage read once daily and record kept of gate openings at dam.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 22 to June 24, Aug. 1 to Sept. 30)

1.5	10	2.6	149
1.7	21	3.0	243
2.0	48	3.7	434
2.3	89		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	132	74	52	93	107	148	14	93	42	38	a171	a147
2	130	37	55	93	107	135	14	107	79	37	a170	a147
3	119	37	83	91	117	127	14	107	100	37	a189	147
4	119	70	83	91	125	127	14	108	111	39	a168	147
5	119	107	83	67	94	127	14	110	104	39	176	136
6	119	81	61	15	92	81	14	100	100	39	a182	164
7	112	55	48	14	76	103	14	100	58	228	a181	25
8	76	29	39	14	76	124	14	100	81	111	162	87
9	54	15	59	14	76	99	14	100	107	111	a150	126
10	27	15	83	15	76	86	14	100	102	111	a148	97
11	27	15	83	14	73	86	14	100	88	111	154	89
12	27	15	83	14	83	86	14	102	79	111	a155	91
13	27	15	83	15	94	38	14	111	89	111	a150	a95
14	27	20	83	100	103	10	14	111	89	129	145	93
15	39	27	83	134	93	10	14	111	88	145	153	123
16	86	27	83	57	86	15	14	111	56	165	153	99
17	100	27	83	21	123	10	14	111	76	176	a154	a123
18	100	52	83	20	123	10	14	111	98	176	156	123
19	100	83	83	32	123	10	14	111	79	176	a154	a122
20	96	83	80	35	123	10	14	111	79	171	a152	127
21	100	83	93	55	123	13	58	111	79	171	149	97
22	107	83	93	60	138	13	72	111	79	171	a149	67
23	110	95	93	70	138	13	39	108	80	171	a148	55
24	119	107	93	70	149	13	42	71	27	171	147	28
25	119	102	93	70	138	14	79	9	149	171	a148	a19
26	119	69	93	70	127	13	58	68	95	171	148	a19
27	90	55	93	79	127	14	57	93	25	154	a168	20
28	73	80	93	86	134	14	82	93	295	153	a147	a20
29	112	68	93	88	-	14	93	93	448	162	a147	20
30	119	68	93	107	-	14	93	92	268	162	a147	20
31	119	-	93	107	-	14	-	39	-	165	a147	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,823	132	27	91.1	1.17	1.35
November	1,694	107	15	56.5	.724	.81
December	2,498	93	39	80.5	1.03	1.19
Calendar year 1945	36,495.4	890	1.2	100	1.28	17.42
January	1,811	134	14	58.4	.749	.86
February	3,044	149	73	109	1.40	1.46
March	1,591	148	10	51.3	.658	.78
April	953	93	14	31.8	.408	.46
May	3,003	111	9	96.9	1.24	1.43
June	3,248	448	25	108	1.38	1.54
July	4,083	228	37	132	1.69	1.95
August	4,848	182	145	156	2.00	2.31
September	2,673	164	19	89.1	1.14	1.27
Water year 1945-46	32,265	448	9	88.4	1.13	15.39

a No gage-height record; discharge computed on basis of records of gate openings and reservoir stages.

Presque Isle River at Marenisco, Mich.

Location.- Wire-weight gage, lat. 46°23', long. 89°41', on line between sec. 16 and 21, T. 46 N., R. 43 W., at county highway bridge in Marenisco and 2½ miles downstream from confluence of East and West Branches of Presque Isle River.

Drainage area.- 175 square miles.

Records available.- February 1945 to September 1946.

Extremes.- Maximum discharge during year, 1,860 second-feet June 26 (gage height, 9.4 feet, from floodmark); minimum, 46 second-feet Sept. 5 (gage height, 2.87 feet).
1945-46: Maximum discharge, that of June 26, 1946; minimum, that of Sept. 5, 1946.

Remarks.- Records good except those for periods of no gage-height record, which are fair, and those Nov. 16 to Mar. 25, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	102	115	90	100	90	334	118	218	640	136	68
2	120	*143	125	90	100	90	*382	110	183	460	134	59
3	113	130	125	90	100	90	420	103	146	348	128	55
4	106	136	*125	100	100	90	429	102	120	300	115	50
5	98	140	115	110	100	90	420	102	111	250	106	55
6	98	116	110	130	*115	*95	400	98	108	225	98	88
7	110	128	110	180	120	100	362	98	121	241	92	94
8	187	140	110	*190	115	105	324	97	181	286	89	100
9	207	190	105	175	115	100	296	93	172	253	88	113
10	191	220	100	175	110	90	277	90	172	221	87	120
11	166	190	90	160	110	95	249	89	258	196	87	110
12	146	151	88	125	105	95	236	85	236	178	82	92
13	148	171	95	130	105	140	233	81	204	164	76	79
14	122	138	98	130	100	180	231	80	180	150	72	72
15	114	146	95	120	100	220	227	79	155	142	69	66
16	104	164	90	115	100	290	218	79	140	134	65	61
17	100	133	85	115	100	360	208	77	130	127	65	60
18	98	149	85	110	100	460	190	77	125	123	72	57
19	98	133	85	110	95	600	188	80	124	119	75	55
20	98	149	80	105	95	880	178	88	127	111	70	87
21	90	127	80	105	90	690	170	104	147	107	67	93
22	86	120	80	105	90	680	164	99	178	102	61	87
23	80	120	80	100	90	640	167	106	220	100	56	117
24	79	130	80	100	90	590	155	172	500	99	54	180
25	81	135	85	100	90	521	147	220	1,500	95	52	132
26	82	125	85	100	90	459	142	179	1,760	88	52	106
27	81	130	90	100	90	420	136	136	1,330	83	56	120
28	79	135	90	100	90	410	133	124	980	83	77	176
29	79	125	90	100	-	400	128	111	750	130	75	156
30	76	115	90	100	-	391	124	91	600	164	69	150
31	80	-	90	100	-	362	-	190	-	153	74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,423	207	76	110	0.629	0.73
November	4,231	220	102	141	.806	.90
December	2,971	125	80	95.8	.547	.63
Calendar year	-	-	-	-	-	-
January	3,660	190	90	118	.674	.78
February	2,805	120	90	100	.571	.60
March	9,623	690	90	310	1.77	2.04
April	7,268	429	124	242	1.38	1.54
May	3,358	220	77	108	.617	.71
June	11,176	1,760	108	373	2.13	2.37
July	5,872	640	83	189	1.08	1.25
August	2,497	136	52	80.5	.460	.53
September	2,858	180	50	95.3	.545	.61
Water year 1945-46	59,742	1,760	50	164	.937	12.69

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 22 to Mar. 19. No gage-height record Nov. 9-11, Dec. 7, 8, Dec. 16 to Jan. 7, Jan. 22-26, Jan. 28 to Feb. 4, Feb. 8-13, 20-23, Feb. 26 to Mar. 1, Mar. 3, 4, 21-24, Apr. 20-22, June 14-18, 23-25, June 30 to July 2, July 4-6; discharge computed on basis of weather records and records for nearby stations.

Presque Isle River near Tula, Mich.

Location.- Wire-weight gage, lat. 46°33', long. 89°46', in sec. 23, T. 48 N., R. 44 W., at bridge on State Highway 28, 2 miles east of Tula, 5 miles downstream from Little Presque Isle River, and 7 miles southwest of Merriweather.

Drainage area.- 260 square miles.

Records available.- February 1945 to September 1946.

Extremes.- Maximum discharge during year, 3,170 second-feet June 25 (gage height, 12.45 feet, from graph based on gage readings); minimum, 57 second-feet Sept. 5 (gage height, 4.53 feet, from graph based on gage readings).

1945-46: Maximum discharge, that of June 25, 1946; minimum, that of Sept. 5, 1946; minimum gage height, 4.52 feet Aug. 4, 1945, but may have been lsss during period of no gage-height record.

Remarks.- Records good except those for periods of ice effect, which are fair, and those for periods of no gage-height record, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	107	155	110	125	110	562	135	-	905	149	75
2	124	159	151	110	125	110	*562	131	-	725	131	72
3	128	161	149	110	125	115	630	128	-	567	160	66
4	124	163	*151	120	125	115	645	123	-	-	143	59
5	118	168	148	140	125	115	630	121	-	-	123	59
6	113	168	148	180	*130	*115	588	124	-	-	109	86
7	119	186	148	220	140	115	562	128	-	-	99	107
8	196	204	148	*250	140	115	525	126	-	-	101	116
9	233	280	142	260	135	115	462	116	-	-	99	120
10	224	325	135	230	130	115	400	107	-	-	98	137
11	210	325	130	200	125	110	362	98	-	-	95	137
12	190	222	124	180	120	120	325	96	-	-	92	123
13	168	231	120	165	115	130	314	94	-	-	87	106
14	165	265	115	155	115	190	302	92	-	-	82	93
15	146	222	110	145	115	300	302	90	-	-	78	86
16	130	222	105	140	110	450	302	90	-	-	75	78
17	126	214	105	135	110	700	276	88	-	-	73	74
18	123	180	105	130	110	1,000	252	88	-	-	80	69
19	119	148	105	125	110	*1,250	233	90	-	-	86	66
20	113	153	105	125	110	1,400	222	100	-	-	82	86
21	108	133	105	125	110	1,480	214	120	-	-	75	129
22	104	108	105	125	110	1,480	208	115	-	-	69	143
23	99	135	105	125	110	1,400	212	148	-	-	68	162
24	97	157	105	125	110	1,240	204	239	-	-	64	225
25	102	176	110	125	110	1,000	190	388	3,050	-	61	220
26	99	178	110	125	110	870	172	388	3,050	-	61	186
27	97	174	110	125	110	780	166	278	2,530	-	60	162
28	84	174	110	125	110	750	166	200	1,990	-	64	206
29	74	166	110	125	-	750	157	150	1,460	-	81	218
30	83	159	110	125	-	660	140	105	1,130	-	80	186
31	91	-	110	125	-	575	-	250	-	-	78	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,031	233	74	130	0.500	0.58
November	5,663	325	107	189	.727	.81
December	3,789	155	105	122	.469	.54
Calendar year	-	-	-	-	-	-
January	4,605	260	110	149	.573	.66
February	3,320	140	110	119	.458	.47
March	17,775	1,480	110	573	2.20	2.54
April	10,285	645	140	343	1.32	1.47
May	4,546	388	88	147	.565	.85
June	-	3,050	-	e620	2.38	2.66
July	-	-	-	e280	1.08	1.24
August	2,803	160	60	90.4	.348	.40
September	3,652	225	59	122	.469	.52
Water year 1945-46	-	3,050	59	240	.923	12.54

* Winter discharge measurement made on this day.

e Computed on basis of occasional figures of daily discharge, weather records, and records for nearby stations.

Note.- Stage-discharge relation affected by ice Dec. 13 to Mar. 20. No gage-height record Dec. 22 to Jan. 7, May 12-22, 26, May 28 to June 24, June 28, 29, July 4-31; discharge computed on basis of weather records and records for nearby stations.

Middle Branch Ontonagon River near Paulding, Mich.

Location.- Water-stage recorder, lat. 46°21'30", long. 89°04'40", in sec. 29, T. 46 N., R. 38 W., 25 feet downstream from highway bridge, 2¼ miles upstream from Bond Falls Reservoir and 5¾ miles southeast of Paulding.

Drainage area.- About 175 square miles.

Records available.- June 1942 to September 1946.

Extremes.- Maximum discharge during year, 1,160 second-feet June 25 (gage height, 8.13 feet); minimum, 77 second-feet Dec. 10 (gage height, 3.61 feet).
1942-46: Maximum discharge, 1,320 second-feet June 6, 1944 (gage height, 9.15 feet); minimum, 30 second-feet Nov. 26, 1943 (gage height, 2.96 feet).

Remarks.- Records excellent except those for periods of ice effect, which are fair, and those for periods of no gage-height record, which are poor.

Rating table, water yaar 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.7	89	5.8	522
3.9	119	6.8	784
4.5	234	7.9	1,100

Diacharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	154	*139	180	110	120	120	270	132	198	583	121	102
2	232	194	180	110	115	120	318	126	171	486	123	95
3	236	179	*175	110	115	115	318	123	158	384	130	93
4	204	160	170	120	115	125	318	121	146	329	139	92
5	181	162	160	130	120	*120	308	124	137	286	121	93
6	171	160	160	170	130	130	308	126	150	257	114	108
7	169	181	160	220	*140	150	286	123	210	297	111	106
8	220	216	160	230	150	135	276	119	260	318	116	114
9	226	286	150	210	140	120	259	116	200	274	.117	133
10	198	228	135	190	130	120	238	114	160	242	117	139
11	184	232	120	180	130	130	224	113	230	244	116	130
12	181	210	110	170	125	160	218	109	220	224	113	123
13	171	270	115	160	125	180	224	109	185	198	111	113
14	162	276	115	150	125	210	218	106	165	179	108	108
15	156	228	115	150	120	250	210	103	150	169	103	106
16	152	230	115	150	120	297	198	103	145	160	102	103
17	146	208	110	140	120	373	190	100	160	150	100	100
18	143	198	105	140	120	428	183	109	170	143	114	99
19	141	188	105	140	120	*439	177	109	170	143	124	97
20	133	186	105	135	115	439	169	124	165	137	114	130
21	128	175	95	130	115	450	164	164	155	130	108	143
22	124	166	95	130	115	474	164	152	155	132	103	121
23	123	165	95	125	115	462	167	141	150	128	100	123
24	121	165	95	125	115	417	166	224	600	123	99	154
25	123	165	100	125	115	373	156	308	1,100	116	99	150
26	128	165	105	120	115	340	150	263	1,040	113	95	132
27	128	170	110	120	115	318	145	210	896	108	97	133
28	128	180	110	115	110	318	141	183	700	106	109	162
29	124	180	110	115	-	308	139	166	609	135	108	141
30	123	180	110	120	-	286	135	148	609	152	103	128
31	126	-	110	120	-	270	-	177	-	135	102	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,936	236	121	159	0.909	1.05
November	5,842	286	139	195	1.11	1.24
December	3,880	180	95	125	.714	.82
Calendar year 1945	74,062	848	85	203	1.16	15.73
January	4,460	230	110	144	.823	.95
February	3,410	150	110	122	.697	.72
March	8,177	474	115	264	1.51	1.74
April	6,437	318	135	215	1.23	1.37
May	4,445	308	100	143	.817	.94
June	9,564	1,100	137	319	1.82	2.03
July	6,579	583	106	212	1.21	1.40
August	3,437	139	95	111	.634	.73
September	3,571	162	92	119	.680	.76
Water year 1945-46	64,738	1,100	92	177	1.01	13.75

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 23 to Dec. 9, Dec. 11 to Nar. 15. No gage-height record Dec. 12 to Jan. 6, June 6-24; discharge computed on basis of recorded range in stage and records for nearby stations.

Middle Branch Ontonagon River near Trout Creek, Mich.

Location.- Water-stage recorder, lat. 46°28'45", long. 89°05'25", in sec. 8, T. 47 N., R 38 W., an eighth of a mile upstream from State Highway 28, 3¾ miles west of town of Trout Creek, and 6½ miles downstream from Bond Falls Dam.

Drainage area.- About 225 square miles.

Records available.- June 1942 to September 1946.

Extremes (regulated).- Maximum discharge during year, 1,060 second-feet June 26, 27; maximum gage height, 4.27 feet June 26; minimum, 38 second-feet Mar. 9, 11 (gage height, 1.52 feet).

1942-46: Maximum discharge, 1,170 second-feet June 7, 1944 (gage height, 4.53 feet); minimum, 31 second-feet Dec. 12, 1944 (gage height, 1.49 feet).

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Records not adjusted for regulation by Bond Falls Reservoir, and diversion to South Branch Ontonagon River by Bond Falls Canal (see p. 32).

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52			44	45	45	159	70	77	519	50	48
2	48		50	44	45	44	174	70	75	418	52	48
3	46			44	45	45	174	70	127	338	52	47
4	46		48	44	45	44	201	70	162	186	50	47
5	45	50	47	47	45	44	254	70	162	122	50	48
6	46		47	52	46	46	258	62	156	122	50	50
7	48		45	47	45	*45	258	50	183	178	50	49
8	50		47	47	*44	47	254	48	270	232	54	52
9	48		45	*46	44	47	254	46	238	207	52	53
10	47		44	46	44	46	251	46	171	95	53	50
11	46		43	46	44	45	251	45	180	93	52	50
12	46		45	45	44	48	251	45	174	93	50	49
13		46	45	45	44	56	251	45	171	93	50	49
14			45	45	44	66	242	45	168	93	50	49
15	46		45	45	44	67	222	46	162	93	49	48
16			45	56	44	75	222	46	84	93	49	48
17			45	60	44	75	219	46	80	84	49	47
18			45	46	43	67	207	47	78	73	50	47
19			45	46	43	69	192	47	78	69	50	47
20	45		45	46	44	82	216	52	78	55	49	53
21			45	46	43	114	165	50	78	55	50	48
22			45	46	44	159	250	48	72	54	49	47
23		45	45	46	44	156	322	50	83	56	49	48
24			45	46	44	153	280	72	490	53	49	47
25	44		45	46	44	156	277	60	894	52	49	46
26			45	45	44	159	178	53	1,060	50	49	45
27			45	45	44	156	72	49	1,060	50	49	46
28			45	45	44	156	72	48	1,030	54	50	46
29	45		45	45	-	156	70	79	798	52	50	46
30			45	45	-	156	70	106	645	50	49	46
31		-	44	45	-	159	-	78	-	50	48	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,423	-	-	45.9		
November	1,405	-	-	48.8		
December	1,415	-	43	45.6		
Calendar year 1945	31,344	735	40	85.9		
January	1,441	60	44	46.5		
February	1,237	46	43	44.2		
March	2,783	159	44	89.8		
April	6,266	322	70	209		
May	1,759	106	45	56.7		
June	9,084	1,060	72	303		
July	3,832	519	50	124		
August	1,552	54	48	50.1		
September	1,444	53	45	48.1		
Water year 1945-46	33,641	1,060	43	92.2		

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 12, 15-26, Jan. 1-3, 13-23, 25-29, Feb. 2-5, 9, 10, 14-18, 20, 21, 28. Gage-height record doubtful Oct. 1-12; no gage-height record Oct. 13 to Dec. 5; discharge computed on basis of records for bypass weirs at Bond Falls and weather records.

Middle Branch Ontonagon River near Rockland, Mich.

Location.- Wire-weight gage, lat. 46°42'05", long. 89°09'40", in sec. 27, T. 50 N., R. 39 W., at bridge on U. S. Highway 45, 300 feet downstream from East Branch and 2½ miles southeast of Rockland.

Drainage area.- 670 square miles.

Records available.- July 1942 to September 1946.

Extremes (regulated).- Maximum discharge during year, 11,500 second-feet June 24 (gage height, 13.59 feet, from floodmark); minimum, 192 second-feet Sept. 4; minimum gage height observed, 4.84 feet May 15, Sept. 4.

1942-46: Maximum discharge, 27,000 second-feet Aug. 22, 1942 (gage height 21.2 feet, from floodmarks), from rating curve extended above 4,500 second-feet, on basis of slope-area and contracted-opening determinations at gage height 21.2 feet; minimum observed, 183 second-feet Aug. 18, 1944; minimum gage height observed, 4.39 feet Aug. 13, 1942.

Remarks.- Records good except those for periods of partly estimated gage-height record or periods of ice effect, which are fair, and those for November and December or periods of no gage-height record, which are poor. Gage read once or twice daily four or five days a week; discharge computed from graph based on gage readings. Records not adjusted for regulation by Bond Falls Reservoir or diversion to South Branch Ontonagon River by Bond Falls Canal (see p. 32).

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	266	*280		240	260	230	725	305	f355	1,690	238	220
2	355	356		230	255	230	1,620	295	f340	1,100	500	210
3	454	338		240	260	230	1,700	285	320	868	1,220	200
4	385	312		265	270	230	1,800	272	320	646	450	192
5	324	280		295	290	230	1,440	272	350	459	280	217
			280									
6	284	390	(*)	750	340	320	1,390	315	380	352	245	262
7	270	430		1,090	415	*410	1,180	305	434	395	238	f284
8	400	482		820	440	430	1,020	276	788	542	292	f292
9	426	506		680	430	420	948	264	f858	530	300	300
10	370	470		*570	395	390	830	260	f760	395	f262	312
11	320			490	350	380	746	f248	690	390	f248	316
12	292			420	320	390	711	f240	627	375	252	288
13	280	430		370	305	650	725	f232	512	338	270	252
14	f276			370	280	1,250	711	f224	440	308	259	231
15	f270			365	260	*2,500	683	216	416	300	234	224
16	259	380		360	240	2,860	641	224	416	292	220	220
17	259			350	240	2,620	602	220	446	280	f220	217
18	252	350		320	*245	2,240	572	228	530	f270	f231	210
19	245			310	245	1,800	554	252	440	f256	252	210
20	245	310		305	235	*1,700	548	290	450	f245	234	280
			250									
21	242			295	225	1,660	f530	494	392	234	252	320
22	238			280	230	1,990	f530	494	398	f228	270	f347
23	f238			265	240	1,500	683	596	470	f234	238	f356
24	f238			250	240	1,200	614	1,750	9,280	f245	214	347
25	f234			250	240	916	590	1,390	6,060	245	204	320
		280										
26	234			250	230	865	530	851	3,530	f252	198	308
27	234			255	230	886	340	560	2,300	f259	210	324
28	238			260	230	886	325	428	1,890	f262	234	365
29	242			260	-	837	320	360	1,840	262	228	420
30	245			260	-	725	310	398	1,940	256	220	482
31	248	-		260	-	660	-	f380	-	245	225	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	8,863	454	234	286		
November	10,534	506	-	351		
December	8,050	-	-	260		
Calendar year 1945	210,101	6,360	220	576		
January	11,725	1,090	230	378		
February	7,940	440	225	284		
March	31,635	2,860	230	1,020		
April	23,918	1,800	310	797		
May	12,924	1,750	216	417		
June	37,972	9,280	320	1,266		
July	12,753	1,690	228	411		
August	8,938	1,220	198	288		
September	8,526	482	192	284		
Water year 1945-46	183,778	9,280	192	504		

* Winter discharge measurement made on this day.
f Computed on basis of partly estimated gage-height record.
Note.- Stage-discharge relation affected by ice Nov. 19 to Mar. 15. No gage-height record Oct. 7, 8, Nov. 6, 7, 11-15, 17-19, Nov. 21 to Dec. 2, Dec. 7-10, 12-14, 22, 23, Jan. 5, 6, 8, 9, 28, 27, Feb. 2, 3, 5, 6, 9-11, 15-17, 23, 24, Mar. 1-4, 6, 23, 24, June 19, 20, Aug. 4, 5, Aug. 31 to Sept. 3; discharge computed on basis of weather records for nearby stations.

Ontonagon River near Rockland, Mich.

Location.- Water-stage recorder, lat. 46°43'15", long. 89°12'25", in sec. 20, T. 50 N., R. 39 W., at bridge on county road between Rockland and Victoria, 1¾ miles southwest of Rockland and 2 miles downstream from confluence of Middle and South Branches.

Drainage area.- 1,290 square miles.

Records available.- June 1942 to September 1946.

Extremes.- Maximum discharge during year, 17,600 second-feet June 24 (gage height, 18.48 feet); minimum, 490 second-feet (regulated) Sept. 2 (gage height, 5.90 feet).
1942-46: Maximum discharge, 42,000 second-feet Aug. 22, 1942 (gage height, 28.6 feet, from floodmark), from rating curve extended above 9,500 second-feet on basis of slope-area determination; minimum daily, 456 second-feet (regulated) Dec. 3, 1944.

Remarks.- Records excellent except those for periods of ice effect or fragmentary gage-height record, which are fair, and those for periods of no gage-height record, which are poor. Flow regulated by Victoria Power Plant, 5 miles above station, Bond Falls Reservoir, and Gogebic and Cisco Lakes.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 14		Mar. 15 to Sept. 30			
6.0	500	5.9	490	12.3	7,350
6.4	690	6.3	680	14.3	10,380
6.9	1,020	6.9	1,080	16.5	14,000
7.5	1,530	7.9	1,960		
8.1	2,100	9.9	4,150		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	610	655	840	f740	f800	f850	2,010	f665	665	3,790	660	545
2	726	750	760	f760	f780	f830	3,560	f650	788	3,120	983	490
3	798	690	810	f800	720	680	4,900	665	842	2,740	1,450	605
4	982	572	f840	f900	f850	f830	4,510	640	828	2,360	898	655
5	950	840	900	f1,170	1,030	f850	3,670	f580	746	1,960	716	650
6	762	904	*840	f1,330	1,000	f880	3,560	f640	752	1,820	692	728
7	726	985	720	1,900	1,050	f960	3,230	660	821	1,820	680	734
8	874	*1,180	680	1,740	*1,050	*1,140	2,790	640	1,560	1,910	784	685
9	915	2,100	660	1,510	1,020	1,140	2,360	630	1,590	1,910	770	728
10	838	1,740	700	*1,450	950	1,070	2,060	645	1,410	1,250	698	758
11	838	1,180	740	1,450	960	1,040	1,860	610	1,410	1,360	650	794
12	880	1,220	810	1,370	980	1,090	1,820	540	1,500	1,240	665	740
13	660	1,260	840	1,160	920	1,450	1,820	605	1,280	1,200	710	704
14	670	1,300	840	1,160	900	3,500	1,640	605	1,010	877	640	655
15	738	1,260	f760	1,180	f840	*f4,700	1,320	605	905	849	665	565
16	680	1,060	680	1,120	f720	5,950	1,120	610	1,100	734	670	615
17	610	1,060	760	f910	670	7,070	1,120	610	1,460	686	630	645
18	610	950	f820	f940	f720	6,650	1,200	600	1,200	680	580	660
19	610	985	f840	f870	f810	6,090	1,320	560	975	655	685	650
20	650	880	840	840	920	5,550	1,280	670	1,040	630	698	716
21	630	792	840	f890	880	5,420	926	891	1,010	518	710	740
22	640	738	760	f1,000	880	5,680	856	807	926	617	704	660
23	595	660	700	1,030	820	4,390	1,010	770	1,250	655	728	821
24	605	590	800	900	f680	3,670	919	2,720	13,800	660	605	807
25	605	635	760	f760	f720	2,790	926	3,230	12,900	655	590	1,060
26	615	800	820	f740	f740	2,520	1,010	2,160	10,500	655	655	958
27	576	830	840	700	f800	2,570	770	1,240	7,350	630	704	782
28	500	850	840	f820	f860	2,570	716	926	5,550	585	670	814
29	578	840	820	940	-	2,410	734	945	4,460	682	680	665
30	615	820	700	980	-	2,110	f670	768	4,270	704	692	696
31	595	-	720	900	-	1,860	-	655	-	686	620	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	21,681	982	500	699		
November	29,126	2,100	572	971		
December	24,280	900	660	783		
Calendar year 1945	553,735	10,900	488	1,517		
January	32,960	1,900	700	1,063		
February	24,070	1,050	670	860		
March	88,310	7,070	680	2,849		
April	55,687	4,900	670	1,856		
May	27,542	3,230	540	888		
June	83,898	13,800	865	2,797		
July	38,638	3,790	518	1,246		
August	22,242	1,450	580	717		
September	21,305	1,060	490	710		
Water year 1945-46	469,739	13,800	490	1,287		

* Winter discharge measurement made on this day.
f Fragmentary gage-height record; discharge computed on basis of partly estimated gage-height record.

Note.- Stage-discharge relation affected by ice Nov. 26 to Mar. 15. No gage-height record Dec. 16, 17, 20-25, 31, Jan. 20, 27, Feb. 3, 17, Mar. 3; discharge computed on basis of records for adjacent periods.

Bond Falls Canal near Paulding, Mich.

Location.- Staff gage and concrete control, lat. 46°24'10", long. 89°09'00", in sec. 11, T. 46 N., R. 39 W., 40 feet upstream from intake to pipe line No. 2, 1.4 miles southeast of Paulding, and 1½ miles downstream from Bond Falls Reservoir.

Records available.- July 1942 to September 1946.

Extremes (regulated).- Maximum discharge during year, 262 second-feet Jan. 18; maximum gage height, 2.53 feet Jan. 18, Sept. 14-16; minimum discharge, 8.3 second-feet Jan. 16, 17 (gage height, 0.26 foot; one drain hole in weir open and canal gate closed).

1942-46: Maximum discharge, 360 second-feet Aug. 16, Sept. 7, 1944 (gage height, 3.06 feet); minimum, 2.5 second-feet Nov. 3, 4, 11, 12, 1943; minimum gage height, -1.25 feet May 29, 1943 (two drain holes in weir open and canal gate closed).

Remarks.- Records excellent except those below 20 second-feet, which are fair. Gage read once daily. Canal diverts from Bond Falls Reservoir to South Branch Ontonagon River; water is used for power production at Victoria Dam on South Branch, near Rockland.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	196	193	140	250	146	12	10	34	112	180	235
2	146	196	193	137	260	146	12	10	34	110	169	235
3	145	196	193	95	250	146	12	10	56	110	59	235
4	145	141	193	70	250	145	12	10	64	110	58	234
5	60	107	193	70	250	144	12	10	64	110	58	232
6	37	107	162	70	248	144	12	56	64	110	115	232
7	96	107	142	70	245	*144	11	145	64	112	191	232
8	96	107	142	70	*245	145	11	145	64	112	204	232
9	96	161	142	*70	245	144	11	80	64	112	204	232
10	96	196	142	70	245	140	11	9.7	64	112	202	232
11	110	196	142	70	240	138	11	9.7	64	112	201	232
12	120	196	142	70	240	144	11	9.7	64	112	201	232
13	106	196	142	70	240	145	12	73	64	112	201	202
14	96	196	142	70	240	145	12	104	64	112	201	214
15	96	196	142	70	240	145	12	104	64	112	125	253
16	96	196	142	44	241	146	11	104	65	112	95	251
17	96	196	142	157	240	146	11	104	99	112	95	250
16	96	196	142	210	204	147	11	104	164	112	95	250
19	96	196	142	158	149	147	11	104	164	110	169	250
20	96	196	142	158	149	147	11	139	164	110	195	250
21	96	196	142	157	147	147	11	179	143	110	195	250
22	96	196	142	157	147	92	11	192	108	135	195	248
23	96	196	142	200	147	11	11	121	109	150	195	248
24	96	196	142	257	146	11	11	12	113	150	195	248
25	96	196	186	257	146	11	11	11	110	148	195	146
26	96	194	218	254	146	9.8	11	11	113	148	221	64
27	119	194	218	252	145	9.8	11	11	113	148	238	64
28	137	194	218	250	145	9.8	11	11	113	148	238	64
29	137	193	196	250	-	11	10	11	113	148	238	64
30	172	193	144	250	-	11	10	24	112	148	238	64
31	196	-	144	250	-	11	-	34	-	148	238	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,408	196	37	110		
November	5,422	196	107	181		
December	5,007	218	142	162		
Calendar year 1945	44,483.9	352	3.2	122		
January	4,473	257	44	144		
February	5,830	250	145	208		
March	3,228.4	147	9.8	104		
April	337	12	10	11.2		
May	1,958.1	192	9.7	63.2		
June	2,695	164	34	89.8		
July	3,807	150	110	123		
August	5,404	238	58	174		
September	6,175	253	64	206		
Water year 1945-46	47,744.5	257	9.7	131		

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 15-19, 23, Jan. 29 to Feb. 5, Feb. 7-18, Feb. 24 to Mar. 3.

East Branch Ontonagon River near Mass, Mich.

Location.- Wire-weight gage, lat. 46°41'25", long. 89°04'20", in sec. 33, T. 50 N., R. 38 E., at county highway bridge, 300 feet downstream from Adventure Creek, 5 miles south of Mass, and 6½ miles upstream from mouth.

Drainage area.- 265 square miles.

Records available.- July 1942 to September 1946.

Extremes.- Maximum discharge during year, 3,060 second-feet June 25 (gage height, 10.25 feet); minimum, 118 second-feet Sept. 4 (gage height, 3.77 feet).
1942-46: Maximum discharge, 3,510 second-feet Aug. 22, 1942 (gage height, 10.39 feet, from graph based on gage readings); minimum, 102 second-feet Aug. 16, 18, 19, 23-27, 1944; minimum gage height, 3.73 feet Sept. 10, 1945.

Remarks.- Records good except those for period of ice effect, which are fair, and those for periods of no gage-height record, which are poor. Gage read twice daily.

Rating tablas, water year 1945-46, axcept period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 18		Mar. 19 to Sept. 30			
4.0	157	3.7	105	6.3	850
4.4	240	4.1	183	7.5	1,390
5.0	410	4.9	375	8.6	1,990
		5.5	557	9.6	2,620

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	181	*175	175	170	145	140	299	162	185	678	172	132
2	177	191	175	170	145	145	524	158	177	460	304	127
3	183	195	170	170	145	160	460	154	168	402	324	119
4	203	208	180	170	150	170	574	150	172	316	242	119
5	212	205	190	185	150	200	540	148	175	249	207	123
6	212	187	*190	315	160	205	524	175	177	210	187	162
7		187	180	355	170	205	460	183	172	201	177	198
8		290	180	325	165	*230	375	162	172	228	162	210
9		410	180	275	160	230	349	156	185	280	168	216
10		278	180	240	155	230	287	150	223	251	166	219
11	210	248	180	*235	150	230	273	148	270	244	162	212
12		218	180	210	145	290	256	148	258	212	162	183
13		242	180	180	140	370	251	146	216	187	168	182
14		248	170	180	140	500	253	140	187	179	154	154
15		231	170	175	140	700	251	138	166	170	142	148
16	171	218	160	170	140	900	249	136	207	162	132	140
17	167	199	160	170	140	1,000	240	136	336	152	131	129
18	167	193	160	165	*140	1,000	223	138	302	148	138	123
19	167	201	160	165	140	900	210	168	258	146	152	134
20	167	203	150	160	140	790	205	210	242	140	156	187
21	167	177	150	155	140	*770	203	249	233	136	162	196
22	163	175	150	150	140	770	196	292	212	132	164	181
23	157	185	150	150	140	557	201	388	212	142	150	172
24		190	150	155	140	476	194	508	1,950	142	138	177
25		195	150	145	140	402	194	574	2,620	140	127	183
26	160	190	140	145	140	402	194	476	1,440	142	121	170
27		185	150	145	140	388	190	336	678	150	127	172
28		180	160	145	140	388	179	237	324	156	144	198
29		175	160	145	-	375	168	201	362	162	140	187
30		170	170	*145	-	375	166	196	1,260	156	132	186
31	159	-	170	145	-	349	-	190	-	148	136	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,663	-	-	183	0.691	0.79
November	6,349	410	170	212	.800	.89
December	5,170	190	140	167	.630	.73
Calendar year 1945	101,867	1,630	117	279	1.05	14.31
January	5,810	355	145	187	.706	.82
February	4,080	170	140	146	.551	.57
March	13,847	1,000	140	447	1.69	1.94
April	8,688	574	166	290	1.09	1.22
May	6,753	574	136	218	.823	.95
June	13,519	2,620	166	451	1.70	1.90
July	6,621	678	132	214	.808	.93
August	5,147	324	121	166	.626	.72
September	4,999	219	119	167	.630	.70
Water year 1945-46	86,646	2,620	119	237	.894	12.18

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 24 to Mar. 19. No gage-height record Oct. 7-15, 24-30; discharge computed on basis of weather records and records for nearby stations.

Cisco Branch Ontonagon River at Cisco Lake Outlet, Mich.

Location.- Staff gage, lat. 46°15', long. 89°27', in sec. 32, T. 45 N., R. 41 W., just downstream from Cisco Lake Dam, 2½ miles upstream from Langford Lake Outlet, 4¾ miles upstream from U. S. Highway 2, and 13 miles southwest of Watersmeet.

Drainage area.- 50 square miles.

Records available.- October 1944 to September 1946.

Extremes (regulated).- Maximum discharge during year, 229 second-feet June 25, 26 (gage height, 1.88 feet); minimum daily, 5.3 second-feet Oct. 22-30.
1944-46: Maximum discharge, that of June 25, 26, 1946; minimum daily, that of Oct. 22-30, 1945.

Remarks.- Records good except those below 10 second-feet, which are fair. Gage read once daily. Flow regulated by dam at outlet of Cisco Lake.

Rating tables, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Dec. 11-31)

Oct. 1 to Dec. 31						Jan. 1 to Sept. 30					
0.3	4.2	0.6	20	1.2	88	0.3	5.0	0.6	21	1.2	93
.4	8.0	.7	28	1.4	122	.4	9.0	.7	30	1.5	145
.5	13	1.0	61	1.5	142	.5	14.0	.9	52	1.9	234

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	95	61	33	39	38	84	28	60	217	66	8.2
2	57	138	61	33	39	36	81	27	58	210	25	7.8
3	57	132	61	33	39	36	84	26	57	208	27	7.0
4	59	132	61	33	39	36	82	21	56	196	25	7.0
5	59	128	61	34	39	36	87	19	62	187	22	6.6
6	59	100	60	37	40	36	86	19	61	183	22	8.6
7	59	81	59	37	40	36	86	20	64	187	44	6.2
8	60	82	59	38	40	36	81	21	66	183	57	6.2
9	60	84	56	38	40	36	80	21	65	174	55	5.8
10	61	82	55	38	40	36	77	21	61	81	51	5.8
11	60	81	55	38	40	36	41	20	61	32	50	6.2
12	59	80	55	38	40	36	26	20	68	32	53	6.6
13	59	80	36	38	40	37	27	20	62	35	50	6.8
14	57	80	26	38	40	39	26	20	66	34	47	6.8
15	57	80	26	39	40	40	24	20	62	32	27	6.2
16	56	78	26	39	39	40	26	19	64	34	19	6.2
17	28	40	26	39	39	40	26	19	65	34	19	5.8
18	6.5	18	26	39	39	41	25	19	66	33	18	5.8
19	6.5	18	26	39	39	46	26	19	66	32	15	6.6
20	6.5	19	26	39	39	47	25	18	64	32	10	7.4
21	6.1	19	27	39	39	48	27	18	62	32	7.4	8.2
22	5.3	22	27	39	38	52	25	18	62	18	7.4	8.6
23	5.3	50	27	39	38	55	26	20	64	9.5	7.4	73
24	5.3	69	27	39	38	77	26	24	136	12	7.8	104
25	5.3	68	28	39	38	90	26	25	229	12	7.8	106
26	5.3	68	32	39	38	90	26	25	229	12	7.8	104
27	5.3	66	33	40	38	90	25	25	224	12	7.4	101
28	5.3	64	33	40	38	88	24	26	220	38	7.4	99
29	5.3	62	33	40	-	86	24	26	222	107	7.4	93
30	5.3	62	33	40	-	84	26	26	224	128	7.4	86
31	5.7	-	33	39	-	82	-	50	-	126	7.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,045.0	61	5.3	33.7		
November	2,178	138	18	72.6		
December	1,255	61	26	40.5		
Calendar year 1945	19,637.7	171	5.3	53.8		
January	1,173	40	33	37.8		
February	1,095	40	38	39.1		
March	1,606	90	36	51.8		
April	1,355	87	24	45.2		
May	700	50	18	22.6		
June	2,926	229	56	97.5		
July	2,662.5	217	9.5	85.9		
August	784.6	66	7.4	25.3		
September	914.0	106	5.8	30.5		
Water year 1945-46	17,694.1	229	5.3	48.5		

South Branch Ontonagon River at Ewen, Mich.

Location.- Staff gage, lat. 46°32'05", long. 89°16'30", in sec. 26, T. 48 N., R. 40 W., on piers of old M28 highway bridge in Ewen.

Drainage area.- About 320 square miles.

Records available.- April 1942 to September 1946.

Extremes.- Maximum discharge during year, 6,640 second-feet (regulated) June 25; maximum gage height observed at crest, 18.86 feet June 25; minimum observed, 127 second-feet May 13 (gage height, 1.42 feet).
1942-46: Maximum discharge, that of June 25, 1946; maximum gage height, that of June 25, 1946; minimum observed, 83 second-feet Aug. 7, 1944 (gage height, 1.00 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Gage read twice daily. Records not adjusted for diversion from Middle Branch Ontonagon River by Bond Falls Canal (see p. 32).

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	319	*335	390	310	365	320	624	171	391	910	375	304
2	383	391	390	290	365	320	852	171	351	814	416	296
3	425	476	390	270	365	320	1,050	165	304	719	311	296
4	416	494	390	250	365	320	970	158	296	643	202	296
5	375	442	*390	260	365	320	890	158	288	624	190	296
6	274	442	400	330	410	320	852	159	258	586	183	311
7	281	459	370	410	*410	*330	738	230	343	586	251	311
8	408	548	350	450	420	330	643	281	643	605	311	319
9	459	738	340	*435	430	340	566	274	738	586	335	327
10	442	757	340	435	420	360	530	177	586	548	343	335
11	408	643	330	435	420	340	476	140	548	494	343	327
12	400	624	330	420	410	400	416	134	605	416	343	319
13	383	643	330	395	390	490	391	130	512	351	343	311
14	351	662	330	365	390	850	367	196	400	319	335	281
15	335	530	320	350	380	1,600	351	209	343	311	288	311
16	319	586	320	310	380	1,940	319	209	335	296	230	327
17	311	586	320	270	370	2,120	304	209	391	288	216	327
18	311	476	320	365	355	2,260	281	209	442	288	209	327
19	281	442	310	390	355	2,130	266	209	416	281	196	319
20	251	400	310	290	310	*1,960	251	230	391	281	196	343
21	237	425	310	270	300	1,660	237	327	400	266	230	359
22	237	383	300	260	310	1,480	230	367	383	274	266	367
23	230	367	300	250	310	1,300	230	359	400	288	266	408
24	223	360	310	280	320	990	230	408	2,950	288	258	425
25	223	360	340	365	320	795	223	738	6,130	274	258	442
26	230	370	360	365	320	719	216	624	4,700	266	258	343
27	237	370	370	365	320	662	209	425	2,940	258	266	304
28	258	380	370	365	320	643	196	319	1,900	258	311	319
29	266	380	370	365	-	624	190	258	1,090	266	311	311
30	274	390	360	365	-	586	183	223	950	304	304	288
31	319	-	320	365	-	586	-	266	-	351	304	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	9,866	459	223	318		
November	14,459	757	335	482		
December	10,680	400	300	345		
Calendar year 1945	188,717	3,160	149	517		
January	10,645	450	250	343		
February	10,195	430	300	364		
March	27,415	2,260	320	884		
April	13,301	1,050	183	443		
May	8,133	738	130	262		
June	30,424	6,130	258	1,014		
July	13,039	910	258	421		
August	8,648	416	183	279		
September	9,849	442	281	328		
Water year 1945-46	166,654	6,130	130	457		

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 24 to Mar. 17. No gage-height record Jan. 19-24, Feb. 25 to Mar. 6, June 23; discharge computed on basis of records for nearby stations. Discharge computed using rate of change of stage as a factor Mar. 19, June 23-27.

West Branch Ontonagon River near Bergland, Mich.

Location.- Water-stage recorder, lat. 46°35'30", long. 89°32'20", in sec. 3, T. 48 N., R. 42 W., a quarter of a mile downstream from dam at outlet of Gogebic Lake and 1¼ miles east of Bergland. Datum of gage is 1,290.81 feet above mean sea level, datum of 1929.

Drainage area.- 160 square miles.

Records available.- July 1942 to September 1946.

Extremes (regulated).- Maximum discharge during year, 1,080 second-feet June 27 (gage height, 5.28 feet); minimum daily, 47 second-feet Nov. 10; minimum, about 8 second-feet Nov. 9 (flow from channel storage between dam and gage during a period of practically no flow from Gogebic Lake due to slush and ice lodged on dam).

1942-46: Maximum discharge, 1,100 second-feet May 6, 1943 (gage height, 5.41 feet); minimum daily, 28 second-feet Oct. 30, 31, Nov. 2-7, 1943; minimum, that of Nov. 9, 1945.

Remarks.- Records excellent except those for periods of shifting control or doubtful or no gage-height record, which are fair. Flow regulated by Gogebic Lake.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 15 to Mar. 20)

1.4	43	2.4	134	3.4	350
1.6	57	2.6	162	4.1	600
2.0	91	2.9	222	5.3	1,080

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	62	a67	63	67	67	520	96	92	920	86	139
2	76	*60	h68	63	68	66	502	95	92	880	86	132
3	75	57	a64	63	67	67	485	95	93	h800	86	128
4	74	57	*d60	63	67	66	502	93	95	a750	86	129
5	72	57	d62	65	70	66	520	93	96	a710	86	110
6	71	57	62	67	72	67	485	144	92	a680	86	63
7	71	58	63	66	71	65	502	229	95	640	119	63
8	71	59	63	67	71	65	468	224	96	580	182	62
9	71	49	63	67	71	64	432	148	94	406	143	63
10	71	47	63	66	71	64	418	86	98	296	84	63
11	71	54	64	66	71	64	401	85	102	268	85	62
12	69	54	64	66	71	65	471	83	100	245	85	62
13	69	56	64	68	71	67	292	86	96	245	85	62
14	68	b56	65	68	71	71	130	84	99	164	85	62
15	67	56	66	68	71	67	122	81	101	85	84	62
16	67	56	66	68	71	68	127	82	104	85	84	62
17	67	56	66	67	71	68	134	82	99	86	83	83
18	67	59	66	67	71	71	123	83	97	86	84	63
19	67	57	67	69	71	75	127	82	98	86	81	80
20	64	58	67	68	71	137	119	83	99	86	80	81
21	63	58	66	68	69	301	128	85	104	84	79	61
22	65	59	65	69	69	374	121	85	100	84	79	60
23	66	d59	64	68	68	475	118	85	113	84	79	59
24	65	d61	62	68	69	520	122	87	322	83	79	58
25	66	d62	62	68	69	520	108	87	720	82	79	58
26	66	d63	63	71	69	520	101	89	h880	82	79	57
27	64	d63	63	70	68	520	103	89	h1,000	84	79	58
28	62	a64	63	69	67	520	106	90	1,040	84	118	57
29	62	a65	63	68	-	502	102	91	1,000	85	159	56
30	63	a66	63	68	-	485	98	92	980	85	156	56
31	60	-	63	68	-	502	-	92	-	85	148	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,107	77	60	68.0		
November	1,745	66	47	58.2		
December	1,987	68	60	64.1		
Calendar year 1945	65,730	780	41	180		
January	2,080	71	83	67.1		
February	1,953	72	67	69.8		
March	6,649	520	64	214		
April	7,985	520	98	266		
May	3,106	229	81	100		
June	8,197	1,040	92	273		
July	9,020	920	82	291		
August	3,014	182	79	97.2		
September	2,151	139	56	71.7		
Water year 1945-46	49,994	1,040	47	137		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for adjacent periods.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed on basis of available gage-height record, weather records, and records for adjacent periods.
h Computed from observed gage-height readings.

Sturgeon River near Sidnaw, Mich.

Location.- Staff gage, lat. 46°35', long. 88°35', in sec. 5, T. 48 N., R. 34 W., at bridge on county road, 2 miles downstream from Rock River, 4 miles upstream from Perch River, 3½ miles northwest of Covington, and 9 miles northeast of Sidnaw. Prior to May 21, 1946, chain gage at same site and datum.

Drainage area.- 155 square miles.

Records available.- October 1912 to September 1915, April 1943 to September 1946.

Extremes.- Maximum discharge observed during year, 1,040 second-feet Mar. 23 (gage height, 7.45 feet); minimum, 22 second-feet Aug. 27 (from graph based on gage readings), but may have been less during period of no gage-height record.
1912-15, 1943-46: Maximum discharge, 3,280 second-feet May 7, 1943; maximum gage height, 10.18 feet June 6, 1944; minimum, 13 second-feet Aug. 21, 1943; minimum gage height, 3.65 feet Aug. 25, 1944, from graph based on gage readings.

Remarks.- Records good except those for periods of ice effect or no gage-height record, and those for September. which are fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	-	122	-	-	-	-	114	160	-	-	30
2	272	-	120	-	-	-	-	109	-	482	-	28
3	255	-	116	-	-	-	502	104	-	216	-	25
4	225	-	117	*53	*65	*61	-	99	-	189	-	23
5	202	-	115	-	-	-	-	95	-	174	-	24
6	179	143	110	-	-	-	410	90	-	151	-	34
7	-	-	106	-	-	-	-	86	-	-	-	56
8	-	-	103	-	-	-	-	82	-	-	-	56
9	-	-	100	-	-	-	-	80	-	-	-	58
10	-	-	96	-	-	-	-	77	-	-	-	60
11	-	-	88	-	-	-	-	72	-	-	-	58
12	-	-	80	-	-	-	-	71	299	-	-	82
13	-	-	76	-	-	-	-	70	-	-	-	70
14	-	-	70	-	-	-	-	67	-	-	-	60
15	-	-	66	-	-	-	-	a64	-	107	28	56
16	-	-	82	-	-	520	-	a62	-	-	-	46
17	-	-	58	-	-	642	-	a62	-	-	-	38
18	-	-	56	-	-	*680	-	a60	-	-	-	32
19	-	-	54	-	-	760	-	a60	-	-	-	28
20	-	-	54	-	-	915	-	a80	-	-	-	29
21	-	-	52	-	-	960	-	250	151	-	-	38
22	-	-	52	-	-	985	-	238	-	-	-	40
23	-	-	52	-	-	1,040	-	221	-	-	-	42
24	-	-	52	-	-	-	-	384	-	-	-	44
25	-	-	54	-	-	-	-	514	343	-	-	58
26	64	-	56	-	-	572	-	470	-	-	-	60
27	-	-	56	-	-	608	-	391	-	-	22	54
28	-	-	56	-	-	590	125	278	-	-	34	55
29	-	*130	56	-	-	555	118	233	-	-	40	53
30	-	-	56	-	-	538	115	209	-	-	43	51
31	-	-	56	-	-	538	-	178	-	-	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	2,369	122	52	76.4	0.493	0.57
Calendar year 1945	-	2,110	22	-	-	-
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	1,040	-	-	-	-
April	-	-	-	-	-	-
May	4,970	514	60	160	1.03	1.19
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	-	-	22	-	-	-
September	1,386	82	23	46.2	.298	.33
Water year 1945-46	-	1,040	22	-	-	-

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Otter River near Elo.
Note.- Stage-discharge relation affected by ice Dec. 11 to Mar. 4.

Sturgeon River near Baraga, Mich.

Location.- Wire-weight gage, lat. 46°47', long. 88°37', in sec. 28, T. 51 N., R. 34 W., at bridge on State Highway 35, 6 miles west of Baraga and 6 miles downstream from Prickett Dam. Datum of gage is 660.00 feet above mean tide at New York City (Corps of Engineers, War Department, bench mark).

Drainage area.- 364 square miles.

Records available.- October 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 1,830 second-feet Mar. 22 (gage height, 9.50 feet); minimum daily discharge, 52 second-feet (regulated) Sept. 1.

1942-46: Maximum discharge, 4,830 second-feet May 7, 1943 (gage height, 14.87 feet, from graph based on gage readings); minimum daily, 44 second-feet (regulated) Aug. 26, 1945.

Remarks.- Records good except those below 500 second-feet, those for periods of extensive regulation, and those for periods of ice effect, which are fair. Gage read twice daily. Flow regulated by power plant at Prickett Dam.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	255	250	e290	175	225	250	862	284	556	1,430	207	52
2	307	250	e230	210	180	300	898	274	338	1,200	178	e120
3	445	257	294	230	180	275	932	257	371	905	126	e250
4	460	297	307	225	235	350	1,010	279	384	755	e56	e240
5	490	346	304	240	240	290	932	223	293	588	e130	e230
6	490	e330	302	300	230	350	828	e280	270	572	e140	e280
7	e330	e290	279	390	230	420	880	e360	329	524	e150	e250
8	490	284	243	401	270	430	758	e330	e400	556	e180	e56
9	490	336	223	505	310	380	862	e310	359	556	e190	e250
10	520	490	257	445	280	279	688	e300	414	556	e200	e330
11	535	e500	280	416	290	380	670	e290	540	572	56	e240
12	360	e550	270	400	280	e460	640	e210	540	772	155	e260
13	e340	e560	270	300	250	550	610	226	556	524	e210	e260
14	304	e580	235	310	220	*550	550	285	e520	356	e210	e250
15	310	e600	230	350	210	e580	580	280	540	277	194	61
16	310	e600	185	310	190	e610	580	e275	312	262	e170	e230
17	299	e600	240	280	180	e730	e580	226	414	264	e165	e270
18	292	e510	*280	270	220	e950	580	200	540	338	e56	226
19	292	e490	270	260	220	1,150	e500	192	446	344	e170	e210
20	264	*e450	270	210	220	1,390	445	222	430	e270	e200	203
21	255	e400	270	240	220	1,580	430	255	446	203	e201	207
22	259	e420	280	245	220	1,780	490	430	399	e270	e220	57
23	255	416	240	240	200	1,390	520	604	332	e265	e230	e210
24	233	255	245	230	180	1,430	505	638	461	262	e220	270
25	235	e300	190	235	220	1,270	505	621	790	243	67	282
26	238	346	230	230	240	932	416	461	1,160	245	e200	257
27	235	e350	230	200	250	1,070	387	604	1,020	194	e280	257
28	203	373	230	230	250	1,070	247	e590	e1,100	190	e300	235
29	216	e310	230	230	-	1,030	282	572	e1,360	282	222	e100
30	235	e300	175	*230	-	1,010	284	540	e1,420	203	e200	211
31	245	-	210	220	-	970	-	524	-	207	e200	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,192	535	203	329	-	-
November	12,040	600	250	401	-	-
December	7,789	307	175	251	-	-
Calendar year 1945	188,652	3,200	44	517	1.42	19.28
January	8,757	505	175	282	-	-
February	6,440	310	180	230	-	-
March	24,206	1,780	250	781	-	-
April	18,451	1,010	247	615	-	-
May	11,142	638	192	359	-	-
June	17,040	1,420	270	568	-	-
July	14,185	1,430	190	458	-	-
August	5,492	300	56	177	-	-
September	6,354	330	52	212	-	-
Water year 1945-46	142,088	1,780	52	389	1.07	14.52

* Winter discharge measurement made on this day.

e Gage readings not representative of discharge for day because of extensive regulation; discharge computed on basis of Prickett Dam power-plant records.

Note.- Stage-discharge relation affected by ice Dec. 11-13, Dec. 15 to Jan. 7, Jan. 12 to Mar. 7, Mar. 9, 11.

Sturgeon River near Arnheim, Mich.

Location.- Staff gage, lat. 46°56', long. 88°33', in sec. 6, T. 52 N., R. 33 W., a quarter of a mile downstream from Otter Lake, 3 miles northwest of Arnheim, and 8½ miles northeast of Pelkie. Datum of gage is 605.98 feet above mean tide at New York City (Corps of Engineers, War Department, bench mark).

Drainage area.- 680 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum discharge during year, 4,070 second-feet Mar. 22; maximum gage height, 11.19 feet Mar. 22 (from floodmark); minimum discharge, 263 second-feet Aug. 2, 8, 16-19; minimum gage height, 1.60 feet Aug. 7, 17, 18 from graph based on gage readings.
1942-46: Maximum discharge, 6,600 second-feet Apr. 25, 1944; maximum gage height, 13.93 feet Apr. 26, 1943, from graph based on gage readings; minimum discharge, 260 second-feet Aug. 29, 1944.

Remarks.- Records good except those for periods of ice effect and those for periods of partly estimated or no gage-height record, which are fair. Gage read four and five times a week.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	420	396	520	385	420	440	1,860	564	900	1,470	323	323
2	420	420	508	374	410	460	1,750	536	840	1,470	312	330
3	458	446	470	374	410	480	1,810	508	736	1,350	302	330
4	520	458	458	374	410	500	1,830	508	678	1,170	292	330
5	572	470	470	396	410	520	1,830	495	648	1,020	282	340
6	611	508	470	433	430	546	1,760	495	592	900	272	335
7	611	520	470	520	450	572	1,660	508	550	780	263	323
8	598	533	470	638	470	624	1,550	522	578	736	263	323
9	598	572	446	707	500	652	1,470	536	592	706	282	312
10	611	638	433	749	520	679	1,380	536	578	692	282	f312
11	638	721	385	777	530	693	1,320	522	663	692	292	f302
12	652	749	363	749	520	693	1,320	495	692	692	f292	f302
13	624	777	350	721	490	749	1,290	482	736	692	f282	f292
14	520	805	340	630	470	*833	1,230	468	721	692	f282	292
15	483	862	340	540	450	1,160	1,110	442	692	606	f272	290
16	483	891	340	*510	430	1,430	1,020	455	678	522	f263	285
17	470	891	330	490	410	1,760	1,020	455	678	482	263	280
18	470	862	*330	480	400	2,030	960	468	692	468	f263	280
19	446	805	330	470	*390	2,270	900	455	678	442	f263	275
20	446	*777	320	460	380	2,250	900	f468	648	442	272	275
21	433	721	320	470	380	2,950	840	f578	620	417	f272	310
22	408	665	320	470	380	3,730	810	634	620	392	f272	330
23	408	611	330	470	380	3,300	810	692	592	356	f272	330
24	396	572	330	460	380	3,250	810	960	564	334	282	340
25	396	546	330	450	390	2,980	810	1,410	663	334	312	340
26	385	533	340	440	400	2,650	780	1,620	900	345	f334	334
27	385	533	350	430	410	2,370	736	1,440	1,080	345	f334	335
28	374	533	370	430	420	2,410	706	f1,290	1,140	334	345	350
29	374	533	396	430	-	2,570	606	f1,140	1,200	334	f334	360
30	374	533	420	420	-	2,320	592	f1,020	1,380	334	f334	355
31	374	-	408	420	-	2,050	-	f930	-	334	312	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	14,958	652	374	483	0.710	0.82
November	18,881	891	396	629	.925	1.03
December	12,057	520	320	389	.572	.66
Calendar year 1945	332,262	6,200	285	910	1.34	18.18
January	15,667	777	374	505	.743	.86
February	12,040	530	380	430	.632	.66
March	49,921	3,730	440	1,610	2.37	2.73
April	35,470	1,860	592	1,182	1.74	1.94
May	21,632	1,620	442	698	1.03	1.18
June	22,329	1,380	550	744	1.09	1.22
July	19,883	1,470	334	641	.943	1.09
August	9,020	345	263	291	.428	.49
September	9,515	360	275	317	.466	.52
Water year 1945-46	241,373	3,730	263	661	.972	13.20

e Winter discharge measurement made on this day.
f Computed on basis of partly estimated gage-height record.
Note.- Discharge computed using rate of change of stage as a factor Mar. 17 to Apr. 8. Stage-discharge relation affected by ice Dec. 13-28, Jan. 14 to Mar. 4. No gage-height record Sept. 15-25, 27-30; discharge computed on basis of weather records and records for stations on nearby streams.

Otter River near Elo, Mich.

Location.- Wire-weight gage, lat. 46°52', long. 88°37', in sec. 34, T. 52 N., R. 34 W., at highway bridge, 1¼ miles southeast of old Elo school and 3 miles upstream from Otter Lake.

Drainage area.- 175 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 1,340 second-feet Mar. 22 (gage height, 8.92 feet); minimum, 72 second-feet July 25, 27, Aug. 1, 2, 16, 17, 26, 27 (gage height, 3.48 feet).

1942-46: Maximum discharge, 4,300 second-feet Apr. 24, 1944 (gage height, 13.30 feet); minimum, that of July 25, 27, Aug. 1, 2, 16, 17, 26, 27, 1946.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 22		Mar. 23 to Sept. 30	
3.6	87	3.4	62
3.9	126	3.7	104
4.4	202	4.3	200
5.2	362	5.1	347
6.8	730	6.5	655
7.6	930	7.7	960
8.5	1,200	8.4	1,170

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	129	120	110	110	120	115	441	134	180	160	74	81
2	122	150	115	105	115	115	632	131	164	122	76	78
3	121	143	115	100	110	115	609	128	160	106	110	78
4	113	134	115	105	115	120	586	126	150	101	95	78
5	106	126	120	120	115	120	518	153	140	96	85	96
6	103	126	125	175	125	145	518	181	132	89	81	114
7	106	164	130	220	130	160	452	164	153	100	76	104
8	110	195	145	200	130	170	420	150	200	110	85	98
9	109	259	130	180	125	170	378	142	152	95	83	92
10	108	185	130	175	125	170	318	136	128	89	82	92
11	105	172	125	160	120	160	289	131	125	131	79	92
12	101	150	120	145	110	220	271	130	114	122	76	88
13	103	182	115	130	115	270	262	125	107	102	76	85
14	101	185	110	135	110	*380	271	122	101	92	74	82
15	101	153	105	135	110	490	280	122	100	85	74	82
16	100	141	100	*130	115	640	244	118	110	83	72	82
17	97	136	105	130	115	820	226	114	116	81	72	81
18	96	130	*100	130	110	830	217	116	107	79	81	79
19	96	122	100	120	*110	780	212	116	98	79	89	78
20	96	*117	105	120	110	805	193	163	98	79	86	96
21	94	123	105	115	105	*990	183	337	119	78	82	98
22	95	125	105	120	110	1,200	190	271	116	78	78	98
23	96	120	100	125	115	905	198	271	112	78	75	95
24	97	125	105	125	110	780	185	855	148	75	74	95
25	97	120	110	120	110	655	169	880	160	74	74	96
26	99	120	110	110	110	655	158	496	144	74	72	92
27	100	125	110	115	110	830	155	347	118	74	79	92
28	100	115	110	120	105	1,170	153	280	108	96	98	101
29	99	110	110	120	-	1,110	150	235	122	96	89	104
30	100	110	110	125	-	705	140	197	128	83	85	94
31	106	-	110	125	-	496	-	181	-	78	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,206	129	94	103	0.589	0.68
November	4,283	259	110	143	.817	.91
December	3,505	145	100	113	.646	.74
Calendar year 1945	86,758	2,670	79	238	1.36	18.42
January	4,145	220	100	134	.766	.88
February	3,210	130	105	115	.857	.68
March	16,291	1,200	115	526	3.01	3.46
April	9,018	632	140	301	1.72	1.92
May	7,052	880	114	227	1.30	1.50
June	3,910	200	98	130	.743	.83
July	2,885	160	74	93.1	.532	.61
August	2,511	110	72	81.0	.463	.53
September	2,721	114	78	90.7	.518	.58
Water year 1945-46	62,737	1,200	72	172	.983	13.32

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 23 to Mar. 17.

Manistique River near Germfask, Mich.

Location.- Staff gage, lat. 46°15'25", long. 85°52'20", in sec. 36, T. 45 N., R. 13 W., at bridge on State Highway 98, half a mile upstream from Fox River, 2 miles downstream from Manistique Lake, and 2½ miles east of Germfask. Auxiliary water-stage recorder on Manistique Lake at outlet from South Manistique Lake.

Drainage area.- 120 square miles.

Records available.- April 1942 to September 1946.

Extremes.- Maximum discharge during year, 194 second-feet Apr. 3, but may have been greater during seiches on Manistique Lake; maximum gage height, 4.04 feet Mar. 20; maximum reverse flow, 105 second-feet Mar. 20; minimum gage height, 0.82 foot Aug. 8, 9.
1942-46: Maximum discharge, 446 second-feet June 29, 1943 (from graph based on gage readings); maximum gage height, 5.70 feet June 22, 25 (from graph based on gage readings); maximum reverse flow, 299 second-feet Mar. 28, 1945; minimum gage height, 0.16 foot Sept. 1, 1942 (from graph based on gage readings).

Remarks.- Records fair except those for Jan. 14 to Feb. 25, which are poor. Gage read twice daily. Stage-discharge relation affected by backwater from Fox River; discharge computed using fall as determined by auxiliary water-stage recorder as a factor. Occasionally during high stages of Fox River the flow at this station is reversed.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	e98	146	130	160	140	147	174	160	e138	72	e58
2	81	e100	148	130	160	142	e170	173	e160	137	68	58
3	86	e100	149	129	160	141	189	e174	e160	137	65	54
4	88	96	149	130	160	137	e186	e175	159	132	63	51
5	89	97	146	136	160	136	185	176	153	132	60	50
6	92	95	147	139	160	143	187	173	155	129	57	53
7	95	95	145	122	160	139	181	164	153	127	53	52
8	97	93	142	120	160	140	e182	170	e153	127	48	54
9	98	80	143	122	155	142	e183	e168	152	122	49	56
10	95	64	144	128	155	145	184	167	148	119	55	57
11	e95	61	148	131	155	144	184	168	155	122	59	56
12	e95	74	147	135	155	145	185	169	154	119	61	55
13	95	95	143	136	155	134	186	163	155	114	61	52
14	96	95	144	140	155	116	185	164	152	113	60	52
15	95	91	144	140	150	92	e187	e165	149	106	60	53
16	93	89	144	140	150	-4	190	166	153	102	60	53
17	92	113	141	145	150	-45	186	160	154	99	61	52
18	91	125	143	145	150	-78	e186	156	151	97	63	53
19	e90	130	139	145	150	-102	186	162	147	99	78	51
20	89	e130	142	150	150	-102	186	157	146	97	78	54
21	86	131	142	150	150	-73	180	e157	e145	95	74	57
22	87	e134	142	155	145	-41	180	157	145	e94	69	56
23	85	137	142	155	145	-34	191	153	143	92	63	58
24	84	144	141	155	145	-38	183	161	143	92	67	64
25	85	146	141	160	145	95	189	155	143	86	64	68
26	e88	142	147	160	145	125	189	145	144	85	62	69
27	92	146	139	160	144	143	188	148	140	81	58	68
28	91	145	136	160	142	150	179	151	136	80	58	70
29	e92	147	136	160	-	166	176	154	137	78	57	65
30	93	145	138	160	-	165	176	163	139	78	57	64
31	e94	-	133	160	-	157	-	156	-	76	58	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,806	98	77	90.5	0.754	0.87
November	3,338	147	61	111	.925	1.03
December	4,431	149	133	143	1.19	1.37
Calendar year 1945	45,554	251	-279	125	1.04	14.10
January	4,433	160	120	143	1.19	1.37
February	4,271	160	142	153	1.28	1.32
March	2,596	166	-102	83.7	.698	.80
April	5,486	191	147	183	1.52	1.70
May	5,044	176	145	163	1.36	1.56
June	4,484	160	136	149	1.24	1.39
July	3,305	138	76	107	.892	1.02
August	1,918	78	48	61.9	.516	.59
September	1,713	70	50	57.1	.476	.53
Water year 1945-46	43,825	191	-102	120	1.00	13.55

e Slope-stage-discharge relation affected by wind on Manistique Lake.
Note.- No gage-height record for auxiliary gage Oct. 3-8, Dec. 23, 24, Jan. 1, 2, Jan. 14 to Feb. 25; discharge computed on basis of weather records, base gage heights, and weekly staff-gage readings on auxiliary gage. Negative sign indicates reverse flow.

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Manistique River at Germfask, Mich.

Location.- Water-stage recorder, lat. 46°14'00", long. 85°55'40", in SE¼ sec. 4, T. 44 N., R. 13 W., 1 mile south of Germfask and 1½ miles upstream from Grays Creek.

Drainage area.- 341 square miles.

Records available.- March 1938 to September 1946.

Extremes.- Maximum discharge during year, 1,060 second-feet Mar. 19, 20; maximum gage height, 5.10 feet Jan. 27 (ice jam), but may have been higher during period of no gage-height record); minimum discharge, 213 second-feet Aug. 9.
1938-46: Maximum discharge observed, 2,130 second-feet Apr. 1, 1938 (gage height, 8.50 feet, site and datum then in use); minimum observed, 184 second-feet Aug. 27, 29, 30, Sept. 6, 1938.

Remarks.- Records excellent except those for periods of ice effect or fragmentary or no gage-height record, which are fair.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 26				May 27 to Sept. 30			
1.9	303	3.8	786	1.4	198	2.6	478
2.8	521	4.8	1,060	2.1	358	3.2	628

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	421	410	385	380	350	705	471	490	382	240	267
2	340	547	420	385	380	350	705	458	466	382	235	251
3	355	586	425	385	380	355	678	446	442	346	229	242
4	360	586	440	385	380	355	678	446	430	334	231	238
5	350	586	450	450	390	360	678	458	418	322	233	247
6	350	599	470	530	410	430	678	508	406	311	224	288
7	400	612	480	660	450	560	651	508	406	311	220	322
8	440	638	480	700	460	599	638	496	406	311	216	322
9	440	732	460	700	450	586	638	471	394	322	235	311
10	430	732	*421	680	420	560	638	471	382	322	267	311
11	408	705	408	650	410	560	625	496	466	311	281	311
12	396	705	400	610	390	560	599	508	528	311	265	311
13	396	732	400	580	375	651	586	496	516	300	251	288
14	384	732	400	550	360	732	573	471	466	288	240	281
15	384	705	390	530	355	813	560	458	430	286	233	272
16	372	705	380	520	350	896	547	446	418	281	231	263
17	372	664	375	510	350	980	547	446	418	274	233	256
18	360	638	370	490	350	1,030	521	434	406	270	244	249
19	349	599	360	480	350	*1,060	521	421	394	286	311	242
20	338	573	355	470	350	1,060	508	421	382	288	358	240
21	338	f521	350	450	350	1,000	508	446	382	300	358	244
22	326	f458	350	440	350	980	508	446	382	288	322	249
23	326	470	350	*425	350	952	508	434	370	283	288	251
24	326	450	355	410	350	896	508	496	370	267	276	274
25	326	440	360	400	350	868	498	612	358	281	265	300
26	349	450	365	390	*350	813	484	625	346	249	258	300
27	372	440	375	390	350	786	471	616	346	251	251	300
28	384	420	380	380	350	786	471	590	334	279	254	300
29	372	410	380	380	-	759	471	540	322	272	256	300
30	360	400	380	380	-	732	471	503	334	265	254	288
31	360	-	380	380	-	732	-	490	-	251	267	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	11,383	440	320	367	1.08	1.24
November	17,256	732	400	575	1.69	1.88
December	12,319	480	350	397	1.16	1.34
Calendar year 1945	171,269	1,370	244	469	1.38	18.68
January	15,075	700	380	486	1.43	1.64
February	10,540	460	350	376	1.10	1.15
March	22,151	1,060	350	715	2.10	2.42
April	17,170	705	471	572	1.68	1.87
May	15,128	625	421	488	1.43	1.65
June	12,208	528	322	407	1.19	1.33
July	9,224	382	249	298	.874	1.01
August	8,026	358	216	259	.760	.88
September	8,318	322	238	277	.812	.91
Water year 1945-46	158,798	1,060	216	435	1.28	17.32

* Winter discharge measurement made on this day.
f Fragmentary gage-height record; discharge computed from partly estimated gage-height record.
Note.- Stage-discharge relation affected by ice Dec. 12 to Mar. 6. No gage-height record Oct. 1-10, Nov. 23 to Dec. 9, Dec. 23 to Jan. 22; discharge computed on basis of records for nearby stations.

Manistique River near Blaney, Mich.

Location.- Water-stage recorder, lat. 46°05'05", long. 86°03'35", in NE¼ sec. 33, T. 43 N., R. 14 W., half a mile downstream from Duck Creek and 7 miles southwest of Blaney.

Drainage area.- 704 square miles.

Records available.- March 1938 to September 1946.

Extremes.- Maximum discharge during year, 3,650 second-feet Mar. 20 (gage height, 16.9 feet, from floodmark); minimum, 288 second-feet Aug. 9 (gage height, 6.25 feet).
1938-46: Maximum discharge observed, 9,300 second-feet Apr. 1, 1938 (gage height, 19.42 feet); minimum, 234 second-feet Aug. 19-24, 1941; minimum gage height, 5.63 feet Aug. 23, 1941.

Remarks.- Records excellent except those for period of ice effect or no gage-height record, which are fair.

Rating tables, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 12		Mar. 13 to Sept. 30			
7.1	463	6.2	277	14.4	2,410
7.9	630	9.2	941	16.0	3,130
9.9	1,100	12.2	1,690	16.9	3,650
11.3	1,450				

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	483	588	810	570	800	680	1,550	803	872	604	373	538
2	504	901	790	570	800	680	1,520	780	849	626	340	505
3	546	1,080	770	580	800	680	1,500	736	803	582	330	472
4	546	1,080	750	580	780	680	1,480	714	758	538	330	439
5	525	1,050	740	620	780	680	1,450	758	714	505	319	428
6	525	1,050	750	900	820	720	1,400	803	670	483	308	395
7	609	1,100	760	1,300	840	850	1,350	826	670	472	298	417
8	674	1,150	760	1,500	850	1,080	1,320	803	736	472	288	439
9	674	1,400	760	1,450	860	1,180	1,300	780	758	472	319	450
10	674	1,500	700	1,420	840	1,160	1,280	758	736	461	384	461
11	630	1,420	620	1,380	820	1,140	1,250	803	895	461	395	461
12	609	1,400	*570	1,330	800	1,250	1,200	826	1,080	450	384	439
13	609	1,450	560	1,250	780	1,840	1,150	803	1,080	428	362	428
14	588	*1,520	550	1,100	760	2,290	1,130	780	987	417	340	406
15	588	1,520	550	1,030	740	2,880	1,080	758	872	406	330	395
16	567	1,500	550	990	650	a3,200	1,030	714	826	395	319	384
17	546	1,480	540	970	650	a3,400	1,010	714	826	384	319	362
18	546	1,450	530	970	680	a3,450	987	692	780	373	319	351
19	525	1,400	520	920	680	a3,550	941	670	736	395	461	340
20	514	1,300	510	870	680	a3,600	941	648	692	406	604	340
21	504	1,220	500	850	680	*3,470	895	692	670	406	626	340
22	494	1,150	500	*830	680	3,290	895	714	670	406	582	340
23	483	1,050	500	820	680	3,030	895	714	648	395	516	340
24	483	1,020	510	810	680	2,830	895	872	648	384	483	362
25	494	980	530	820	680	2,530	895	1,010	626	351	461	406
26	525	980	550	810	680	2,290	849	1,150	604	340	439	428
27	546	960	570	780	*680	2,080	849	1,150	582	330	428	428
28	567	930	570	780	680	1,930	803	1,080	560	395	439	439
29	567	880	570	800	-	1,810	803	1,010	538	538	483	439
30	567	840	570	800	-	1,690	803	941	527	472	472	428
31	567	-	570	800	-	1,600	-	872	-	417	516	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	17,279	674	483	557	0.791	0.91
November	35,349	1,520	588	1,178	1.67	1.87
December	19,030	810	500	614	.872	1.01
Calendar year 1945	326,790	7,300	350	895	1.27	17.28
January	29,200	1,500	570	942	1.34	1.54
February	20,850	860	650	745	1.06	1.10
March	61,540	3,600	680	1,985	2.82	3.25
April	33,451	1,550	803	1,115	1.58	1.77
May	25,374	1,150	648	819	1.16	1.34
June	22,413	1,080	527	747	1.06	1.18
July	13,764	626	330	444	.631	.73
August	12,567	626	288	405	.575	.66
September	12,400	538	340	413	.587	.66
Water year 1945-46	303,217	3,600	288	831	1.18	16.02

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of floodmark and records for stations at Germfask and near Manistique.
Note.- Stage-discharge relation affected by ice Nov. 24 to Mar. 12.

Manistique River near Manistique, Mich.

Location.- Water-stage recorder, lat. 46°01'50", long. 86°09'40", in SE¼ sec. 15, T. 42 N., R. 15 W., 1 mile downstream from West Branch and 6 miles northeast of Manistique.

Drainage area.- 1,100 square miles.

Records available.- March 1938 to September 1946.

Extremes.- Maximum discharge during year, 5,900 second-feet Mar. 20, 21; minimum gage height, 10.02 feet Mar. 20; minimum discharge, 505 second-feet Aug. 9 (gage height, 1.62 feet).

1938-46: Maximum discharge, 9,900 second-feet Mar. 22, 1945; minimum, 363 second-feet Sept. 13, 14, 1942; minimum gage height, 1.14 feet Sept. 13, 1942.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 26				May 27 to Sept. 30	
2.4	725	7.9	3,640	1.6	505
3.1	970	9.3	4,940	2.4	760
4.4	1,520	10.0	5,900	3.3	1,110
6.2	2,480			4.4	1,560
				5.2	1,960

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	795	882	1,350	980	1,270	*1,000	3,050	1,210	1,470	1,010	672	742
2	795	1,170	1,300	980	1,270	1,000	2,980	1,210	1,470	1,030	610	725
3	812	1,520	1,250	980	1,270	1,000	2,840	1,170	1,390	990	580	690
4	830	1,670	1,200	980	1,270	1,000	2,780	1,130	1,310	910	580	655
5	830	1,720	1,100	1,000	1,270	1,000	2,720	1,130	1,230	850	565	625
6	830	1,720	1,050	1,290	1,300	1,060	2,660	1,250	1,150	830	550	610
7	900	1,770	1,050	1,600	1,350	1,200	2,540	1,290	1,110	795	535	610
8	1,010	1,920	1,050	1,800	1,400	1,500	2,480	1,290	1,190	795	520	640
9	1,050	2,120	1,050	2,000	1,400	1,700	2,360	1,250	1,230	778	535	690
10	1,050	2,420	1,000	2,100	1,400	1,750	2,300	1,210	1,230	760	640	708
11	1,050	2,480	980	2,100	1,350	1,750	2,240	1,150	1,310	742	672	725
12	1,010	2,480	*950	2,050	1,300	2,000	2,120	1,290	1,610	725	672	708
13	970	2,540	920	2,000	1,250	3,120	2,020	1,290	1,810	708	640	690
14	935	*2,720	900	1,800	1,170	3,560	1,920	1,250	1,760	690	610	655
15	918	2,840	880	1,700	1,120	4,240	1,870	1,210	1,560	655	580	840
16	918	2,980	870	1,650	1,040	5,060	1,770	1,170	1,470	640	585	625
17	882	2,980	860	1,600	980	5,740	1,720	1,090	1,470	625	550	595
18	865	2,980	860	1,550	980	5,740	1,670	1,090	1,430	610	550	580
19	830	2,780	860	1,500	980	5,740	1,570	1,050	1,350	625	655	565
20	812	2,600	860	1,470	980	*5,900	1,520	1,010	1,270	640	850	550
21	778	2,420	850	1,440	980	5,900	1,470	1,050	1,230	640	950	535
22	760	2,240	850	*1,400	1,000	5,740	1,470	1,090	1,190	690	910	535
23	742	2,020	840	1,360	1,000	5,460	1,470	1,130	1,150	672	812	550
24	742	1,920	840	1,320	1,000	5,060	1,420	1,210	1,150	840	760	565
25	742	1,850	850	1,360	1,000	4,820	1,420	1,520	1,150	610	725	610
26	795	1,770	890	1,320	1,000	4,420	1,370	1,820	1,070	580	690	655
27	812	1,650	920	1,280	1,000	4,060	1,330	1,960	1,030	565	655	672
28	848	1,500	940	1,270	1,000	3,720	1,290	1,910	970	640	655	672
29	865	1,400	950	1,270	-	3,480	1,250	1,810	910	870	690	690
30	848	1,350	960	1,270	-	3,260	1,250	1,660	890	850	690	690
31	848	-	970	1,270	-	3,120	-	1,560	-	760	708	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	26,872	1,050	742	867	0.788	0.91
November	62,412	2,980	882	2,080	1.89	2.11
December	30,200	1,350	840	974	.885	1.02
Calendar year 1945	530,813	9,150	500	1,454	1.32	17.95
January	45,690	2,100	980	1,474	1.34	1.54
February	32,330	1,400	980	1,155	1.05	1.09
March	104,100	5,900	1,000	3,358	3.05	3.52
April	58,870	3,050	1,250	1,962	1.78	1.99
May	40,560	1,960	1,010	1,308	1.19	1.37
June	38,560	1,810	890	1,285	1.17	1.30
July	22,925	1,030	565	740	.873	.78
August	20,376	950	520	657	.597	.69
September	19,202	742	535	640	.582	.65
Water year 1945-46	502,097	5,900	520	1,376	1.25	16.97

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 25, Nov. 27 to Mar. 12. No gage-height record Jan. 14-19; discharge computed on basis of records for nearby stations.

Duck Creek near Blaney, Mich.

Location.- Water-stage recorder, lat. 46°06'50", long. 86°04'50", in SE¼ sec. 17, T. 43 N., R. 14 W., 3 miles upstream from mouth and 7 miles west of Blaney.

Drainage area.- 92 square miles including area from which flow is diverted to Duck Creek from Walsh Creek and Marsh Creek (watershed indeterminate because of swamps).

Records available.- March 1938 to September 1946.

Extremes.- Maximum discharge during year, 826 second-feet Mar. 18 (gage height, 9.4 feet, from floodmark); minimum, 10 second-feet July 28 (gage height, 1.77 feet).
1938-46: Maximum discharge observed, 1,740 second-feet Apr. 26, 1939 (gage height, 11.70 feet, site and datum then in use); minimum, 6.0 second-feet Aug. 21, 1941 (gage height, 1.52 feet).

Remarks.- Records good except those for periods of ice effect or fragmentary or no gage-height record, which are fair. Records include flow from Walsh Creek and Marsh Creek which originates upstream from line between R. 14 W. and R. 15 W., and is diverted to Duck Creek through drainage canal about 3 miles above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	36	120	58	70	60	256	57	71	47	24	20
2	30	77	115	58	70	60	250	54	64	38	21	17
3	28	81	110	58	70	60	238	51	57	32	21	17
4	a28	81	105	58	70	55	226	49	51	28	23	16
5	a26	78	100	80	70	55	220	55	46	26	19	14
6	a28	90	92	120	75	70	208	53	42	25	16	16
7	a31	99	8	145	80	110	196	47	45	24	15	15
8	a35	113	84	165	80	150	196	44	55	26	14	15
9	38	150	78	170	78	140	196	44	47	23	25	22
10	36	155	74	175	75	140	196	41	42	22	38	24
11	35	155	*72	185	72	160	190	49	80	22	30	23
12	34	175	70	185	70	262	180	47	81	20	25	19
13	34	202	66	f175	68	382	170	46	73	18	24	17
14	32	*214	64	140	66	490	160	44	62	18	20	16
15	32	232	62	125	64	586	155	42	53	16	18	15
16	30	244	80	125	58	a680	150	42	52	16	18	14
17	29	256	58	115	58	a780	136	40	64	15	18	13
18	28	256	56	115	60	a820	131	39	61	14	19	13
19	28	250	54	110	60	a800	122	38	55	17	49	12
20	26	238	54	105	60	a760	118	40	48	18	49	13
21	25	226	52	95	60	*718	109	56	48	18	43	15
22	24	202	52	*94	60	679	f97	53	46	16	34	13
23	24	190	52	94	60	627	f87	51	40	16	28	13
24	23	180	54	94	60	562	80	64	45	14	25	18
25	27	170	54	94	65	514	77	96	42	13	24	20
26	28	165	56	94	65	466	73	105	38	12	22	18
27	28	155	58	90	*62	418	68	103	34	10	21	19
28	28	145	58	80	60	382	65	95	32	27	23	23
29	26	140	58	75	-	334	62	86	29	46	23	19
30	26	131	58	75	-	310	60	77	31	34	20	18
31	28	-	58	75	-	274	-	72	-	28	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	896	38	23	28.9		
November	4,886	256	36	163		
December	2,192	120	52	70.7		
Calendar year 1945	37,157.8	1,080	7.2	102		
January	3,407	185	58	110		
February	1,868	80	58	66.6		
March	11,904	820	55	384		
April	4,472	256	60	149		
May	1,780	105	38	57.4		
June	1,534	81	29	51.1		
July	699	47	10	22.5		
August	771	49	14	24.9		
September	506	24	12	16.9		
Water year 1945-46	34,913	820	10	95.7		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for nearby stations.
f Fragmentary gage-height record; discharge computed from partly estimated gage-height record.
Note.- Stage-discharge relation affected by ice Nov. 26-28, Dec. 1 to Mar. 11.

West Branch Manistique River near Manistique, Mich.

Location.- Water-stage recorder, lat. 46°05'20", long. 86°09'40", in SE¼ sec. 27, T. 43 N., R. 15 W., 300 feet downstream from Stutts Creek and 10 miles northeast of Manistique.

Drainage area.- 322 square miles.

Records available.- April 1938 to September 1946.

Extremes.- Maximum discharge during year, 2,080 second-feet Mar. 21 (gage height, 8.42 feet, from graph based on chain-gage readings); minimum, 125 second-feet Aug. 9 (gage height, 2.16 feet).

1938-46: Maximum discharge observed, 5,300 second-feet Apr. 29, 1939 (gage height, 12.9 feet); minimum observed, 100 second-feet Aug. 30, 1938.

Remarks.- Records good except those for periods of ice effect or shifting control, which are fair.

Rating tables, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Mar. 16 to May 3, Sept. 28-30)

Oct. 1 to May 3		May 4 to Sept. 30	
2.5	186	2.1	116
3.1	301	2.6	197
4.2	570	3.1	293
6.5	1,260	3.7	435
		4.2	570

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	199	270	480	280	340	275	1,230	408	422	272	150	147
2	200	346	450	280	330	275	1,200	395	398	262	141	142
3	208	395	420	280	330	275	1,170	382	385	248	139	136
4	217	445	400	280	330	275	1,140	373	361	231	139	134
5	222	482	380	310	330	275	1,080	373	338	222	136	131
6	230	508	350	380	340	310	1,050	385	315	220	133	133
7	241	520	350	440	355	350	990	398	315	210	130	139
8	260	545	350	490	360	380	930	410	338	210	126	147
9	280	630	350	520	360	430	900	398	338	202	148	160
10	290	690	310	560	360	420	870	398	315	199	166	163
11	290	735	290	560	360	410	810	398	361	195	172	166
12	290	810	*260	570	350	450	780	398	398	188	173	168
13	280	*870	250	530	340	550	735	398	435	182	168	170
14	280	960	240	470	330	690	690	373	435	177	158	168
15	280	1,080	235	430	310	900	660	361	410	172	150	163
16	280	1,200	230	440	295	1,200	615	338	373	166	145	158
17	270	1,260	230	450	285	1,320	585	326	398	160	139	152
18	260	1,200	230	450	280	1,560	540	315	398	157	144	147
19	260	1,110	230	450	280	1,840	510	304	398	158	182	144
20	250	1,020	230	420	280	*2,040	498	304	361	155	194	142
21	250	930	235	*420	280	2,080	482	315	350	153	201	141
22	239	870	240	410	280	2,040	470	338	326	149	192	139
23	235	810	240	400	280	1,920	458	350	315	147	180	141
24	233	760	245	390	280	1,840	470	398	315	144	172	160
25	237	710	250	390	280	1,720	470	472	304	137	166	173
26	241	650	260	390	280	1,600	458	510	293	134	160	188
27	241	610	270	370	280	1,480	445	555	282	131	153	202
28	250	570	275	370	*280	1,410	432	555	262	174	155	199
29	260	530	280	360	-	1,350	432	510	248	190	153	194
30	260	500	280	350	-	1,290	420	472	248	177	152	190
31	260	-	280	350	-	1,260	-	448	-	161	152	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,793	290	199	251	0.780	0.90
November	22,016	1,260	270	734	2.28	2.54
December	9,120	480	230	294	.913	1.05
Calendar year 1945	164,621	2,600	116	451	1.40	19.01
January	12,790	570	280	413	1.28	1.48
February	8,785	360	280	314	.975	1.01
March	32,215	2,080	275	1,039	3.23	3.72
April	21,520	1,230	420	717	2.23	2.49
May	12,358	555	304	399	1.24	1.43
June	10,435	435	248	348	1.08	1.21
July	5,683	272	131	183	.568	.66
August	4,869	201	126	157	.488	.56
September	4,737	202	131	158	.491	.55
Water year 1945-46	152,321	2,080	126	417	1.30	17.60

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 24 to Mar. 15.

Indian River near Manistique, Mich.

Location.- Water-stage recorder, lat. 45°59'30", long. 86°17'15", in NE¼ sec. 34, T. 42 N., R. 16 W., above Indian Lake Outlet, 2 miles northwest of Manistique. Datum of gage is 608.66 feet above mean sea level (levels by Michigan Department of Conservation). Auxiliary staff gage above dam 1½ miles downstream.

Drainage area.- 302 square miles.

Records available.- March 1938 to September 1946.

Extremes.- Maximum discharge during year, 659 second-feet Apr. 2 (gage height, 5.07 feet, caused by seiches on Indian Lake); minimum daily, 239 second-feet May 4; minimum gage height, 3.62 feet Mar. 5.

1938-46: Maximum discharge, 1,550 second-feet June 24, 1943 (gage height, 7.79 feet), from rating curve extended above 660 second-feet on basis of computation of flow over dam; minimum observed, 106 second-feet Aug. 6, 7, 1939; minimum gage height, 3.30 feet Mar. 25, 1940.

Remarks.- Records excellent except those for periods of no gage-height record, which are good. Indian Lake regulated by needles in gate section of rock-filled timber dam 1½ miles below gage. Discharge computed using fall as determined by auxiliary staff gage as a factor. Staff gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	270	311	540	391	405	356	565	271	323	365	294	276
2	268	298	535	394	408	359	576	266	320	371	284	270
3	261	308	540	384	394	362	516	242	314	370	284	269
4	281	311	506	380	394	359	551	239	308	370	276	266
5	275	311	515	380	384	350	546	274	320	370	270	264
6	281	320	510	391	394	357	526	274	314	375	265	264
7	f278	336	510	405	398	370	531	269	329	369	262	260
8	f281	355	499	419	387	381	535	272	333	375	270	258
9	290	461	499	415	398	394	531	269	327	363	270	267
10	287	560	495	422	384	391	506	277	333	344	263	260
11	296	565	494	436	384	391	497	297	336	366	257	254
12	296	560	488	432	384	401	492	295	352	347	266	260
13	299	496	483	428	384	408	487	307	349	343	271	260
14	296	586	477	424	384	426	492	283	333	348	268	260
15	299	581	481	432	384	423	492	281	326	339	263	260
16	299	586	467	432	384	461	468	272	326	326	263	262
17	296	586	453	422	377	489	481	269	339	326	263	260
18	291	586	446	418	374	501	472	269	339	315	263	260
19	297	581	440	414	374	535	479	269	336	315	289	262
20	294	576	440	426	374	535	465	272	329	312	269	265
21	284	576	430	418	363	560	455	281	342	315	266	262
22	285	565	419	412	377	551	445	281	339	305	280	258
23	284	576	419	412	367	576	437	295	342	308	284	254
24	290	565	405	412	370	576	371	295	374	299	290	254
25	291	581	405	412	370	576	260	308	365	299	295	257
26	295	565	405	405	367	571	254	311	371	290	297	257
27	277	565	408	408	367	576	245	323	377	295	287	271
28	279	565	408	408	356	576	251	323	358	283	279	263
29	285	535	401	398	-	576	260	320	360	297	276	271
30	309	545	398	398	-	560	271	323	380	300	276	262
31	313	-	387	408	-	556	-	327	-	296	274	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	8,927	313	261	288	-	-
November	15,012	596	298	500	-	-
December	14,303	540	387	461	-	-
Calendar year 1945	141,116	709	228	387	1.28	17.37
January	12,736	436	380	411	-	-
February	10,686	408	356	382	-	-
March	14,503	576	350	468	-	-
April	13,457	576	245	449	-	-
May	8,854	327	239	286	-	-
June	10,194	380	308	340	-	-
July	10,296	375	283	332	-	-
August	8,514	297	257	275	-	-
September	7,866	276	254	262	-	-
Water year 1945-46	135,348	596	239	371	1.23	16.66

f Computed from partly estimated gage-height record.

Note.- No gage-height record Apr. 21, 22; no auxiliary gage-height record July 3-5; discharge computed on basis of records for other gage in each case and records for adjacent periods.

Brule River near Florence, Wis.

Location.- Water-stage recorder, lat. 45°57', long. 88°16', in sec. 11, T. 41 N., R. 32 W. Michigan meridian, at county highway bridge, 3½ miles north of Florence, 1 mile above Paint River, and 6 miles above the confluence with Michigamme River.

Drainage area.- 380 square miles.

Records available.- January 1914 to February 1916 and June 1944 to September 1946.

Extremes.- Maximum discharge during year, 2,480 second-feet June 26; maximum gage height, 6.50 feet Nov. 27 (ice jam); minimum discharge, 219 second-feet Sept. 2-5 (gage height, 2.02).

1914-16, 1944-46: Maximum discharge, that of June 26, 1946; minimum, about 160 second-feet Dec. 12, 1944 (ice jam upstream).

Remarks.- Records excellent except those for Jan. 1 to Mar. 7, which are good, and those for Nov. 23 to Dec. 31, which are fair. Flow not adjusted for ground water pumped from mines at Iron River.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge in second-feet)

2.0	212	3.9	1,300
2.3	319	4.3	1,690
2.6	447	5.0	2,550
3.4	930		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	315	376	*305	265	275	270	433	308	363	776	249	225
2	410	530	305	265	280	270	458	300	343	662	245	219
3	419	474	310	270	270	270	463	300	323	536	263	219
4	376	406	320	260	275	*270	458	300	311	458	281	219
5	347	367	330	*280	*275	270	458	319	300	415	267	219
6	339	*372	340	365	310	285	438	311	296	389	249	228
7	363	463	360	480	300	310	419	308	359	389	245	238
8	468	626	390	460	300	300	410	296	389	406	252	263
9	468	782	370	415	290	300	415	292	347	376	285	347
10	424	608	310	390	280	285	393	289	319	355	289	351
11	367	500	270	370	280	270	372	304	397	347	274	315
12	347	484	265	345	270	310	359	296	429	323	263	281
13	335	620	260	295	270	370	367	289	363	308	252	263
14	323	632	270	315	255	460	367	281	319	292	249	252
15	308	512	250	315	245	580	367	277	296	281	238	249
16	304	479	245	295	265	720	355	281	292	274	238	242
17	300	438	240	*315	265	850	347	277	308	263	232	238
18	296	415	240	305	250	*895	343	270	308	267	259	235
19	289	393	235	275	260	881	343	277	289	274	267	232
20	281	367	230	285	*260	842	339	311	277	270	259	259
21	285	389	230	265	250	768	331	372	289	267	249	285
22	281	376	235	280	260	764	339	363	285	274	242	267
23	277	370	225	280	260	704	372	367	281	274	235	287
24	274	360	235	285	260	620	359	489	1,520	267	232	277
25	285	350	245	285	260	560	339	512	2,290	252	228	285
26	292	340	260	265	260	518	331	433	2,360	249	228	270
27	292	335	260	280	265	495	319	384	1,530	245	225	277
28	289	330	260	285	265	489	311	347	965	249	238	308
29	285	320	260	275	-	489	311	331	716	263	238	300
30	285	310	260	280	-	463	311	319	710	274	232	281
31	285	-	260	285	-	442	-	331	-	263	235	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,209	468	274	329	0.866	1.00
November	13,324	782	310	444	1.17	1.30
December	8,575	390	225	277	.729	.84
Calendar year 1945	139,579	1,220	190	382	1.01	13.88
January	9,630	480	260	311	.818	.94
February	7,555	310	245	270	.711	.74
March	15,340	895	270	495	1.30	1.50
April	11,227	463	311	374	.984	1.10
May	10,134	512	270	327	.861	.99
June	17,574	2,360	277	586	1.54	1.72
July	10,538	776	245	340	.895	1.03
August	7,738	289	225	250	.658	.76
September	7,911	351	219	264	.695	.77
Water year 1945-46	129,755	2,360	219	355	.934	12.69

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 23 to Mar. 17. No gage-height record Dec. 16-30; discharge computed on basis of weather records and records for nearby stations.

Menominee River at Twin Falls, near Iron Mountain, Mich.

Location.- Lat. 45°52'20", long. 88°04'10", in sec. 12, T. 40 N., R. 31 W., at power plant of Wisconsin Michigan Power Co., 3 miles upstream from Pine River and 3½ miles north of city of Iron Mountain.

Drainage area.- 1,790 square miles.

Records available.- January 1914 to September 1946.

Average discharge.- 32 years, 1,799 second-feet.

Extremes (regulated).- Maximum daily discharge during year, 7,950 second-feet June 26; minimum daily, 993 second-feet Dec. 24.
1914-46: Maximum daily discharge, 16,700 second-feet Apr. 23, 24, 1916; minimum daily, 154 second-feet Aug. 9, 1925.

Remarks.- Records good. Discharge determined from powerhouse records. Flow regulated by power plant at which station is located and also by plants on Brule and Michigamme Rivers and by Way Reservoir on Michigamme River.

Cooperation.- Records of daily discharge computed by Wisconsin Michigan Power Co. on basis of load-discharge rating of hydroelectric units as developed by Geological Survey in 1932-33 and taintor-gate ratings based on theoretical formulas.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,590	1,430	1,320	1,000	1,770	1,860	2,170	1,630	1,800	2,730	1,870	1,090
2	1,960	1,920	1,280	1,430	1,530	1,780	2,200	1,630	1,260	3,530	1,510	1,060
3	1,980	1,710	1,490	1,730	1,220	1,480	2,100	1,620	1,510	2,840	1,470	1,190
4	1,920	1,390	1,710	1,900	1,530	1,530	2,320	1,570	1,560	2,370	1,150	1,360
5	1,910	1,640	1,860	1,760	1,810	1,840	2,280	1,540	1,440	2,270	1,550	1,500
6	1,530	1,600	1,810	1,410	1,980	1,820	2,380	1,450	1,480	2,170	1,660	1,470
7	1,120	1,620	1,700	1,620	2,010	1,850	2,190	1,620	1,760	1,740	1,750	1,310
8	1,800	1,660	1,610	1,890	1,840	1,760	2,300	1,660	2,220	2,270	1,650	1,200
9	1,970	1,880	1,480	1,800	1,880	1,760	2,360	1,820	2,110	2,350	1,580	1,360
10	1,990	1,960	1,600	1,960	1,370	1,250	2,320	1,750	2,010	2,220	1,430	1,440
11	1,990	1,960	1,690	1,970	1,820	1,640	2,060	1,450	2,250	2,190	1,140	1,480
12	2,170	1,940	1,540	1,430	2,010	1,920	2,110	1,230	2,270	2,320	1,530	1,440
13	1,980	2,010	1,420	1,020	2,020	1,940	2,070	1,330	1,950	1,790	1,550	1,300
14	1,250	2,360	1,440	1,550	1,990	1,960	1,810	1,420	1,820	1,540	1,580	1,260
15	1,780	2,550	1,330	1,730	1,830	2,000	1,800	1,480	1,830	1,560	1,610	1,030
16	1,900	2,490	1,060	1,680	1,460	2,320	1,770	1,380	1,780	1,620	1,630	1,260
17	1,790	1,870	1,220	1,810	1,150	2,720	1,740	1,260	2,010	1,590	1,350	1,390
18	1,840	1,570	1,420	1,930	1,550	3,200	1,880	1,220	2,140	1,760	1,160	1,330
19	1,590	1,520	1,440	1,520	1,740	3,740	1,810	1,080	2,090	1,870	1,500	1,320
20	1,580	1,530	1,410	1,200	1,630	4,150	1,950	1,350	2,020	1,540	1,670	1,280
21	1,130	1,870	1,410	1,680	1,580	3,650	1,720	1,450	1,900	1,290	1,560	1,220
22	1,260	1,760	1,380	1,950	1,480	3,310	1,730	1,300	1,460	1,540	1,560	1,060
23	1,360	1,450	1,050	1,800	1,430	3,620	1,830	1,390	1,300	1,560	1,650	1,320
24	1,390	1,510	993	1,810	1,270	3,280	1,890	1,620	2,850	1,700	1,520	1,380
25	1,250	1,230	1,060	1,710	1,380	2,460	2,180	1,570	7,020	1,570	1,300	1,370
26	1,150	1,490	1,560	1,380	1,750	2,460	2,240	1,420	7,950	1,440	1,470	1,270
27	1,110	1,520	1,680	1,280	1,710	2,400	1,980	1,690	6,180	1,400	1,610	1,400
28	1,040	1,560	1,700	1,510	1,800	2,370	1,670	2,000	4,640	1,170	1,780	1,140
29	1,160	1,590	1,660	1,710	-	2,240	1,740	2,040	3,410	1,860	1,640	1,070
30	1,240	1,460	1,200	1,740	-	2,150	1,710	1,600	2,400	1,980	1,460	1,210
31	1,260	-	1,080	1,780	-	1,990	-	1,810	-	1,860	1,300	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,770	2,170	1,040	1,573	0.879	1.01
November	52,050	2,550	1,230	1,735	.969	1.08
December	44,603	1,860	993	1,439	.804	.93
Calendar year 1945	743,606	6,540	979	2,037	1.14	15.45
January	50,690	1,970	1,000	1,635	.913	1.05
February	46,540	2,020	1,150	1,662	.928	.97
March	72,450	4,150	1,250	2,337	1.31	1.51
April	60,310	2,380	1,670	2,010	1.12	1.25
May	47,380	2,040	1,080	1,528	.854	.98
June	76,420	7,950	1,260	2,547	1.42	1.58
July	59,640	3,530	1,170	1,924	1.07	1.23
August	47,190	1,870	1,140	1,522	.850	.98
September	38,510	1,500	1,030	1,284	.717	.80
Water year 1945-46	644,553	7,950	993	1,766	.987	13.37

Menominee River below Koss, Mich.

Location.- Lat. 45°21'50", long. 87°39'20", in sec. 9, T. 34 N., R. 27 W., at power plant of Wisconsin Public Service Corp., half a mile upstream from Little Cedar River and 4 miles downstream from Koss.

Drainage area.- 3,790 square miles.

Records available.- July 1913 to September 1946.

Average discharge.- 33 years (1914-46), 3,202 second-feet.

Extremes.- Maximum and minimum daily discharges for the water years 1941 to 1946 are contained in the following table:

Water year	Maximum daily		Minimum daily	
	Date	Discharge (sec.-ft.)	Date	Discharge (sec.-ft.)
1940-41	Sept. 2	9,180	July 28	960
1941-42	Apr. 19	10,800	July 13	1,820
1942-43	June 20	18,900	Dec. 28	1,650
1943-44	May 16	8,380	Aug. 27	882
1944-45	Mar. 23	10,800	Dec. 27	1,200
1945-46	Mar. 19	10,900	Sept. 4	1,450

1913-46 (regulated): Maximum daily discharge, 23,200 second-feet Apr. 23, 25, 1916; minimum daily, 162 second-feet Sept. 15, 1931.

Remarks.- Records fair. Daily discharge computed on basis of average daily load and load-discharge rating of combined hydroelectric units. Flow regulated by many power plants and reservoirs.

Cooperation.- Records of daily discharge furnished by Wisconsin Public Service Corp.

Discharge, in second-feet, 1940-46

1940-41

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,440	2,920	2,010	2,360	1,820	1,730	2,020	3,240	3,080	1,440	1,820	7,700
2	1,870	3,700	2,270	2,760	2,110	1,780	2,660	3,360	3,480	1,820	1,500	9,180
3	1,890	3,930	2,320	2,400	1,730	1,730	2,980	2,880	3,740	1,920	1,730	8,340
4	1,520	3,630	2,000	2,300	1,250	1,630	3,680	3,120	3,950	1,800	1,580	7,180
5	1,590	2,640	2,210	2,110	1,920	1,540	4,140	2,880	3,610	1,010	1,440	6,970
6	1,530	2,570	2,400	2,360	1,920	1,820	5,870	2,580	2,760	1,630	1,440	8,940
7	1,620	2,980	2,210	1,920	1,920	1,730	7,350	2,330	2,760	1,160	1,400	6,420
8	1,350	2,400	2,300	2,360	2,010	1,630	5,930	3,120	2,550	1,690	1,480	5,410
9	1,470	2,400	2,210	2,400	1,830	1,820	5,860	3,240	2,400	1,630	1,490	5,630
10	1,440	2,780	2,300	2,210	1,600	1,730	6,400	3,500	2,210	1,440	1,400	5,720
11	1,580	3,180	2,590	2,020	1,630	1,540	5,810	3,540	2,210	1,680	1,080	4,810
12	1,510	2,670	2,590	2,110	1,920	2,020	6,790	2,700	2,160	1,840	1,190	4,240
13	1,510	4,040	2,500	1,920	2,110	1,820	7,720	2,570	2,240	1,640	1,250	3,600
14	1,620	5,020	2,110	1,820	2,020	1,970	7,240	2,690	1,880	1,400	1,250	3,600
15	1,760	4,710	2,050	2,160	1,790	1,540	7,710	3,110	1,480	1,560	1,250	3,120
16	2,020	4,110	2,020	2,210	1,540	2,210	8,600	3,550	1,570	1,440	1,250	3,260
17	1,800	4,480	1,920	2,210	1,820	1,540	8,420	3,600	1,760	2,020	1,260	6,350
18	1,940	3,380	2,020	2,210	1,820	1,440	7,640	2,360	2,000	2,050	1,260	7,560
19	1,740	3,350	2,110	2,210	1,920	1,820	6,220	2,360	1,920	1,920	1,340	7,350
20	1,800	3,360	2,090	1,820	1,920	1,880	6,910	3,200	1,820	2,020	1,340	6,000
21	1,580	3,180	2,080	1,730	1,760	1,680	5,740	3,300	2,020	1,540	1,440	5,580
22	1,580	3,360	2,400	1,820	1,740	1,680	5,580	2,880	1,420	1,540	1,340	4,740
23	1,730	3,480	2,210	2,160	2,010	1,800	5,260	3,000	1,620	2,510	1,440	4,020
24	1,630	3,780	2,210	2,080	2,040	1,600	4,820	2,880	1,730	1,820	1,630	3,860
25	1,820	3,640	2,300	1,880	1,600	1,440	5,200	3,120	1,440	1,920	1,440	3,930
26	1,520	3,450	2,560	1,720	1,880	1,820	5,010	2,210	1,920	1,820	1,540	4,470
27	1,800	3,090	2,360	1,700	1,920	2,110	5,070	1,920	2,110	1,630	1,630	3,930
28	1,570	2,970	2,320	1,880	1,920	1,820	4,220	2,110	1,920	960	1,820	3,700
29	1,540	2,600	2,560	1,800	-	2,110	3,120	2,300	1,050	1,800	1,870	3,120
30	2,020	1,970	2,560	2,020	-	1,540	3,630	2,980	1,420	1,210	3,130	3,760
31	2,690	-	2,360	1,920	-	1,920	-	2,980	-	1,820	5,430	-

Discharge, in second-feet, of Menominee River below Koss, Mich., 1940-46--Continued

1941-42

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,720	5,900	3,230	3,550	3,000	2,720	6,950	5,430	6,730	3,120	3,780	2,880
2	3,550	6,970	3,100	2,920	3,120	2,160	6,960	5,970	6,800	3,240	2,880	2,870
3	3,840	8,000	3,600	2,640	2,400	2,640	6,430	6,600	8,010	3,120	3,000	2,760
4	3,980	8,070	3,240	2,640	2,880	2,280	6,970	6,460	7,440	3,120	2,760	2,640
5	4,440	7,690	3,690	2,640	2,600	2,640	7,790	7,500	7,580	2,880	2,600	2,640
6	5,230	7,220	3,360	2,400	2,760	2,880	7,860	7,840	6,890	2,760	2,640	3,100
7	4,970	7,050	3,560	2,040	2,780	2,640	8,430	7,840	7,310	3,000	2,760	2,270
8	7,540	6,080	3,400	2,640	2,590	2,640	8,350	7,320	7,970	2,760	2,400	2,710
9	8,240	5,700	2,880	2,280	2,400	2,160	7,070	6,180	8,170	2,620	2,180	2,090
10	8,270	5,320	2,350	2,520	2,590	2,640	7,460	5,720	7,420	2,440	2,710	2,400
11	8,820	4,490	2,400	2,400	2,590	2,400	6,910	5,380	5,830	2,160	2,400	2,880
12	8,560	5,000	2,880	2,280	2,590	2,520	7,880	5,360	5,200	2,690	2,220	2,850
13	7,580	4,970	3,360	2,160	2,650	2,520	6,890	4,960	4,790	1,820	2,400	3,120
14	7,490	4,510	3,170	2,280	2,880	2,640	5,840	4,410	4,880	2,360	2,300	2,220
15	6,010	4,290	2,880	2,280	2,880	2,520	5,510	6,400	4,530	1,960	2,210	2,500
16	5,720	4,200	2,760	2,280	2,420	2,400	6,620	6,600	3,840	1,920	2,110	2,890
17	5,340	4,020	3,250	2,520	2,550	2,400	8,040	7,320	3,810	2,550	2,110	3,120
18	5,090	3,660	3,900	2,520	2,300	2,880	9,160	6,250	3,840	4,550	2,210	4,120
19	4,370	4,380	4,160	2,640	2,420	3,050	10,800	6,370	3,660	7,710	1,920	4,450
20	3,940	3,960	3,600	2,760	2,400	3,050	8,770	6,420	3,000	9,680	2,210	5,780
21	3,720	4,000	3,480	2,760	2,310	3,000	7,120	6,480	3,720	9,770	2,110	6,850
22	4,520	4,010	3,550	3,050	2,400	3,450	5,860	5,940	2,680	9,380	2,190	6,500
23	5,520	4,820	3,900	2,700	2,080	3,300	5,230	5,730	3,380	6,980	3,150	6,500
24	4,460	3,900	4,740	3,000	2,000	3,400	4,990	5,380	3,360	5,880	2,460	6,130
25	4,860	3,490	4,960	2,910	2,110	3,650	4,690	5,140	3,160	4,730	3,020	5,610
26	4,930	3,480	4,010	2,870	2,980	3,900	4,410	4,410	3,120	5,070	2,780	5,810
27	5,280	3,590	4,220	2,700	2,500	4,660	4,290	4,150	3,240	4,390	3,280	5,830
28	6,530	3,920	4,000	2,800	2,500	5,060	4,570	4,590	2,880	3,680	3,000	5,770
29	6,520	3,500	3,740	3,240	-	6,370	4,810	4,280	2,760	3,930	3,360	5,550
30	6,450	3,700	3,810	2,760	-	6,670	5,950	4,390	2,880	3,850	2,880	5,180
31	5,980	-	3,760	2,760	-	7,000	-	6,240	-	3,610	2,780	-

1942-43

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

Discharge, in second-feet, of Menominee River below Koss, Mich., 1940-46--Continued

1943-44

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,350	2,100	2,250	1,920	1,920	1,920	3,280	4,720	4,250	3,430	1,320	1,700
2	2,550	1,650	2,280	1,920	1,800	1,920	2,860	4,850	3,840	3,460	1,800	2,000
3	2,160	2,200	2,280	1,680	2,160	2,400	2,020	4,780	3,840	3,000	1,650	2,050
4	2,000	2,280	2,280	1,680	2,040	1,920	1,580	5,710	5,250	2,350	1,650	1,700
5	1,950	2,400	2,050	1,560	1,840	2,040	2,640	4,970	4,890	2,750	1,750	1,600
6	2,200	2,160	2,040	1,440	2,890	1,560	2,280	5,890	5,120	2,400	1,870	1,800
7	2,170	2,400	1,680	1,560	1,860	1,560	2,280	6,460	6,360	2,050	1,760	2,000
8	1,920	2,680	2,280	1,680	1,610	1,920	2,280	5,320	7,670	1,700	1,340	1,920
9	2,160	2,880	2,280	1,560	1,940	1,800	2,640	4,720	8,310	2,100	1,500	1,800
10	2,160	3,300	1,800	1,680	1,920	1,800	2,040	4,540	7,390	2,700	1,560	1,800
11	1,920	4,490	1,360	1,680	1,800	1,800	2,880	4,410	6,520	2,050	1,440	1,560
12	1,800	4,120	1,730	1,560	1,800	1,800	3,000	4,390	5,680	1,800	1,500	1,200
13	2,160	4,430	1,580	1,550	1,800	1,440	2,800	5,930	5,120	1,680	1,560	1,680
14	2,280	4,140	1,680	1,650	1,680	1,440	2,700	7,040	5,900	2,040	1,320	1,900
15	2,400	3,440	1,800	1,780	1,680	1,920	2,800	8,220	5,940	2,090	1,200	2,050
16	2,400	2,720	2,040	1,780	1,680	1,900	2,800	8,380	5,710	1,680	1,320	1,600
17	2,640	2,400	2,040	1,680	1,650	2,000	2,600	7,570	4,970	2,040	1,920	1,800
18	2,160	2,710	1,750	1,560	1,750	1,800	2,250	7,840	4,970	1,680	1,680	1,700
19	2,400	2,760	1,920	1,680	1,680	2,150	2,200	5,920	4,980	1,580	1,680	1,350
20	2,400	2,660	2,030	1,850	1,700	1,700	2,520	5,360	4,640	1,800	2,120	1,850
21	2,400	2,640	1,920	1,700	1,450	1,400	2,280	5,810	4,950	2,400	1,440	2,160
22	2,290	2,280	1,680	1,800	1,650	2,000	2,400	5,450	4,780	1,800	1,320	2,160
23	2,290	2,280	1,600	1,850	1,700	2,160	2,400	4,580	5,060	1,560	1,440	2,160
24	2,160	2,520	1,650	1,650	1,800	1,800	3,000	4,250	5,060	1,800	1,440	2,280
25	2,160	2,550	1,900	1,550	1,680	2,160	4,170	5,030	4,490	2,040	1,800	2,040
26	2,280	1,900	1,750	1,850	2,040	2,040	5,920	5,630	4,660	1,560	1,680	1,680
27	2,400	2,490	1,700	2,280	1,800	2,040	6,260	5,300	4,700	2,160	882	2,160
28	2,350	2,260	1,450	2,400	1,800	1,920	5,480	4,080	4,320	1,920	1,030	2,350
29	2,200	1,850	1,500	2,520	1,800	2,400	4,490	3,800	3,680	2,160	1,080	2,760
30	2,200	1,850	1,800	2,880	-	2,040	4,990	3,520	3,610	2,760	1,320	3,000
31	2,400	-	1,920	2,040	-	2,580	-	4,540	-	2,160	2,000	-

1944-45

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

Discharge, in second-feet, of Menominee River below Koss, Mich., 1940-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,880	2,400	3,360	2,160	2,590	2,640	4,430	3,340	3,400	6,160	2,750	2,280
2	2,450	2,880	3,240	1,800	2,500	2,640	4,250	3,100	2,900	5,490	2,700	2,050
3	2,600	3,600	2,640	1,680	2,590	2,760	4,000	2,800	2,850	5,830	2,400	1,700
4	3,000	3,900	2,520	2,160	2,210	2,280	4,170	2,800	2,550	5,330	2,450	1,450
5	3,120	3,480	3,260	2,520	1,920	2,160	4,090	2,800	2,950	4,190	2,420	1,800
6	2,880	3,480	2,660	3,120	2,500	2,640	4,340	2,500	2,550	3,410	2,000	2,160
7	3,000	3,470	3,100	3,450	2,500	2,760	4,810	2,850	2,650	4,280	2,350	1,480
8	2,520	3,480	3,300	3,120	2,780	2,910	4,040	3,000	3,130	3,550	2,880	1,920
9	2,880	5,000	2,870	3,080	2,690	3,130	4,150	3,020	4,190	2,800	1,800	2,040
10	2,880	6,380	1,870	3,220	2,820	3,260	4,150	2,850	4,660	3,680	2,280	1,920
11	3,010	6,920	1,920	3,200	2,390	2,760	3,950	2,900	4,610	4,030	2,130	2,520
12	3,120	6,600	2,400	3,110	2,740	2,880	4,150	2,650	4,650	3,440	1,920	2,640
13	3,400	7,220	2,640	3,220	2,760	3,070	3,620	2,750	4,960	3,260	2,040	2,640
14	3,290	7,330	2,760	2,800	2,750	3,830	3,980	2,750	4,720	3,120	1,700	2,560
15	2,880	6,820	2,280	2,690	2,650	4,630	3,260	2,700	4,570	2,880	2,280	2,180
16	2,160	6,770	2,280	2,690	2,850	5,350	3,400	2,640	4,510	2,150	2,280	2,280
17	2,880	6,120	2,160	2,950	2,900	6,430	3,630	2,520	4,240	2,460	2,160	1,560
18	2,760	5,480	2,140	2,850	2,200	8,340	3,520	2,400	4,210	2,600	2,520	2,040
19	2,760	4,800	2,170	2,900	2,000	10,900	3,000	2,040	3,820	1,800	1,750	2,280
20	2,760	4,140	2,040	3,030	2,350	9,310	3,000	2,400	3,660	2,400	1,800	1,920
21	2,400	3,880	1,920	2,670	2,520	9,870	3,480	2,280	3,620	2,640	1,850	2,100
22	2,080	3,330	2,250	2,200	2,640	9,530	3,190	3,000	2,880	2,360	2,520	1,870
23	2,110	3,620	2,300	2,610	2,600	8,610	4,040	2,880	3,240	2,160	2,040	1,920
24	2,420	3,220	1,800	2,780	2,280	8,080	3,260	3,120	3,120	2,520	2,280	1,680
25	2,000	3,070	1,700	2,780	2,160	8,000	3,120	3,700	4,460	2,400	2,000	2,160
26	2,310	2,740	1,800	2,770	1,920	6,410	3,240	4,460	8,830	1,800	2,040	2,250
27	2,300	2,850	1,680	2,590	2,400	6,190	3,480	4,410	10,600	2,160	1,800	2,100
28	2,060	3,050	2,160	2,500	1,800	5,890	3,780	3,880	10,700	2,520	2,040	2,330
29	1,840	3,000	2,500	1,820	-	5,760	3,120	4,080	8,830	1,880	2,250	2,040
30	1,690	3,120	2,400	2,490	-	5,500	3,230	3,240	7,550	2,040	2,350	2,050
31	2,070	-	2,640	2,500	-	5,060	-	3,460	-	2,640	2,260	-

Monthly discharge, in second-feet, 1940-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1940	52,480	2,690	1,350	1,693	0.447	0.52
November	99,770	5,020	1,970	3,326	.878	.98
December	70,150	2,590	1,920	2,263	.597	.69
Calendar year 1940	1,153,600	13,700	1,010	3,152	.832	11.33
January 1941	64,580	2,760	1,700	2,083	.550	.63
February	51,470	2,110	1,250	1,838	.485	.50
March	54,440	2,210	1,440	1,756	.463	.53
April	167,600	8,600	2,020	5,587	1.47	1.64
May	89,610	3,600	1,920	2,891	.763	.88
June	66,230	3,950	1,050	2,208	.583	.65
July	51,480	2,510	960	1,661	.438	.50
August	50,460	5,430	1,080	1,628	.430	.50
September	160,490	9,180	3,120	5,350	1.41	1.57
Water year 1940-41	978,760	9,180	960	2,682	.708	9.59
October 1941	175,270	8,620	3,550	5,654	1.49	1.72
November	149,890	8,070	3,480	4,996	1.32	1.47
December	108,940	4,960	2,350	3,514	.927	1.07
Calendar year 1941	1,190,460	9,180	960	3,262	.861	11.66
January 1942	81,940	3,550	2,040	2,643	.697	.80
February	71,680	3,120	2,000	2,560	.675	.70
March	102,240	7,000	2,160	3,298	.870	1.00
April	202,790	10,800	4,290	6,760	1.78	1.99
May	183,060	7,840	4,150	5,905	1.56	1.80
June	148,880	8,170	2,680	4,963	1.31	1.46
July	127,730	9,770	1,820	4,120	1.09	1.28
August	80,790	3,780	1,920	2,606	.688	.79
September	119,820	6,850	2,090	3,994	1.05	1.17
Water year 1941-42	1,553,030	10,800	1,820	4,255	1.12	15.23
October 1942	140,590	8,100	2,550	4,535	1.20	1.38
November	115,300	5,940	1,660	3,843	1.01	1.13
December	84,520	3,720	1,650	2,726	.719	.83
Calendar year 1942	1,459,340	10,800	1,650	3,998	1.05	14.31
January 1943	87,320	3,760	2,040	2,817	.743	.86
February	84,100	3,700	2,400	3,004	.793	.83
March	88,170	4,530	1,780	2,844	.750	.86
April	270,450	12,500	5,900	9,015	2.38	2.66
May	222,860	12,200	3,780	7,189	1.90	2.19
June	259,980	18,900	3,740	8,666	2.29	2.56
July	109,940	6,690	2,040	3,546	.936	1.08
August	87,120	3,360	2,160	2,810	.741	.85
September	68,300	2,960	1,720	2,277	.601	.67
Water year 1942-43	1,618,650	18,900	1,650	4,435	1.17	15.90

Monthly discharge, in second-feet, of Menominee River below Koss, Mich., 1940-46--Continued

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1943	69,310	2,640	1,800	2,236	0.590	0.68
November	80,540	4,490	1,650	2,685	.708	.79
December	58,020	2,280	1,360	1,872	.494	.57
Calendar year 1943	1,486,110	18,900	1,360	4,072	1.07	14.60
January 1944	55,970	2,880	1,440	1,805	.476	.55
February	52,920	2,890	1,450	1,825	.482	.52
March	59,330	2,580	1,400	1,914	.505	.58
April	91,840	6,260	1,580	3,061	.808	.90
May	169,010	8,380	3,520	5,452	1.44	1.66
June	156,660	8,310	3,610	5,222	1.38	1.54
July	66,700	3,460	1,560	2,152	.568	.65
August	47,372	2,120	882	1,528	.403	.46
September	57,810	3,000	1,200	1,927	.508	.57
Water year 1943-44	965,482	8,380	882	2,638	.696	9.47
October 1944	63,950	2,950	1,440	2,063	.544	.83
November	68,480	3,350	1,650	2,283	.602	.67
December	59,470	2,560	1,200	1,918	.508	.58
Calendar year 1944	949,512	8,380	882	2,594	.684	9.31
January 1945	53,760	2,110	1,440	1,734	.458	.53
February	51,540	2,210	1,340	1,841	.486	.51
March	147,600	10,800	1,540	4,761	1.26	1.45
April	201,660	9,210	5,190	6,722	1.77	1.98
May	151,830	9,640	1,840	4,898	1.29	1.49
June	153,800	9,760	2,740	5,127	1.35	1.51
July	86,530	4,040	1,460	2,785	.735	.85
August	56,080	2,320	1,340	1,809	.477	.55
September	74,950	3,560	1,820	2,498	.659	.74
Water year 1944-45	1,169,450	10,800	1,200	3,204	.845	11.49
October 1945	80,510	3,400	1,690	2,597	.685	.79
November	132,150	7,330	2,400	4,405	1.16	1.29
December	74,760	3,360	1,680	2,412	.636	.73
Calendar year 1945	1,264,970	10,800	1,340	3,466	.915	12.42
January 1946	83,460	3,450	1,680	2,692	.710	.82
February	69,010	2,900	1,800	2,465	.650	.88
March	163,580	10,900	2,160	5,277	1.39	1.60
April	111,880	4,810	3,000	3,729	.984	1.10
May	93,320	4,460	2,040	3,010	.794	.92
June	139,610	10,700	2,550	4,654	1.23	1.37
July	97,960	6,160	1,800	3,160	.834	.96
August	68,040	2,880	1,700	2,195	.579	.67
September	61,920	2,640	1,450	2,064	.545	.61
Water year 1945-46	1,176,200	10,900	1,450	3,222	.850	11.54

Menominee River near McAllister, Wis.

Location.- Water-stage recorder, lat. 45°19'20", long. 87°39'40", in sec. 17, T. 33 N., R. 23 E., 2¼ miles downstream from Little Cedar River, 2¾ miles east of McAllister, and 22 miles upstream from mouth.

Drainage area.- 4,020 square miles.

Records available.- March 1945 to September 1946.

Extremes (regulated).- Maximum discharge during year, 12,800 second-feet June 28 (gage height, 14.33 feet); minimum, 658 second-feet Sept. 2 (gage height, 7.43 feet).
1945-46: Maximum discharge, that of June 28, 1946; minimum, that of Sept. 2, 1946.

Remarks.- Records good except those for period of ice effect, which are fair. Flow regulated by many power plants and reservoirs above station.

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

8.3	1,500	9.5	3,060	12.0	7,700
8.6	1,850	10.0	3,820	13.0	9,900
9.0	2,360	11.0	5,530	14.2	12,500

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,110	2,300	3,660	2,350	2,700	2,800	5,150	3,510	3,820	6,820	2,910	2,030
2	2,560	2,980	3,580	2,000	2,700	2,800	4,970	3,280	3,140	5,730	2,840	1,900
3	2,490	4,290	2,840	1,800	2,700	2,900	4,970	2,980	3,060	7,260	2,560	1,790
4	2,910	5,150	2,770	2,300	2,500	2,400	5,150	2,910	2,560	6,380	2,420	1,440
5	3,440	4,620	3,510	2,800	2,100	2,300	4,790	2,910	3,060	4,970	2,560	1,610
6	3,140	3,740	2,910	3,300	2,600	2,800	4,790	2,490	2,770	4,130	2,100	2,300
7	3,280	4,130	3,510	3,600	2,640	2,900	4,970	2,980	2,770	4,290	2,360	1,560
8	2,770	3,970	3,510	3,400	2,920	3,100	4,620	3,140	3,280	4,130	2,630	1,910
9	2,910	5,530	3,510	3,300	2,900	3,300	4,790	3,210	4,450	3,140	2,360	1,970
10	3,060	7,040	2,300	3,400	3,000	3,480	4,790	2,980	4,970	3,660	2,420	1,910
11	3,660	7,700	2,160	3,400	2,600	3,000	4,620	3,140	5,150	4,450	a2,100	2,560
12	3,440	7,260	2,490	3,350	2,920	3,100	4,790	2,770	5,150	3,970	a1,900	2,630
13	3,740	7,920	3,280	3,400	2,920	3,300	4,290	2,840	5,530	3,820	a2,070	2,700
14	3,660	8,360	3,060	3,000	2,940	4,200	4,130	2,840	5,150	3,510	1,730	2,590
15	3,140	8,140	2,910	2,800	*2,980	4,900	3,580	2,770	4,620	3,060	2,160	2,280
16	2,300	8,360	2,500	2,900	3,020	5,800	3,580	2,700	3,970	2,300	2,490	2,360
17	3,060	7,260	2,400	*3,200	3,100	7,000	3,740	2,560	3,970	2,490	2,160	1,610
18	3,280	6,820	2,300	3,100	2,350	8,800	3,820	2,420	4,290	2,980	2,300	1,970
19	2,980	4,620	2,300	3,100	2,200	11,500	3,280	1,970	4,290	1,790	1,850	2,420
20	2,910	4,290	2,200	3,200	2,500	10,000	3,210	2,360	4,620	2,630	1,850	1,970
21	2,560	4,290	2,100	2,800	2,700	10,800	3,580	2,300	4,620	2,770	1,970	2,100
22	2,230	3,970	2,350	2,400	2,800	10,300	3,060	3,140	3,210	2,100	2,630	1,760
23	2,160	4,130	2,400	2,800	2,700	9,240	3,280	3,140	3,440	2,230	2,100	1,970
24	2,560	4,290	1,950	2,950	2,500	8,800	3,660	3,440	3,140	2,630	2,420	1,610
25	2,160	3,820	1,830	2,970	2,300	8,580	3,360	4,130	4,930	2,630	2,160	2,160
26	2,490	3,060	1,890	2,900	2,100	6,820	3,580	4,790	10,300	1,850	2,100	2,300
27	2,490	3,060	1,800	2,800	2,560	6,600	3,970	4,970	12,300	2,100	1,850	2,160
28	2,100	3,440	2,200	2,700	1,980	6,380	4,130	4,450	12,500	2,700	2,100	2,350
29	1,850	3,580	2,550	1,900	-	5,940	3,440	4,450	10,800	1,910	2,300	2,090
30	1,670	3,580	2,650	2,500	-	5,530	3,140	3,740	8,140	2,040	2,420	2,160
31	1,970	-	2,740	2,650	-	5,730	-	3,820	-	2,560	2,220	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	86,080	3,740	1,670	2,777	0.691	0.80
November	151,700	8,360	2,300	5,057	1.26	1.41
December	82,160	3,660	1,800	2,650	.659	.76
Calendar year	-	-	-	-	-	-
January	89,070	3,600	1,800	2,873	.715	.82
February	73,930	3,100	1,980	2,640	.657	.68
March	175,100	11,500	2,300	5,648	1.40	1.61
April	123,230	5,150	3,060	4,108	1.02	1.14
May	99,130	4,970	1,970	3,198	.796	.92
June	154,000	12,500	2,560	5,133	1.28	1.43
July	107,030	7,260	1,790	3,453	.859	.99
August	70,040	2,910	1,730	2,259	.562	.65
September	62,170	2,700	1,440	2,072	.515	.57
Water year 1945-46	1,273,640	12,500	1,440	3,489	.868	11.78

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for station below Koss.
Note.- Stage-discharge relation affected by ice Dec. 16 to Mar. 20 (gage heights from wire-weight gage readings Dec. 22 to Jan. 5, Jan. 15, 16, Jan. 23 to Feb. 14).

Paint River at Crystal Falls, Mich.

Location.- Water-stage recorder, lat. 46°07', long. 88°20', in sec. 20, T. 43 N., R. 32 W., 150 feet below municipal power plant at Crystal Falls and 13 miles upstream from Brule River. Datum of gage is 1,306.1 feet above mean sea level (Wisconsin Michigan Power Co. bench mark).

Drainage area.- 616 square miles.

Records available.- August 1944 to September 1946.

Extremes (regulated).- Maximum discharge during year, 4,050 second-feet Mar. 21 (gage height, 5.57 feet); minimum, 126 second-feet Sept. 2 (gage height, 1.75 feet); minimum daily, 225 second-feet Sept. 4.

1944-46: Maximum discharge, 4,160 second-feet Mar. 29, 1945; minimum, 36 second-feet Sept. 7, 1944 (gage height, 1.32 feet) (power plant shut down for measurement of leakage); minimum daily, 176 second-feet Aug. 27, 1944.

Remarks.- Records excellent except those for periods of ice effect, which are good, and those for periods of no gage-height record, which are fair. Diurnal fluctuation caused by power plant immediately above station.

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.1	231	3.3	1,000
2.3	309	4.1	1,770
2.5	407	4.8	2,610
2.8	600	5.2	3,300

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	433	*431	a290	313	296	919	433	600	1,620	287	233
2	528	603	437	a290	328	308	955	407	548	1,530	281	251
3	615	613	424	a290	310	305	1,110	402	504	1,320	294	236
4	612	563	390	a331	323	315	1,190	381	459	1,050	303	225
5	586	511	373	*337	326	306	1,190	402	401	854	317	228
6	537	529	388	406	340	313	1,160	407	414	701	298	236
7	539	564	392	606	398	349	1,120	407	578	637	286	258
8	603	641	404	630	397	368	1,050	397	792	718	264	260
9	634	856	397	584	390	370	1,000	381	658	694	306	336
10	582	819	314	537	366	364	919	365	551	628	325	365
11	540	716	b291	504	361	371	854	371	646	565	302	351
12	508	708	b293	462	356	364	782	355	710	524	304	335
13	492	875	b313	458	342	453	760	350	596	494	285	324
14	483	1,040	b315	405	347	625	741	340	537	447	267	310
15	456	912	b312	409	359	790	741	328	465	431	280	278
16	446	820	b300	406	328	946	716	317	450	392	257	275
17	415	738	b285	372	324	1,160	684	314	500	371	253	269
18	402	661	b283	374	341	1,610	651	314	535	352	272	250
19	400	595	b280	376	316	2,050	628	288	543	359	329	248
20	381	508	b263	343	310	2,160	604	335	510	341	310	270
21	364	565	b259	367	311	2,040	565	415	478	332	295	312
22	351	418	b266	359	303	2,100	558	476	478	340	297	297
23	338	411	b256	335	303	2,040	604	478	453	365	280	509
24	337	457	b263	339	304	1,760	597	628	1,600	349	275	318
25	348	502	b269	337	304	1,480	586	880	3,350	326	258	325
26	347	448	b283	351	298	1,270	536	860	3,040	297	262	325
27	353	466	a295	315	298	1,160	516	762	2,350	308	241	324
28	357	505	a295	318	296	1,090	478	660	1,820	264	257	403
29	348	469	a295	319	-	1,080	465	584	1,520	331	257	379
30	348	446	a290	319	-	1,030	436	503	1,370	350	260	380
31	348	-	a290	311	-	991	-	553	-	315	253	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	13,960	634	337	450	0.731	0.84
November	18,392	1,040	411	613	.995	1.11
December	9,946	437	256	321	.521	.60
Calendar year 1945	235,836	3,300	219	648	1.05	14.24
January	12,080	630	290	390	.633	.73
February	9,290	398	296	332	.539	.56
March	29,864	2,160	296	963	1.56	1.80
April	23,115	1,190	436	770	1.25	1.40
May	14,093	880	288	455	.739	.85
June	27,456	3,350	401	915	1.49	1.68
July	17,605	1,620	284	588	.922	1.08
August	8,755	329	241	282	.458	.53
September	8,870	403	225	296	.481	.54
Water year 1945-46	193,426	3,350	225	530	.880	11.88

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for nearby stations.
b Stage-discharge relation affected by ice.

Michigamme River near Crystal Falls, Mich.

Location.- Water-stage recorder, lat. 46°07', long. 88°13', in sec. 20, T. 43 N., R. 31 W., 5 miles downstream from Way Dam, 6 miles east of Crystal Falls, and 16 miles upstream from mouth.

Drainage area.- 670 square miles.

Records available.- August 1944 to September 1946.

Extremes (regulated).- Maximum discharge during year, 1,440 second-feet June 25 (gage height, 5.47 feet); minimum, 94 second-feet Nov. 12 (gage height, 1.96 feet).
1944-46: Maximum discharge, 2,930 second-feet Apr. 11, 1945 (gage height, 7.34 feet); minimum, that of Nov. 12, 1945.

Remarks.- Records excellent. Flow regulated by Way Reservoir.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

2.0	99	3.4	398
2.1	112	3.9	579
2.4	160	4.6	930
2.9	265	5.3	1,350

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	670	601	482	464	900	1,050	242	695	623	646	1,080	579
2	870	557	482	641	900	1,020	254	695	623	538	1,020	558
3	870	279	482	770	870	1,020	288	670	579	579	930	646
4	845	275	482	770	870	1,050	417	870	519	601	930	745
5	770	403	582	770	900	1,080	430	670	519	601	930	720
6	695	500	695	770	930	1,050	464	598	538	601	930	720
7	695	409	695	659	960	1,050	464	500	601	646	900	695
8	695	317	695	538	930	901	519	538	646	820	900	695
9	695	240	695	538	845	670	579	579	646	795	900	646
10	695	115	695	538	845	670	579	579	601	745	870	623
11	695	104	695	538	930	893	579	579	601	646	845	601
12	695	192	695	538	1,020	1,020	579	579	646	579	845	601
13	695	289	695	538	1,020	970	579	579	745	558	820	579
14	695	284	695	652	1,020	900	579	579	695	482	820	538
15	695	275	695	770	1,020	629	493	558	646	585	820	519
16	670	267	695	820	1,020	324	389	558	695	820	820	538
17	623	263	720	870	990	348	598	558	820	820	795	579
18	538	260	770	845	990	357	845	558	870	820	795	579
19	538	330	770	845	990	348	845	558	795	820	820	579
20	538	430	770	845	990	335	845	558	770	820	870	601
21	538	430	770	845	990	327	845	558	720	820	870	579
22	538	430	770	845	990	319	845	558	646	845	845	579
23	519	447	770	820	960	312	870	579	623	870	845	558
24	538	500	770	820	960	302	811	601	990	870	820	538
25	538	482	770	820	960	296	695	601	1,320	870	820	482
26	538	482	745	820	960	294	695	475	990	870	795	377
27	558	482	745	820	990	275	695	229	960	870	770	380
28	558	482	614	860	1,050	238	695	235	845	845	745	380
29	558	482	464	900	-	244	695	231	745	942	745	377
30	579	482	464	900	-	244	695	229	695	1,080	720	377
31	579	-	464	900	-	244	-	398	-	1,080	670	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	19,923	870	519	643		
November	11,089	601	104	370		
December	20,531	770	464	662		
Calendar year 1945	288,481	2,330	104	790		
January	23,069	900	464	744		
February	26,800	1,050	845	957		
March	18,780	1,080	238	606		
April	18,108	870	242	604		
May	16,552	695	229	534		
June	21,712	1,320	519	724		
July	23,484	1,080	482	758		
August	26,285	1,080	670	848		
September	16,968	745	377	566		
Water year 1945-46	243,301	1,320	104	667		

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Pine River at Pine River power plant, near Florence, Wis.

Location.- Lat. 45°49'40", long. 88°14'55", in sec. 28, T. 39 N., R. 18 E., at power plant of Wisconsin Michigan Power Co., 4 miles downstream from Popple River and 6½ miles south of Florence.

Drainage area.- 543 square miles.

Records available.- October 1923 to September 1946. January 1914 to September 1923 at site 4 miles upstream (drainage area, 511 square miles).

Average discharge.- 23 years (1923-46), 438 second-feet.

Extremes (regulated).- Maximum daily discharge during year, 1,830 second-feet June 27; minimum daily, 52 second-feet Sept. 6.
1923-46: Maximum daily discharge, 4,380 second-feet Apr. 9, 1929; no flow at times in 1924, 1926, 1927, 1930, 1931, 1933, 1940.

Remarks.- Records good except those for high stages, which are fair. Discharge determined from power-plant records. Flow regulated by power plant at station, but pondage is small and monthly discharge is very nearly natural flow.

Cooperation.- Records of daily discharge computed by Wisconsin Michigan Power Co. on basis of load-discharge rating of hydroelectric units as developed by Geological Survey, and gate ratings based on theoretical formulas. Rating of units checked within 7 percent by two discharge measurements made in 1945.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	356	292	325	234	312	208	620	376	432	1,120	208	156
2	467	602	280	208	208	241	619	351	225	958	296	81
3	484	620	280	286	230	250	594	312	364	918	207	185
4	520	609	280	195	208	208	620	312	312	698	273	188
5	429	619	280	191	312	208	611	364	312	598	307	161
6	371	580	260	401	208	260	624	364	312	527	182	52
7	391	624	146	531	312	303	611	350	415	498	182	208
8	508	804	a161	494	312	312	511	312	764	498	175	187
9	571	1,460	176	433	312	312	511	312	744	598	182	279
10	524	1,300	335	476	225	280	535	312	744	639	175	427
11	524	1,100	315	455	312	312	556	397	824	344	156	558
12	408	1,100	280	455	208	312	441	312	904	325	208	362
13	398	1,170	170	308	312	367	483	312	844	328	303	312
14	286	1,100	312	312	208	563	424	312	709	312	201	378
15	299	874	269	312	312	725	450	312	709	349	162	259
16	312	824	130	312	208	894	507	312	628	208	169	208
17	312	744	208	312	299	1,050	455	312	668	312	202	312
18	312	689	220	312	208	1,240	382	208	624	208	169	208
19	312	624	182	312	299	1,590	416	256	416	208	192	208
20	305	495	182	312	208	1,450	413	260	494	286	182	182
21	237	520	195	312	208	1,410	361	422	364	182	208	208
22	208	438	182	201	208	1,330	403	520	395	208	208	208
23	312	312	117	312	208	1,260	498	500	389	221	169	208
24	208	456	169	312	254	1,110	624	545	1,070	303	182	312
25	208	494	208	208	208	1,040	624	744	1,820	208	81	312
26	312	407	188	312	303	951	565	744	1,740	208	169	312
27	312	457	182	177	221	856	455	674	1,830	208	182	305
28	281	496	182	312	208	731	416	664	1,520	140	162	312
29	199	651	208	208	-	740	429	609	1,300	208	169	312
30	199	350	212	312	-	691	380	541	1,180	208	169	338
31	299	-	208	208	-	624	-	403	-	208	169	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,864	571	199	350	0.645	0.74
November	20,811	1,460	292	694	1.28	1.43
December	6,842	335	117	221	.407	.47
Calendar year 1945	162,378	1,680	33	445	.820	11.12
January	9,725	531	177	314	.578	.67
February	7,031	312	208	251	.462	.48
March	21,828	1,590	208	704	1.30	1.50
April	15,138	624	361	505	.930	1.04
May	12,724	744	208	410	.755	.87
June	23,053	1,830	225	768	1.41	1.57
July	12,234	1,120	140	395	.727	.84
August	5,979	307	81	193	.355	.41
September	7,738	558	52	258	.475	.53
Water year 1945-46	153,967	1,830	52	422	.777	10.55

a Discharge interpolated.

Pike River at Amberg, Wis.

Location.- Staff gage, lat. 45°29'50", long. 87°59'40", in sec. 21, T. 35 N., R. 20 E., 500 feet upstream from Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, a quarter of a mile south of Amberg, and 1¼ miles downstream from North Branch.

Drainage area.- 250 square miles.

Records available.- February 1914 to September 1946.

Average discharge.- 32 years, 230 second-feet.

Extremes.- Maximum discharge observed during year, 800 second-feet Mar. 17 (gage height, 4.02 feet); minimum discharge, 99 second-feet Sept. 3-5.

1914-46: Maximum discharge observed, 2,730 second-feet Apr. 10, 1922 (gage height, 7.68 feet, site and datum then in use), from rating curve extended above 1,100 second-feet; minimum observed, 26 second-feet Dec. 27, 1925 (gage height, 1.30 feet, site and datum then in use).

Remarks.- Records good except those for period of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	165	153	204	137	135	117	294	177	190	449	165	106
2	165	320	204	138	135	117	269	165	177	366	142	106
3	177	320	204	140	135	117	274	165	165	274	165	99
4	177	274	177	140	135	118	274	153	190	246	190	99
5	165	231	177	148	140	118	274	204	153	231	165	99
6	153	218	177	230	143	120	260	218	153	218	142	106
7	153	218	173	300	148	128	260	204	190	204	132	106
8	165	231	170	296	149	135	260	190	449	204	123	123
9	177	516	160	290	148	139	260	177	516	177	153	165
10	165	516	150	280	148	142	260	177	398	165	142	177
11	142	398	150	270	148	145	231	190	432	165	132	165
12	142	415	146	255	147	180	231	204	432	153	132	153
13	142	516	145	240	147	415	231	190	350	132	132	142
14	132	585	143	215	146	585	231	177	274	132	123	132
15	132	449	140	200	*144	655	231	177	231	132	123	132
16	123	432	138	195	140	727	231	165	216	132	114	123
17	123	366	138	*187	139	800	218	153	218	123	114	114
18	123	320	132	180	135	727	218	153	231	132	114	106
19	123	274	130	174	134	727	204	153	204	123	114	106
20	123	231	128	160	133	655	204	190	190	123	114	114
21	114	260	127	150	132	565	190	231	190	114	106	114
22	106	246	125	145	130	516	190	231	204	123	106	114
23	106	231	125	140	128	516	204	231	177	114	106	114
24	99	231	125	138	127	432	190	415	320	114	106	114
25	99	231	125	138	126	382	190	449	449	114	114	132
26	99	204	125	138	122	366	190	398	350	106	106	132
27	106	204	125	135	120	350	190	350	274	106	106	132
28	106	204	132	135	117	350	177	260	231	114	114	142
29	108	204	135	135	-	350	177	231	289	123	114	132
30	106	190	135	135	-	335	177	190	294	153	106	132
31	106	-	136	135	-	294	-	177	-	177	114	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,120	177	99	133	0.532	0.61
November	9,188	585	153	306	1.22	1.36
December	4,801	204	125	148	.592	.68
Calendar year 1945	79,766	1,010	81	219	.876	11.84
January	5,701	300	135	184	.736	.85
February	3,829	149	117	137	.548	.57
March	11,343	800	117	366	1.46	1.68
April	6,810	294	177	227	.908	1.01
May	6,745	449	153	218	.872	1.01
June	8,159	516	153	271	1.08	1.20
July	5,239	449	106	169	.676	.78
August	3,929	190	106	127	.508	.59
September	3,731	177	99	124	.496	.55
Water year 1945-46	73,375	800	99	201	.804	10.89

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 5 to Mar. 12.

Oconto River near Gillett, Wis.

Location.- Water-stage recorder, lat. 44°52', long. 88°18', in sec. 34, T. 28 N., R. 18 E., at highway bridge, 2 miles upstream from Christy Brook and 2½ miles south of Gillett.

Drainage area.- 678 square miles.

Records available.- June 1906 to March 1909, January 1914 to September 1946.

Average discharge.- 33 years (1908, 1914-46), 600 second-feet.

Extremes.- Maximum discharge during year, 4,420 second-feet Mar. 17 (gage height, 6.80 feet); minimum, 215 second-feet Sept. 4, 5 (gage height, 0.66 foot).

1906-9, 1914-46: Maximum discharge observed, 6,470 second-feet Apr. 11, 1922, caused by failure of dam at Pulcifer, 4 miles upstream (gage height, 9.1 feet); minimum, 93 second-feet Nov. 26, 1941 (gage height, 0.13 foot); flow retarded by anchor ice above station.

Remarks.- Records excellent except those for period of ice effect, which are fair.

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.7	227	1.9	760	3.5	1,800
1.0	340	2.2	912	4.0	2,180
1.3	468	2.6	1,150	5.0	2,980
1.6	610	3.0	1,440	6.4	4,100

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	428	432	610	355	380	340	1,020	423	533	860	393	238
2	450	835	610	360	380	350	938	419	509	912	360	230
3	454	860	610	365	380	370	886	406	473	938	344	224
4	441	860	586	380	380	390	835	397	436	810	324	221
5	423	835	543	520	390	410	810	402	428	685	312	218
6	406	760	533	900	420	800	785	414	419	586	296	224
7	402	710	562	900	430	860	735	397	423	538	289	227
8	406	760	586	900	430	860	685	402	505	528	281	230
9	414	938	460	890	420	800	685	406	610	562	277	292
10	410	1,020	350	860	410	740	660	406	635	586	273	432
11	393	1,080	300	840	400	680	660	402	685	586	277	468
12	376	1,150	330	800	390	740	635	414	735	586	273	432
13	364	1,260	370	720	380	940	610	419	785	538	270	384
14	356	1,260	390	600	*372	1,100	610	419	785	486	270	352
15	348	1,400	400	450	360	1,500	610	410	635	446	270	332
16	344	1,480	400	*488	350	2,660	586	393	562	414	262	316
17	344	1,400	370	510	340	4,100	562	384	528	393	262	296
18	356	1,260	360	500	330	3,300	548	389	514	384	255	285
19	352	1,120	350	480	330	2,100	528	419	562	397	241	277
20	340	1,020	340	460	320	1,800	514	436	610	364	234	266
21	328	938	330	440	320	1,620	500	500	562	344	230	266
22	324	860	310	420	320	1,510	496	524	543	340	227	262
23	320	810	305	410	320	1,440	491	524	509	324	224	262
24	316	785	310	410	330	1,330	486	710	562	320	227	262
25	316	735	310	410	330	1,220	468	785	685	312	227	285
26	324	710	310	400	330	1,180	464	835	785	300	227	324
27	332	660	310	390	335	1,150	450	860	835	292	224	340
28	332	660	350	390	340	1,150	441	810	810	281	227	344
29	332	660	350	380	-	1,180	432	710	710	281	238	332
30	328	635	355	380	-	1,150	428	610	760	356	244	316
31	328	-	355	380	-	1,080	-	586	-	432	244	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	11,387	454	316	367	0.541	0.62
November	27,893	1,480	432	930	1.37	1.53
December	12,655	610	300	408	.602	.69
Calendar year 1945	194,197	2,000	220	532	.785	10.65
January	16,688	900	355	538	.794	.92
February	10,217	430	320	365	.538	.56
March	38,850	4,100	340	1,253	1.85	2.13
April	18,558	1,020	428	619	.913	1.02
May	15,611	860	384	504	.743	.86
June	18,133	835	419	604	.891	.99
July	15,181	938	281	490	.723	.83
August	8,302	393	224	268	.395	.46
September	8,937	468	218	298	.440	.49
Water year 1945-46	202,412	4,100	218	555	.819	11.10

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 9 to Mar. 15.

Wheeler Lake near Lakewood, Wis.

Location.- Staff gage, lat. 45°19', long. 88°29', in sec. 27, T. 33 N., R. 16 E., on southwest shore of lake at Berglund's Resort, 3½ miles east of Lakewood.
Drainage area.- 2 square miles.
Records available.- August 1936 to September 1946 (fragmentary).
Extremes.- Maximum elevation observed during year, 95.64 feet Mar. 8; minimum observed, 94.73 feet Sept. 6.
1936-46: Maximum elevation observed, 96.50 feet Oct. 5, Nov. 9, 1943; minimum observed, 93.64 feet Oct. 9, 12, 1937.
Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.92	-	-	-	5.34	5.52	5.29	-	-	5.33	-	-
2	-	4.90	-	-	-	-	-	-	-	-	5.09	4.75
3	-	-	5.10	-	-	-	-	4.97	4.83	-	-	-
4	-	-	-	5.16	5.34	5.52	-	-	-	-	-	-
5	4.88	4.90	-	-	-	-	-	-	-	5.33	5.09	-
6	-	-	-	-	-	-	5.29	4.97	-	-	-	4.73
7	-	-	5.10	5.20	-	-	-	4.87	4.87	-	-	-
8	4.88	-	-	-	5.38	5.64	5.29	-	-	3.33	-	-
9	-	5.00	-	-	-	-	-	-	-	-	5.03	4.83
10	-	-	5.10	-	-	-	-	4.97	4.87	-	-	-
11	-	-	-	5.34	5.38	5.62	-	-	-	-	-	-
12	4.86	5.00	-	-	-	-	5.19	-	-	5.31	5.03	-
13	-	-	-	-	-	-	-	4.97	-	-	-	4.83
14	-	-	5.10	5.34	-	-	-	-	4.87	-	-	-
15	4.86	-	-	-	5.36	-	5.17	-	-	5.29	-	-
16	-	-	-	-	-	5.48	-	-	-	-	4.93	4.83
17	-	5.10	5.10	-	-	-	-	4.85	4.87	-	-	-
18	-	-	-	5.34	5.36	5.44	-	-	-	-	-	-
19	4.80	5.10	-	-	-	-	5.15	-	-	5.23	4.93	-
20	-	-	-	-	-	-	-	4.85	-	-	-	4.79
21	-	-	5.10	5.34	-	-	-	-	5.11	-	-	-
22	4.80	-	-	-	5.36	5.37	5.15	-	-	5.23	-	-
23	-	5.10	-	-	-	-	-	-	-	-	4.76	4.79
24	-	-	5.10	-	-	-	-	4.93	5.29	-	-	-
25	-	-	-	5.34	5.38	5.37	-	-	-	-	-	-
26	4.78	5.10	-	-	-	-	5.15	-	-	5.07	4.76	-
27	-	-	-	-	-	-	-	4.93	-	-	-	4.79
28	-	-	5.16	5.34	-	-	-	-	5.33	-	-	-
29	4.78	-	-	-	-	5.29	5.15	-	-	5.03	-	-
30	-	5.10	-	-	-	-	-	-	-	-	4.75	4.79
31	-	-	5.16	-	-	-	-	4.83	-	-	-	-

Note.- Add 90.00 feet to obtain elevation above datum assumed for this lake by Public Service Commission of Wisconsin.

Boot Lake near Townsend, Wis.

Location.- Staff gage, lat. 45°15', long. 88°39', in sec. 9, T. 32 N., R. 15 E., on narrow neck of land cut by a small channel extending across north end of lake, 5½ miles southwest of Townsend.
Drainage area.- 1.5 square miles.
Records available.- August 1936 to September 1946 (fragmentary).
Extremes.- Maximum elevation observed during year, 96.23 feet Apr. 6; minimum observed, 95.37 feet Sept. 23.
1936-46: Maximum elevation observed, 98.25 feet June 28, 1943; minimum observed, 94.69 feet Oct. 31, Nov. 7, 1936.
Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1945 to September 1946

Date	Elevation	Date	Elevation	Date	Elevation	Date	Elevation
Oct. 8	95.62	Apr. 12	96.17	June 18	95.94	Aug. 4	95.79
25	95.49	14	96.15	22	95.94	7	95.72
Nov. 4	95.56	18	96.05	24	96.04	12	95.70
7	95.60	26	96.03	28	96.05	16	95.68
9	95.70	28	96.02	30	96.15	20	95.60
13	95.80	May 3	96.01	July 2	96.15	29	95.60
20	95.80	7	95.85	5	96.12	31	95.55
27	95.80	17	95.83	10	96.12	Sept. 3	95.50
Dec. 4	95.80	22	95.84	14	96.08	8	95.40
14	95.80	27	95.84	17	96.04	13	95.40
18	95.80	June 1	95.85	21	95.98	21	95.38
27	95.80	2	95.88	23	95.90	23	95.37
Apr. 6	96.23	7	95.87	28	95.82	25	95.41
8	96.21	12	95.90	31	95.55	30	95.40

Fox River at Berlin, Wis.

Location.- Staff gage, lat. 43°57'05", long. 88°57'30", in sec. 16, T. 17 N., R. 13 E., at Government lock and dam at Berlin, 2½ miles upstream from Barnes Creek.

Drainage area.- 1,430 square miles.

Records available.- January 1898 to September 1946.

Average discharge.- 48 years, 1,123 second-feet.

Extremes.- Maximum discharge observed during year, 6,900 second-feet Mar. 17, 18 (gage height, 15.5 feet); minimum daily, 489 second-feet Aug. 27-31, Sept. 3-5.
1898-1946: Maximum discharge observed, that of Mar. 17, 18, 1946; minimum daily, 250 second-feet Feb. 1-4, 1900.

Remarks.- Records good except those for period of ice effect, which are fair. Gage read once daily.

Cooperation.- Gage-height record furnished by Corps of Engineers, War Department.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.
1	1,430	809	1,280	760	980	920	3,540	845	774	1,080	617	512
2	1,480	920	1,280	760	960	940	3,300	774	707	1,040	589	512
3	1,480	1,000	1,260	770	930	970	3,230	740	740	1,000	589	489
4	1,480	1,040	1,290	780	920	1,050	3,090	676	740	1,000	646	489
5	1,430	1,040	1,340	840	910	1,200	2,950	707	707	1,000	646	489
6	1,430	1,040	1,400	1,080	1,020	1,400	2,810	809	707	960	646	562
7	1,380	1,040	1,450	1,500	1,040	2,000	2,740	809	707	960	646	617
8	1,330	1,130	1,440	1,700	1,030	3,000	2,670	809	676	920	589	646
9	1,230	1,230	1,390	1,800	1,020	2,950	2,600	740	646	882	589	646
10	1,180	1,330	1,390	1,800	1,000	3,000	2,530	740	740	645	562	676
11	1,080	1,330	1,390	1,750	*969	3,100	2,350	536	1,180	845	562	676
12	1,040	1,380	1,380	1,700	960	3,500	2,230	512	1,330	809	562	707
13	1,040	1,380	1,300	1,650	950	4,540	2,170	512	1,430	774	562	707
14	960	1,430	1,200	1,600	940	5,460	2,110	512	1,480	774	562	676
15	920	1,480	1,140	1,560	940	6,160	2,050	512	1,580	740	536	676
16	882	1,480	1,070	1,530	930	6,460	1,870	512	1,630	676	512	676
17	882	1,460	1,000	1,510	930	6,900	1,750	489	1,630	707	536	676
18	882	1,480	940	1,490	930	6,900	1,690	489	1,630	707	536	676
19	882	1,480	870	*1,450	920	6,790	1,580	536	1,530	707	536	646
20	882	1,430	830	1,450	920	6,680	1,480	589	1,430	676	512	676
21	662	1,430	800	1,450	920	6,460	1,330	617	1,380	676	536	676
22	645	1,330	770	1,410	910	6,160	1,280	646	1,330	676	536	676
23	809	1,180	750	1,390	920	5,960	1,230	676	1,260	646	512	707
24	809	1,130	740	1,360	910	5,760	1,180	774	1,130	617	512	740
25	809	1,150	730	1,300	910	5,460	1,000	882	1,040	617	512	740
26	809	1,200	720	1,260	910	5,080	960	920	1,000	617	512	740
27	809	1,210	720	1,200	900	4,900	920	960	920	617	489	740
28	809	1,210	740	1,170	900	4,540	845	960	882	589	489	707
29	809	1,200	760	1,100	-	4,180	882	920	845	562	489	707
30	809	1,220	760	1,070	-	3,860	882	920	960	646	489	740
31	774	-	760	1,000	-	3,700	-	882	-	646	489	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	32,273	1,480	774	1,041	0.728	0.84
November	37,189	1,480	809	1,240	.867	.97
December	32,890	1,450	720	1,061	.742	.86
Calendar year 1945	421,055	3,460	490	1,154	.807	10.96
January	41,190	1,800	760	1,329	.929	1.07
February	26,479	1,040	900	946	.662	.69
March	130,080	6,900	920	4,196	2.93	3.38
April	59,249	3,540	645	1,975	1.38	1.54
May	22,005	960	489	710	.497	.57
June	32,761	1,630	846	1,092	.764	.65
July	24,011	1,080	562	775	.542	.62
August	17,100	646	489	552	.388	.44
September	19,603	740	489	653	.457	.51
Water year 1945-46	474,830	6,900	489	1,301	.910	12.34

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 25 to Mar. 12.

Lake Winnebago at Oshkosh, Wis.

Location.- Staff gage, lat. 44°00'40", long. 88°32'00", in sec. 24, T. 18 N., R. 17 E., in mouth of upper Fox River at Chicago & Northwestern Railroad bridge, 0.2 mile downstream from Main Street Bridge in Oshkosh and 18 miles up the lake from Menasha Dam and outlet. Datum of gage, 745.05 feet above mean tide at New York City (levels by Corps of Engineers, War Department). Prior to 1882 lake levels were referred to Deuchman gage at lake outlet at Menasha Dam. Datum of Deuchman gage, which is still in existence, is 745.00 feet above mean tide at New York City.

Drainage area.- 6,030 square miles at lake outlet at Menasha Dam.

Records available.- October 1938 to September 1946. Records from 1857 to 1938 in files of Corps of Engineers, War Department. A report on Fox River by Corps of Engineers, War Department, is published as House Document No. 146, 67th Congress, 2d session.

Extremes.- Maximum gage height observed during year, 3.38 feet Mar. 27, 31; minimum observed, 1.23 feet Mar. 3, 4.

1857-1946: Maximum gage height observed, 5.33 feet (Deuchman gage) Nov. 8, 1881; minimum observed, -2.00 feet (Deuchman gage) Nov. 28, 1891.

Remarks.- Lake elevations controlled by dams at Menasha and Neenah which are operated in the interest of navigation. Crests of both dams are at elevation 746.73 feet. Present limits of regulation are from 21½ inches above crest of Menasha Dam down to crest during navigation season, plus additional 18 to 24 inches below the crest during winter. Oshkosh staff gage gives true level of lake while Deuchman gage readings are affected by loss of head in channel between lake and dam. Gage read once daily.

Cooperation.- Records furnished by Corps of Engineers, War Department.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.35	2.04	2.85	2.40	2.04	1.27	3.35	2.73	2.85	3.25	2.77	2.29
2	2.29	1.98	2.85	2.38	2.00	1.25	3.17	2.67	2.88	3.27	2.73	2.25
3	2.33	1.96	2.88	2.35	1.96	1.23	3.19	2.77	2.90	3.23	2.71	2.19
4	2.31	2.02	2.92	2.33	1.92	1.23	2.88	2.69	2.92	3.19	2.73	2.15
5	2.33	2.10	2.94	2.38	1.88	1.27	3.15	2.71	2.92	3.17	2.73	2.17
6	2.29	2.17	2.92	2.50	1.90	1.33	3.10	2.73	3.00	3.17	2.69	1.96
7	2.29	2.19	2.90	2.56	1.85	1.50	3.00	2.73	2.96	3.15	2.67	2.29
8	2.29	2.23	2.90	2.58	1.83	1.56	2.90	2.69	2.90	3.13	2.63	2.19
9	2.31	2.17	2.90	2.60	1.79	1.73	2.94	2.69	2.88	3.17	2.92	2.17
10	2.25	2.33	2.88	2.65	1.75	1.73	2.90	2.69	2.98	3.15	2.60	1.88
11	2.25	2.35	2.83	2.63	1.71	1.71	2.85	2.71	3.15	3.15	2.58	2.21
12	2.23	2.38	2.83	2.67	1.68	1.73	2.88	2.67	3.13	3.15	2.58	2.25
13	2.21	2.13	2.81	2.65	1.95	1.79	2.88	2.63	3.08	3.08	2.50	2.25
14	2.21	2.42	2.79	2.60	1.63	1.92	2.85	2.56	3.02	3.08	2.50	2.19
15	2.19	2.54	2.75	2.58	1.60	2.02	2.75	2.63	3.08	3.08	2.50	2.19
16	2.17	2.50	2.73	2.54	1.58	2.19	2.92	2.65	3.04	3.02	2.50	2.19
17	2.17	2.52	2.71	2.50	1.56	2.33	2.90	2.60	3.00	2.98	2.67	2.19
18	2.15	2.56	2.67	2.48	1.52	2.50	2.83	2.54	3.13	3.00	2.58	2.21
19	2.08	2.63	2.67	2.46	1.50	2.89	2.92	2.58	3.10	2.92	2.54	2.21
20	2.10	2.67	2.65	2.44	1.46	2.88	2.88	2.60	3.06	2.96	2.56	2.25
21	2.10	2.89	2.60	2.42	1.46	3.02	2.85	2.56	3.06	2.94	2.50	2.23
22	2.10	2.67	2.58	2.40	1.42	3.17	2.83	2.65	3.08	2.92	2.52	2.21
23	2.13	2.67	2.56	2.38	1.38	3.23	2.90	2.60	3.00	2.90	2.48	2.17
24	2.10	2.81	2.54	2.33	1.35	3.25	2.90	2.71	2.94	2.83	2.46	2.19
25	2.06	2.79	2.54	2.31	1.33	3.31	2.94	2.81	3.02	2.83	2.44	2.13
26	2.02	2.77	2.54	2.27	1.31	3.27	2.90	2.81	3.04	2.79	2.42	2.13
27	2.06	2.90	2.52	2.23	1.29	3.38	2.83	2.81	3.06	2.73	2.38	2.08
28	2.04	2.90	2.50	2.19	1.27	3.33	2.81	2.88	3.02	2.73	2.31	2.10
29	2.02	2.85	2.50	2.15	-	3.33	2.79	2.88	3.15	2.71	2.31	2.13
30	2.06	2.83	2.46	2.10	-	3.35	2.81	2.85	3.15	2.81	2.31	2.15
31	2.00	-	2.42	2.08	-	3.38	-	2.83	-	2.83	2.29	-

Fox River at Rapide Croche Dam, near Wrightstown, Wis.

Location.- Lat. 44°19', long. 88°12', in sec. 4, T. 21 N., R. 19 E., at Rapide Croche Dam, 2 miles upstream from Wrightstown.

Drainage area.- 6,150 square miles.

Records available.- March 1896 to September 1946.

Average discharge.- 50 years, 4,317 second-feet.

Extremes (regulated).- Maximum daily discharge during year, 21,300 second-feet Mar. 27; minimum daily, 1,660 second-feet Sept. 15, 30.
1918-46: Maximum daily discharge, 21,300 second-feet June 6, 1943, Mar. 27, 1946; minimum daily, 138 second-feet Aug. 2, 1936.

Remarks.- Records good. Flow regulated by storage in Lake Winnebago (see preceding page).

Cooperation.- Figures of daily discharge (computed from power-plant records) furnished by Corps of Engineers, War Department; eight discharge measurements made and records reviewed by Geological Survey.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,730	2,670	5,170	4,480	5,990	4,330	15,600	3,250	2,530	2,980	2,900	1,880
2	3,690	2,640	5,090	4,430	7,680	4,400	15,100	3,370	2,710	6,250	2,960	1,700
3	3,610	2,720	4,560	4,630	6,390	4,570	15,200	3,120	3,380	7,530	3,230	2,550
4	4,140	2,400	4,300	4,660	6,060	4,240	15,000	2,400	3,520	6,270	2,420	2,430
5	3,900	2,600	5,000	5,030	6,520	4,470	14,900	3,450	3,570	7,130	3,020	2,630
6	3,590	2,640	5,200	5,940	6,650	7,990	15,000	3,030	3,810	7,240	2,740	2,560
7	3,290	2,840	5,260	4,700	5,260	5,230	15,300	2,980	3,690	7,410	2,730	2,110
8	3,320	2,940	5,190	4,880	5,380	5,400	12,000	3,230	3,530	6,080	2,860	1,790
9	3,510	2,890	3,790	4,720	5,120	7,020	9,430	3,190	3,030	4,780	2,900	2,240
10	3,720	2,830	5,830	5,540	5,240	6,990	9,580	3,080	4,090	4,950	2,390	2,240
11	3,880	2,770	5,660	5,440	4,710	7,140	6,730	3,020	6,690	4,740	2,000	2,260
12	3,530	2,870	5,400	6,690	5,300	7,320	7,020	2,480	8,780	4,560	2,640	2,140
13	3,210	3,020	5,260	7,910	5,330	8,910	7,500	3,120	8,610	4,650	2,620	2,300
14	3,130	2,800	5,100	7,500	4,850	8,660	7,070	3,210	8,300	3,420	2,630	2,430
15	3,280	2,960	4,870	6,920	4,900	8,520	6,130	2,920	6,420	2,920	2,530	1,660
16	3,370	3,310	5,080	7,020	5,440	8,470	5,050	2,560	6,420	3,500	2,480	2,160
17	3,610	2,860	4,810	6,990	5,440	8,690	4,790	2,800	5,760	3,610	2,810	2,250
18	3,270	3,030	5,190	6,880	4,570	9,020	3,490	2,710	4,280	3,410	2,280	2,270
19	2,490	2,970	5,120	6,660	5,040	9,580	3,990	2,440	4,400	3,300	2,130	2,180
20	2,480	4,180	5,100	6,600	5,000	10,800	3,400	2,540	4,840	3,300	2,790	2,280
21	1,930	4,280	4,830	5,810	4,540	12,100	3,460	2,720	4,910	2,860	2,150	2,220
22	2,760	3,830	4,740	7,030	4,610	12,500	3,680	2,820	4,910	3,000	2,630	2,220
23	2,650	4,150	4,850	7,200	4,600	14,600	3,360	3,440	5,020	3,200	2,230	1,770
24	2,570	4,200	3,560	6,750	4,560	17,600	3,790	3,280	4,760	2,900	2,480	2,290
25	2,720	3,970	3,940	4,140	4,240	20,100	3,350	3,010	3,390	3,060	2,060	2,180
26	2,580	3,980	5,280	5,620	4,260	20,700	3,370	2,460	3,380	3,090	2,280	1,990
27	2,570	3,940	4,700	7,560	4,460	21,300	3,130	2,930	3,620	3,160	2,510	2,320
28	1,900	3,830	4,630	6,860	4,360	20,700	3,420	3,300	3,620	2,860	2,190	1,960
29	2,690	4,680	4,720	6,710	-	19,100	3,310	3,430	3,590	2,830	2,380	2,110
30	2,660	5,030	5,060	6,690	-	17,700	3,350	3,230	3,880	3,050	2,270	1,660
31	2,520	-	4,320	6,390	-	16,200	-	2,580	-	2,930	2,390	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	95,300	4,140	1,900	3,074	0.500	0.58
November	99,830	5,030	2,400	3,328	.541	.60
December	151,610	5,830	3,560	4,891	.795	.92
Calendar year 1945	1,546,710	15,800	1,570	4,238	.689	9.36
January	188,380	7,910	4,140	6,077	.988	1.14
February	146,500	7,680	4,240	5,232	.851	.89
March	334,350	21,300	4,240	10,790	1.75	2.02
April	226,500	15,600	3,130	7,550	1.23	1.37
May	92,100	3,450	2,400	2,971	.483	.56
June	139,440	8,780	2,530	4,648	.756	.84
July	130,970	7,530	2,830	4,225	.687	.79
August	78,630	3,230	2,000	2,536	.412	.48
September	64,780	2,630	1,660	2,159	.351	.39
Water year 1945-46	1,748,390	21,300	1,660	4,790	.779	10.58

Silver Lake at Portage, Wis.

Location.- Staff gage, lat. 43°33', long. 89°29', in sec. 6, T. 12 N., R. 9 E., at ice hoist of C. Smith & Son, at southeast end of lake.
Drainage area.- 1 square mile.
Records available.- August 1930 to September 1946 (fragmentary).
Extremes.- Maximum elevation observed during year, 93.09 feet Mar. 24; minimum observed, 92.34 feet Aug. 31.
1936-46: Maximum elevation observed, 93.10 feet June 23, 1944; minimum observed, 90.85 feet Aug. 22, 24, 1937.
Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, of Silver Lake at Portage, Wis., water year October 1945 to September 1946

Date	Elevation	Date	Elevation	Date	Elevation	Date	Elevation	Date	Elevation
Oct. 6	7.84	Dec. 2	7.80	May 11	7.83	June 29	7.84	Aug. 23	7.36
13	7.77	8	7.85	18	7.79	July 6	7.74	31	7.34
21	7.72	Mar. 24	8.09	25	7.88	13	7.66	Sept. 8	7.38
27	7.73	Apr. 7	7.94	June 2	7.81	20	7.64	15	7.37
Nov. 3	7.72	14	7.90	9	7.75	27	7.57	21	7.35
10	7.78	20	7.89	15	7.85	Aug. 4	7.57	29	7.40
16	7.75	28	7.85	16	7.85	10	7.50		
24	7.75	May 5	7.85	23	7.84	17	7.50		

Note.- Add 85 feet to obtain elevation above datum assumed for this lake by Public Service Commission of Wisconsin.

Wolf River above West Branch Wolf River, Wis.

Location.- Chain gage, lat. 44°55', long. 88°39', in E½ sec. 3, T. 28 N., R. 15 E., half a mile upstream from West Branch Wolf River and 4 miles north of Keshena. Datum of gage is 856.57 feet above mean sea level (levels by Wisconsin Power & Light Co.).

Drainage area.- 633 square miles.

Records available.- March 1928 to September 1946.

Average discharge.- 18 years, 587 second-feet.

Extremes.- Maximum discharge observed during year, 2,260 second-feet Mar. 19 (gage height, 5.65 feet); minimum discharge observed, 333 second-feet Sept. 5 (gage height, 1.82 feet).

1928-46: Maximum discharge observed, 2,580 second-feet Apr. 8, 1929 (gage height, 6.10 feet), from rating curve extended above 1,600 second-feet; minimum observed, 199 second-feet Feb. 20, 1936.

Remarks.- Records good except those for period of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	538	661	619	470	470	440	988	500	578	1,250	538	380
2	538	841	619	480	470	440	938	500	538	1,150	538	348
3	538	794	538	490	470	450	889	500	538	1,090	578	348
4	538	704	578	520	480	450	841	500	500	1,090	578	348
5	538	619	661	550	490	460	841	500	500	1,090	538	333
6	500	704	578	580	490	490	794	500	500	988	500	363
7	500	661	619	620	500	540	748	500	500	988	500	363
8	500	748	619	650	490	580	748	464	661	1,040	464	348
9	500	988	661	650	490	620	704	464	661	988	464	500
10	500	1,040	600	630	490	640	704	464	704	889	464	578
11	464	988	500	610	490	640	661	500	889	889	464	578
12	464	1,040	450	600	490	670	619	500	938	841	430	500
13	464	1,310	440	600	*490	740	619	500	988	794	430	464
14	464	1,310	440	600	480	900	619	500	988	748	413	430
15	430	1,250	440	600	480	1,240	619	500	988	704	413	430
16	430	1,150	440	*593	470	1,770	619	464	938	661	413	413
17	430	1,090	450	600	470	2,010	619	464	938	661	413	413
18	413	988	480	600	460	2,140	619	500	938	661	380	396
19	413	988	460	590	460	2,260	578	578	841	619	363	396
20	413	988	470	590	450	1,710	578	578	794	578	363	396
21	413	938	470	580	450	1,540	578	619	794	538	363	430
22	413	841	470	560	440	1,540	578	619	794	500	363	430
23	396	889	470	550	440	1,370	578	619	704	500	348	413
24	413	841	460	540	440	1,310	578	794	1,040	464	348	413
25	430	841	460	540	430	1,200	578	1,040	1,310	464	348	500
26	430	794	450	530	430	1,200	538	988	1,310	464	348	464
27	430	704	450	520	430	1,200	538	841	1,250	464	348	464
28	430	748	450	520	440	1,150	538	748	1,200	464	363	464
29	430	704	450	510	-	1,090	538	704	1,150	464	396	464
30	413	661	460	500	-	1,040	538	661	1,250	538	396	464
31	396	-	460	480	-	988	-	619	-	538	380	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	14,169	538	396	457	0.722	0.83
November	26,823	1,310	619	894	1.41	1.57
December	15,692	661	440	506	.799	.92
Calendar year 1945	230,005	1,770	275	630	.995	13.48
January	17,453	650	470	563	.889	1.02
February	13,080	500	430	467	.738	.77
March	32,818	2,260	440	1,059	1.67	1.92
April	19,925	988	538	664	1.05	1.17
May	18,228	1,040	464	588	.929	1.07
June	25,722	1,310	500	857	1.35	1.51
July	23,117	1,250	464	746	1.18	1.36
August	13,245	578	348	427	.675	.78
September	12,831	578	333	428	.676	.75
Water year 1945-46	233,103	2,260	333	639	1.01	13.67

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 10 to Mar. 15 (no gage-height record Dec. 10, Jan 6, 15, Jan. 20 to Feb. 12; discharge computed on basis of records for station at Keshena Falls).

Wolf River at Keshena Falls, Wis.

Location.- Water-stage recorder, lat. 44°53', long. 88°39', in E½ sec. 22, T. 28 N., R. 15 E., 500 feet downstream from Keshena Falls, 1½ miles upstream from Keshena, and 2½ miles downstream from West Branch.

Drainage area.- 812 square miles.

Records available.- March 1928 to September 1946. May 1907 to March 1909 and February 1911 to March 1928 at site at Keshena, 1½ miles downstream.

Average discharge.- 36 years (1907-8, 1911-46), 797 second-feet.

Extremes.- Maximum discharge during year, 2,420 second-feet Mar. 18; maximum gage height, 9.70 feet Nov. 27 (backwater from ice); minimum discharge, 404 second-feet Sept. 4 (gage height, 5.35 feet).

1907-9, 1911-46: Maximum discharge observed, 4,390 second-feet Apr. 10, 1922, from rating curve extended above 2,100 second-feet; minimum discharge, 91 second-feet Dec. 22, 1939 (gage height, 4.67 feet), result of low temperature.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

5.4	431	6.7	1,470
5.6	549	7.0	1,740
5.9	760	7.3	2,040
6.3	1,110	7.6	2,360

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	h699	h963	809	530	540	520	1,220	635	752	1,520	649	477
2	a699	h1,200	a770	550	540	520	1,160	635	722	1,420	670	465
3	a699	h1,150	h730	570	540	520	1,110	614	692	1,340	670	454
4	a699	h1,020	h760	590	560	530	1,070	614	628	1,240	692	437
5	a670	h842	h809	630	580	540	1,050	656	628	1,190	649	442
6	a650	h894	h768	700	560	560	1,050	642	601	1,160	601	454
7	a650	876	h785	760	580	600	992	601	649	1,170	608	448
8	a650	1,010	h809	820	590	680	946	608	868	1,280	562	460
9	a640	1,420	h776	860	600	690	911	582	859	1,280	543	677
10	h628	1,520	640	800	620	690	868	601	919	1,150	549	776
11	a600	1,340	540	760	620	680	826	621	1,130	1,160	575	768
12	a580	1,340	480	760	620	720	809	649	1,230	1,030	556	663
13	a550	1,700	460	760	*626	860	801	642	1,240	956	518	588
14	h518	1,790	460	750	620	1,300	809	642	1,160	911	506	531
15	a520	1,650	470	*740	620	1,700	801	614	1,150	868	488	537
16	a520	1,420	500	740	620	2,090	785	608	1,100	801	506	537
17	a530	1,340	510	740	610	2,200	760	588	1,060	776	494	500
18	a540	1,270	520	740	600	2,360	752	628	1,060	760	512	500
19	a540	1,220	520	730	590	2,200	730	730	1,000	745	488	488
20	a540	1,140	520	730	560	2,200	730	785	956	730	460	500
21	a540	1,150	520	720	550	1,990	714	817	956	699	448	531
22	h549	1,050	520	700	540	1,940	714	793	911	663	442	549
23	a560	965	510	660	540	1,700	714	851	894	614	442	531
24	a560	960	510	640	540	1,560	722	1,100	1,340	588	437	562
25	h575	940	500	620	540	1,520	707	1,420	1,740	568	460	642
26	h588	920	490	620	540	1,600	677	1,340	1,650	556	465	601
27	h575	900	490	620	540	1,600	684	1,090	1,470	543	442	601
28	h562	880	490	620	530	1,520	677	946	1,470	575	482	588
29	h562	860	500	610	-	1,420	670	834	1,380	649	482	601
30	h549	842	510	580	-	1,340	635	809	1,520	649	471	582
31	h537	-	520	560	-	1,280	-	793	-	635	460	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	18,279	699	518	590	0.727	0.84
November	34,592	1,790	842	1,153	1.42	1.58
December	18,196	809	460	587	.723	.83
Calendar year 1945	292,504	2,090	290	801	.986	13.38
January	21,210	860	530	684	.842	.97
February	16,116	626	530	576	.709	.74
March	39,630	2,360	520	1,278	1.57	1.81
April	25,094	1,220	635	836	1.03	1.15
May	23,488	1,420	582	758	.933	1.08
June	31,735	1,740	601	1,058	1.30	1.45
July	28,226	1,520	543	911	1.12	1.29
August	16,327	692	437	527	.949	.75
September	16,490	776	437	550	.677	.76
Water year 1945-46	289,383	2,360	437	793	.977	13.25

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated, or computed on basis of records for station above West Branch Wolf River.

h Computed from once-daily staff-gage readings.

Note.- Stage-discharge relation affected by ice Nov. 24-29, Dec. 10 to Mar. 15.

Wolf River at New London, Wis.

Location.- Staff gage, lat. 44°23', long. 88°44', in sec. 12, T. 22 N., R. 14 E., 15 feet downstream from Pearl Street Bridge and three-quarters of a mile downstream from Embarrass River. Datum of gage is 749.37 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 2,240 square miles.

Records available.- October 1913 to September 1946.

Average discharge.- 33 years, 1,848 second-feet.

Extremes.- Maximum discharge observed during year, 10,300 second-feet Mar. 18 (gage height, 9.6 feet); minimum daily, 612 second-feet Sept. 2-5.

1913-46: Maximum discharge observed, 15,500 second-feet Apr. 13, 1922 (gage height, 11.4 feet), from rating curve extended above 12,000 second-feet, minimum, 261 second-feet Sept. 6, 1933.

Maximum stage known, 11.6 feet Apr. 16, 1888, from information by Corps of Engineers, War Department.

Remarks.- Records good except those for period of ice effect, which are fair. Gage read once daily.

Cooperation.- Gage-height record furnished by Corps of Engineers, War Department.

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.7	612	3.0	1,640	7.5	5,030
1.0	724	4.0	2,180	8.0	5,790
1.5	920	5.0	2,800	8.5	6,780
2.0	1,130	6.0	3,510	9.0	8,050
2.5	1,390	7.0	4,420	9.6	10,300

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,280	920	2,100	1,020	1,250	1,140	4,650	1,230	3,290	3,080	1,000	686
2	1,330	1,000	2,100	1,100	1,230	1,140	4,420	1,330	3,220	3,290	1,000	612
3	1,330	1,800	2,000	1,150	1,220	1,140	4,310	1,280	3,080	3,370	1,080	612
4	1,330	2,360	1,900	1,200	1,220	1,170	4,110	1,280	2,940	3,440	1,040	612
5	1,330	2,480	1,800	1,250	1,220	1,250	3,920	1,280	2,740	3,370	1,000	612
6	1,280	2,540	1,700	1,500	1,200	1,400	3,750	1,280	2,610	3,290	920	686
7	1,230	2,610	1,650	1,800	1,200	1,600	3,510	1,230	2,180	3,080	920	762
8	1,180	2,670	1,600	2,100	1,190	2,000	3,370	1,230	1,800	2,940	960	724
9	1,130	2,800	1,500	2,500	1,180	2,600	3,220	1,280	1,540	2,800	920	724
10	1,130	2,800	1,500	2,750	1,180	3,100	3,010	1,280	1,440	2,670	920	800
11	1,130	2,800	1,400	2,900	1,180	3,600	2,800	1,280	2,180	2,540	880	840
12	1,130	3,010	1,350	3,000	*1,180	4,300	2,670	1,280	3,440	2,420	840	1,080
13	1,130	3,080	1,300	3,000	1,180	5,400	2,480	1,230	3,010	2,300	724	1,130
14	1,130	3,220	1,250	3,100	1,170	7,010	2,300	1,230	3,080	2,240	762	1,130
15	1,080	3,370	1,200	3,000	1,170	8,050	2,180	1,180	3,080	2,180	762	1,040
16	1,000	3,440	1,150	2,800	1,160	9,050	2,120	1,130	3,010	1,960	762	1,000
17	960	3,440	1,100	2,500	1,160	9,850	2,070	1,130	2,940	1,800	920	880
18	920	3,510	1,070	*2,330	1,150	10,300	1,960	1,180	3,010	1,590	920	840
19	920	3,590	1,040	2,200	1,100	9,440	1,860	1,230	3,220	1,490	920	800
20	920	3,510	1,000	2,000	1,060	9,440	1,750	1,330	3,220	1,390	800	800
21	960	3,400	960	1,900	1,060	8,680	1,700	1,440	3,220	1,330	762	762
22	960	3,300	920	1,700	1,070	8,050	1,640	1,640	3,080	1,230	724	762
23	762	3,100	880	1,500	1,100	7,250	1,640	1,860	3,010	1,130	762	762
24	800	3,000	850	1,450	1,180	7,010	1,700	2,020	2,870	1,080	724	840
25	880	2,700	820	1,400	1,200	6,570	1,640	3,080	2,670	1,130	686	840
26	920	2,600	800	1,380	1,180	6,160	1,590	3,370	2,670	1,000	686	880
27	960	2,500	760	1,350	1,150	5,790	1,490	3,440	2,670	1,000	724	960
28	920	2,400	780	1,320	1,140	5,620	1,440	3,510	2,610	960	724	1,000
29	840	2,300	820	1,300	-	5,310	1,440	3,510	2,610	920	724	1,040
30	840	2,200	860	1,280	-	5,030	1,330	3,510	2,740	920	724	1,130
31	880	-	920	1,260	-	4,770	-	3,440	-	1,000	724	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	32,592	1,330	762	1,051	0.469	0.54
November	82,450	3,590	920	2,748	1.23	1.37
December	39,080	2,100	760	1,261	.563	.65
Calendar year 1945	693,163	7,600	680	1,899	.848	11.49
January	59,040	3,100	1,020	1,905	.850	.98
February	32,680	1,250	1,060	1,167	.521	.54
March	163,220	10,300	1,140	5,265	2.35	2.71
April	76,070	4,650	1,330	2,536	1.13	1.26
May	55,720	3,510	1,130	1,797	.802	.92
June	83,180	3,440	1,440	2,773	1.24	1.38
July	62,940	3,440	920	2,030	.906	1.04
August	26,014	1,080	686	839	.375	.43
September	25,346	1,130	612	845	.377	.42
Water year 1945-46	738,332	10,300	612	2,023	.903	12.24

* Winter discharge measurement made on this day.

Note - Stage-discharge relation affected by ice Nov. 21 to Mar. 13.

Embarrass River near Embarrass, Wis.

Location.- Water-stage recorder, lat. 44°43', long. 88°44', on line between sec. 13, T. 26 N., R. 14 E., and sec. 18, T. 26 N., R. 15 E., three-quarters of a mile downstream from Mill Creek and 4 miles northwest of Embarrass.

Drainage area.- 395 square miles.

Records available.- June 1919 to September 1946.

Average discharge.- 27 years, 306 second-feet.

Extremes.- Maximum discharge during year, 2,920 second-feet Mar. 16 (gage height, 7.55 feet); minimum, 69 second-feet Sept. 6 (gage height, 2.72 feet).

1919-46: Maximum discharge observed, 6,760 second-feet Apr. 10, 1922 (gage height, 11.5 feet), from rating curve extended above 2,800 second-feet; minimum observed, 23 second-feet Aug. 3, 6, 7, 1931.

Remarks.- Records good except those for period of ice effect, which are fair. Slight diurnal fluctuation caused by power plants above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	251	653	298	158	162	160	530	206	503	920	255	114
2	268	1,120	298	166	154	162	498	202	450	791	228	78
3	268	974	293	180	150	164	492	202	324	508	140	76
4	240	802	306	200	160	170	482	199	298	418	130	90
5	243	674	285	225	180	174	418	210	272	320	146	100
6	228	450	280	400	190	220	377	213	240	213	122	88
7	210	320	285	980	184	700	397	210	202	179	120	95
8	185	562	289	980	170	780	397	206	240	228	117	83
9	166	1,030	206	880	160	720	377	202	228	259	122	236
10	206	1,120	230	750	160	640	352	196	251	285	120	320
11	213	920	255	680	168	560	334	196	657	263	100	202
12	185	758	155	600	178	530	329	199	836	236	92	202
13	185	1,030	150	520	*184	560	324	206	713	188	107	188
14	173	1,390	162	420	190	1,000	324	202	487	151	112	143
15	160	1,180	142	*287	194	2,320	316	213	289	157	112	132
16	163	881	156	245	190	2,350	320	213	251	154	104	138
17	160	730	160	300	168	2,190	306	206	280	130	112	130
18	151	623	152	270	162	1,930	293	213	338	117	120	117
19	140	503	136	240	168	1,670	289	259	324	135	107	112
20	138	329	124	186	162	1,360	293	338	329	135	107	130
21	97	382	112	184	160	1,150	255	492	302	122	92	138
22	146	352	100	188	158	1,060	240	387	289	127	95	124
23	151	320	89	196	158	974	259	397	251	143	92	199
24	154	320	106	198	158	825	251	662	357	122	90	166
25	154	306	114	200	156	679	251	920	735	124	85	179
26	247	320	118	196	156	707	268	920	724	122	85	170
27	188	298	120	188	156	864	247	752	584	124	95	179
28	130	285	124	190	156	974	202	476	424	110	104	306
29	151	293	134	200	-	892	216	338	272	95	100	196
30	170	272	146	210	-	791	199	293	685	127	92	135
31	146	-	156	192	-	679	-	387	-	166	122	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,667	268	97	183	0.463	0.53
November	19,197	1,390	272	640	1.62	1.81
December	5,681	306	89	183	.463	.53
Calendar year 1945	123,626	2,060	79	339	.858	11.63
January	10,809	980	158	349	.884	1.02
February	4,692	194	150	168	.425	.44
March	27,955	2,350	160	902	2.28	2.63
April	9,836	530	199	328	.830	.93
May	10,315	920	196	333	.843	.97
June	12,135	836	202	404	1.02	1.14
July	7,169	920	95	231	.585	.67
August	3,625	255	85	117	.296	.34
September	4,566	320	76	152	.385	.43
Water year 1945-46	121,647	2,350	76	333	.843	11.44

Peak discharge.- Nov. 1 (7:30 p.m.) 1,740 sec.-ft.; Nov. 10 (2 p.m.) 1,180 sec.-ft.; Nov. 14 (7 a.m.) 1,450 sec.-ft.; Mar. 16 (1 p.m.) 2,920 sec.-ft.; Mar. 28 (10:30 a.m.) 1,030 sec.-ft.; May 25 (5 p.m.) 1,000 sec.-ft.; July 1 (11:30 a.m.) 1,000 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 10 to Mar. 14

Little Wolf River at Royalton, Wis.

Location.- Water-stage recorder, lat. 44°24', long. 88°51', in sec. 1, T. 22 N., R. 13 E., 4 miles upstream from mouth.

Drainage area.- 485 square miles.

Records available.- January 1914 to September 1946.

Average discharge.- 32 years, 440 second-feet.

Extremes.- Maximum daily discharge during year, 5,000 second-feet Mar. 15; maximum gage height, 9.21 feet Mar. 15 (backwater from ice); minimum discharge, 128 second-feet Dec. 9 (gage height, 1.20 feet).

1914-46: Maximum discharge, 6,950 second-feet Mar. 30, 1943 (gage height, 8.00 feet), from rating curve extended above 3,500 second-feet; maximum gage height, 10.33 feet Mar. 25, 1939 (backwater from ice); minimum discharge, 57 second-feet, Feb. 10, 1934.

Remarks.- Records good except those for period of ice effect or no gage-height record, which are fair. Diurnal fluctuation caused by power plant 6 miles above station.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 23 to May 24)

Oct. 1 to Mar. 16				Mar. 17 to Sept. 30					
1.5	232	2.3	710	1.3	172	2.1	616	3.5	1,750
1.7	328	2.6	920	1.5	258	2.5	902	4.0	2,230
2.0	504	2.8	1,070	1.8	427	3.0	1,310	4.5	2,750

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	317	389	388	255	250	265	677	322	538	1,260	203	a160
2	325	773	447	265	230	275	630	306	551	1,200	207	a155
3	268	1,120	454	275	240	300	551	295	451	1,000	203	a150
4	308	1,010	454	290	260	390	577	279	427	630	203	a150
5	286	759	499	380	290	480	564	295	357	458	176	a200
6	276	466	404	1,000	330	680	551	317	328	409	195	h334
7	264	517	496	990	340	1,200	532	306	290	368	195	h234
8	288	592	424	960	330	1,160	558	306	269	368	188	h345
9	290	892	366	930	325	1,080	526	274	306	368	203	h380
10	261	1,050	300	880	310	920	520	295	439	317	176	h513
11	271	1,010	260	820	290	800	476	317	887	279	180	h488
12	275	836	290	740	*280	700	451	279	1,160	284	169	h284
13	293	934	310	620	280	1,600	458	380	1,160	290	199	h274
14	222	1,050	280	520	270	3,500	451	290	972	274	188	h230
15	225	1,050	280	420	250	5,000	433	322	698	258	188	h188
16	252	913	260	405	260	3,500	451	290	445	244	234	h195
17	247	780	230	390	260	2,750	415	274	623	249	458	199
18	246	626	205	*380	250	2,530	415	290	805	239	269	234
19	231	578	200	370	240	2,180	328	357	570	258	274	225
20	241	491	195	350	220	1,750	398	476	584	211	220	234
21	245	531	190	330	220	1,570	317	433	488	234	211	234
22	222	485	185	320	225	1,440	300	470	482	203	192	234
23	221	382	190	310	230	1,230	415	526	439	211	188	328
24	232	511	195	290	240	1,140	340	964	409	207	180	244
25	235	417	200	270	260	996	409	1,170	564	220	192	253
26	248	491	200	265	270	918	311	1,190	538	211	176	322
27	282	412	205	260	260	902	317	988	439	199	199	362
28	224	423	210	260	260	933	306	870	403	195	a200	439
29	216	394	220	260	-	949	306	464	306	199	a190	494
30	236	382	230	260	-	842	311	380	972	225	a210	351
31	237	-	245	260	-	691	-	380	-	220	a185	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,984	325	216	258	0.532	0.61
November	20,264	1,120	382	675	1.39	1.55
December	9,012	499	185	291	.600	.69
Calendar year 1945	166,998	4,840	125	458	.944	12.79
January	14,325	1,000	255	462	.953	1.10
February	7,470	340	220	267	.551	.57
March	42,671	5,000	265	1,376	2.84	3.27
April	13,294	677	300	443	.913	1.02
May	13,905	1,190	274	449	.926	1.07
June	16,900	1,160	269	563	1.16	1.29
July	11,288	1,260	195	364	.751	.87
August	6,451	458	169	208	.429	.49
September	8,433	513	150	281	.579	.65
Water year 1945-46	171,997	5,000	150	471	.971	13.18

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of power-plant records at Manawa power plant.
h Computed from once-daily gage readings.
Note.- Stage-discharge relation affected by ice Dec. 10 to Mar. 16.

Waupaca River near Waupaca, Wis.

Location.- Water-stage recorder, lat. 44°21', long. 88°59', near north line of sec. 1, T. 21 N., R. 12 E., at highway bridge, 1½ miles downstream from Crystal River and 4 miles downstream from Waupaca.

Drainage area.- 305 square miles.

Records available.- October 1917 to September 1946. June 1916 to October 1917 at site 1 mile downstream.

Average discharge.- 30 years, 254 second-feet.

Extremes.- Maximum discharge during year, 1,230 second-feet Mar. 14; maximum gage height, 5.70 feet Mar. 7 (backwater from ice); minimum discharge, 138 second-feet July 25, 28, Aug. 10 (gage height, 1.26 feet).

1916-46: Maximum discharge observed, 2,600 second-feet Mar. 17, 1919 (gage height, 5.6 feet), from rating curve extended above 1,000 second-feet; minimum daily, 50 second-feet Jan. 22, 28, 1926.

Correction.- The figure of minimum discharge daily, was erroneously published as 35 second-feet in Water-Supply Paper 644 and succeeding reports.

Remarks.- Records good except those for period of ice effect, which are fair. Considerable diurnal fluctuation caused by power plant above station.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 13)

1.5	195	2.3	458	3.5	872
1.6	223	2.6	562	3.9	1,010
1.8	287	2.9	665	4.3	1,160
2.0	355	3.2	769		

Discharge, in second-feet, water year Ootober 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	229	257	257	280	240	265	290	215	257	507	217	182
2	229	448	270	290	240	270	274	217	223	369	223	187
3	206	527	297	300	245	310	264	220	248	345	215	212
4	203	614	284	310	250	400	274	209	229	301	201	206
5	203	270	290	350	250	510	277	215	220	264	223	192
6	206	251	264	500	250	710	274	229	215	245	206	254
7	206	261	264	600	250	810	261	220	215	238	195	264
8	206	321	248	570	245	800	264	215	215	223	203	248
9	209	476	210	520	210	620	277	201	192	229	203	254
10	201	417	188	350	220	700	267	217	311	217	206	270
11	198	297	185	340	225	800	245	217	527	220	201	277
12	195	321	184	310	*222	872	235	223	479	209	201	254
13	195	414	182	260	220	1,010	248	229	383	201	203	242
14	190	397	182	270	215	1,160	235	223	307	201	192	229
15	198	335	182	275	220	1,120	248	212	280	220	195	209
16	190	314	181	275	230	907	242	215	264	212	206	229
17	187	301	181	275	235	734	223	201	311	206	355	217
18	198	280	181	*279	235	614	217	209	372	201	267	212
19	192	301	185	280	240	527	229	217	287	206	206	206
20	190	270	187	275	240	490	212	251	280	212	220	223
21	187	264	192	260	240	441	201	248	280	198	215	220
22	192	261	200	250	240	407	223	220	264	203	212	212
23	195	314	203	270	240	407	254	270	235	206	206	238
24	190	321	210	280	240	369	245	427	251	201	203	242
25	201	254	220	270	250	335	232	544	245	190	195	232
26	195	254	230	240	250	355	232	380	238	190	203	226
27	195	254	235	250	250	355	229	314	232	185	206	245
28	190	264	240	250	250	328	203	284	223	177	209	314
29	195	261	250	250	-	318	223	257	280	212	206	270
30	203	254	260	250	-	307	223	229	455	248	201	254
31	185	-	270	250	-	280	-	245	-	267	185	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,159	229	185	199	0.652	0.75
November	9,773	614	251	326	1.07	1.19
December	6,912	297	181	223	.731	.84
Calendar year 1945	91,368	872	144	250	.820	11.13
January	9,729	600	240	314	1.03	1.19
February	6,642	250	210	237	.777	.81
March	17,531	1,160	265	566	1.86	2.14
April	7,321	290	201	244	.800	.89
May	7,773	544	201	251	.823	.95
June	8,518	527	192	284	.931	1.04
July	7,303	507	177	236	.774	.89
August	6,579	355	185	212	.695	.80
September	7,020	314	182	234	.767	.86
Water year 1945-46	101,260	1,160	177	277	.908	12.35

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 9 to Mar. 11.

West Branch Fond du Lac River at Fond du Lac, Wis.

Location.- Water-stage recorder, lat. 43°45'45", long. 88°29'00", on line between secs. 17 and 20, T. 15 N., R. 17 E., at concrete bridge on County Trunk Highway T, three-quarters of a mile west of Fond du Lac and 2½ miles upstream from confluence with East Branch. Datum of gage is 766.78 feet above mean sea level (Corps of Engineers, War Department, bench mark).

Drainage area.- 88 square miles.

Records available.- March 1939 to September 1946.

Extremes.- Maximum discharge during year, 1,210 second-feet Mar. 14 (gage height, 5.78 feet); no flow on many days in July, August, and September.
1939-46: Maximum daily discharge, 1,390 second-feet Mar. 27, 1943; no flow on many days.

Remarks.- Records good except those below 1 second-foot and those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	17	37	2.5	18	26	101	4.1	11	6.8	0.2	0
2	35	21	52	2.6	17	30	95	3.3	10	6.0	.2	0
3	32	18	66	2.7	16	46	91	2.7	9.4	5.6	.3	0
4	29	16	50	3.0	16	66	88	4.1	8.9	4.8	6.4	0
5	29	17	42	15	*16	121	80	4.5	7.8	4.1	.8	0
6	28	18	39	64	17	*707	73	4.1	6.8	4.1	.6	.1
7	26	21	39	98	50	777	67	4.1	5.6	4.1	.4	0
8	25	68	39	178	64	716	67	6.0	5.6	3.3	.4	.1
9	25	62	34	284	69	218	64	5.6	4.5	3.3	.4	.1
10	23	37	29	326	64	285	57	6.0	9.4	2.5	.3	.1
11	22	37	*27	310	58	327	55	6.8	21	2.3	.2	.1
12	21	58	20	234	51	393	52	6.8	15	2.1	.2	0
13	20	88	15	178	46	862	49	6.0	10	1.8	.2	0
14	19	67	12	124	43	1,120	45	5.6	8.4	1.4	.2	0
15	18	61	11	92	39	1,150	42	4.5	7.8	1.4	.2	0
16	18	58	10	67	36	1,020	38	4.5	7.8	.7	.2	0
17	18	57	10	53	34	831	33	4.5	8.9	.6	.4	0
18	17	55	11	45	32	602	30	4.1	9.4	.6	.4	0
19	17	54	11	41	30	422	25	8.4	9.9	.6	.2	0
20	16	49	12	37	29	317	23	8.9	11	.6	.2	.1
21	15	48	12	34	28	285	18	10	11	.4	.1	0
22	15	41	12	31	27	268	16	9.4	11	.3	0	0
23	14	38	12	29	26	226	13	9.9	10	.2	0	.1
24	13	36	11	27	25	213	11	16	9.9	.2	0	.1
25	13	35	9.2	26	25	195	9.9	16	8.9	.2	0	0
26	13	35	7.4	24	25	184	8.4	13	8.9	.1	0	0
27	12	35	6.0	22	25	166	7.3	13	7.8	0	0	0
28	11	35	4.8	21	25	150	5.6	11	7.3	0	0	0
29	11	38	3.8	20	-	138	5.2	11	9.9	0	0	.1
30	10	37	3.1	19	-	124	4.8	12	7.8	.1	0	0
31	9.9	-	2.5	18	-	108	-	11	-	.2	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	616.9	42	9.9	19.9	0.226	0.26
November	1,257	88	16	41.9	.476	.53
December	649.8	66	2.5	21.0	.239	.28
Calendar year 1945	14,687.2	466	.1	40.2	.457	6.19
January	2,427.8	326	2.5	78.3	.890	1.03
February	951	69	16	34.0	.386	.40
March	12,093	1,150	26	390	4.43	5.11
April	1,274.2	101	4.8	42.5	.483	.54
May	236.9	16	2.7	7.64	.087	.10
June	280.7	21	4.5	9.36	.106	.12
July	58.4	6.8	0	1.88	.021	.02
August	12.5	6.4	0	.40	.0045	.005
September	.9	.1	0	.03	.00034	.0004
Water year 1945-46	19,859.1	1,150	0	54.4	.618	8.40

Peak discharge.- Nov. 8 (6 p.m.) 200 sec.-ft.; Jan. 10 (8 p.m.) 360 sec.-ft.; Mar. 8 (4 a.m.) 1,120 sec.-ft.; Mar. 14 (10 to 12 p.m.) 1,210 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 22-27, Dec. 9 to Jan. 6, Jan. 13 to Mar. 4 (no gage-height record Jan. 13 to Feb. 4, Feb. 7 to Mar. 2; discharge computed on basis of 1 discharge measurement, weather records, engineers' notes, and records for Cedar Creek near Cedarburg).

East Branch Fond du Lac River at Fond du Lac, Wis.

Location.- Water-stage recorder, lat. 43°45'15", long. 88°27'10", in sec. 22, T. 15 N., R. 17 E., at steel bridge on town road, an eighth of a mile west of U. S. Highway 41, half a mile south of Fond du Lac, and 2½ miles upstream from confluence with West Branch. Datum of gage is 762.82 feet above mean sea level (Corps of Engineers, War Department, bench mark).

Drainage area.- 75 square miles.

Records available.- March 1939 to September 1946.

Extremes.- Maximum discharge during year, 1,460 second-feet Mar. 13 (gage height, 4.72 feet); minimum, 0.4 second-foot Aug. 25-27 (gage height, 0.80 foot).
1939-46: Maximum discharge, 2,140 second-feet June 23, 1940; maximum gage height, 10.74 feet Mar. 16, 1943 (ice jam), from floodmarks; no flow Jan. 17-29, 1940.

Remarks.- Records good except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	12	47	5.8	20	26	93	10	8.5	18	a2.1	0.7
2	83	33	79	5.4	20	50	86	9.5	9.0	10	2.1	.6
3	56	26	149	5.0	20	145	97	9.0	8.5	6.8	2.1	.6
4	43	20	180	5.0	20	200	117	11	8.5	6.0	3.0	.6
5	34	18	144	38	*20	332	104	14	8.5	5.2	4.0	.6
6	30	18	95	500	22	*879	95	12	8.0	5.2	4.0	2.1
7	26	18	74	360	60	920	90	9.5	8.0	4.8	4.0	2.4
8	24	47	52	303	68	600	93	9.0	7.6	4.8	4.0	3.0
9	22	215	41	218	70	360	90	8.0	7.2	4.8	4.0	4.0
10	19	107	34	149	65	250	79	8.0	17	4.4	3.7	4.0
11	17	74	*27	157	57	280	75	8.5	61	4.4	3.7	3.7
12	16	86	20	152	48	326	70	8.0	42	4.0	3.7	3.7
13	15	224	15	169	42	1,020	66	7.6	25	4.0	3.7	3.7
14	14	141	12	135	38	1,040	61	7.6	19	4.0	3.7	2.7
15	12	90	11	92	35	878	54	7.6	16	4.0	3.7	2.7
16	13	72	9.8	60	33	625	48	7.2	13	4.0	3.7	2.7
17	12	63	9.5	51	30	405	44	7.6	12	3.7	4.4	2.7
18	11	56	9.6	46	28	342	39	7.2	12	3.4	3.0	2.4
19	10	50	10	41	27	281	36	10	11	3.4	2.1	2.4
20	10	43	11	35	26	246	28	13	10	3.4	.7	2.7
21	10	39	11	32	25	227	28	10	10	3.4	.6	3.0
22	9.4	37	12	30	24	242	25	9.0	9.5	3.0	.6	3.0
23	8.9	36	12	28	23	249	23	8.5	9.0	3.0	.6	3.7
24	8.9	35	12	26	23	206	19	13	7.6	3.0	.6	4.0
25	9.4	37	11	25	23	197	16	18	6.8	3.0	.4	3.7
26	9.4	41	10	24	23	194	14	13	6.0	2.4	.4	3.0
27	9.4	45	9.5	22	23	186	14	12	5.6	2.1	.4	3.0
28	9.4	48	8.6	21	24	171	12	10	5.6	2.4	.7	3.7
29	9.4	50	7.6	20	-	166	12	9.0	5.6	2.1	.6	4.0
30	9.4	50	6.9	20	-	155	12	8.0	18	2.4	.6	4.0
31	9.4	-	6.4	20	-	110	-	7.6	-	2.1	.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	618	83	8.9	19.9	0.265	0.31
November	1,831	224	12	61.0	.813	.91
December	1,136.9	180	6.4	36.7	.489	.56
Calendar year 1945	14,083.5	1,000	2.0	38.6	.515	6.99
January	2,795.2	500	5.0	90.2	1.20	1.38
February	937	70	20	33.5	.447	.47
March	11,308	1,040	26	365	4.87	5.62
April	1,640	117	12	54.7	.729	.81
May	302.4	18	7.2	9.75	.130	.15
June	395.5	61	5.6	13.2	.176	.20
July	137.2	18	2.1	4.43	.059	.07
August	71.7	4.4	.4	2.31	.031	.04
September	83.1	4.0	.6	2.77	.037	.04
Water year 1945-46	21,256	1,040	.4	58.2	.776	10.56

Peak discharge.- Mar. 7 (1 a.m.) 1,150 sec.-ft.; Mar. 13 (10 p.m.) 1,460 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.- Stage-discharge relation affected by ice Nov. 21-28, Dec. 9 to Jan. 7, Jan. 14 to Mar. 4, Mar. 9-11 (no gage-height record Jan. 15 to Feb. 4, Feb. 7 to Mar. 3, Mar. 10, 11; discharge computed on basis of 1 discharge measurement, weather records, observers' and engineers' notes, and records for Cedar Creek near Cedarburg).

Lake de Neveu near Fond du Lac, Wis.

Location.- Staff gage, lat. 43°44', long. 88°24', in sec. 30, T. 15 N., R. 18 E., at boathouse at north end of lake on farm of Nick Giebel; 4 miles southeast of Fond du Lac.

Drainage area.- 2 square miles.

Records available.- August 1936 to September 1946 (fragmentary).

Extremes.- Maximum elevation observed during year, 97.90 feet Mar. 15; minimum, 97.16 feet Sept. 3.
1936-46: Maximum elevation observed, 98.20 feet Sept. 18, 1938; minimum, 96.90 feet Aug. 15, 1936.

Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-	-	7.48	7.48	7.42	-	-	-	-	-	-
2	7.62	7.62	-	-	-	-	7.52	-	-	7.54	7.20	-
3	-	-	-	-	-	-	-	7.38	-	-	-	7.16
4	-	-	7.52	7.48	-	-	-	-	7.38	-	-	-
5	7.58	-	-	-	7.46	7.40	7.52	-	-	7.44	-	-
6	-	7.54	-	-	-	-	-	-	-	-	7.20	7.20
7	-	-	7.50	-	-	-	-	7.40	7.38	-	-	-
8	-	-	-	7.82	7.54	7.74	-	-	-	-	-	-
9	7.56	7.66	-	-	-	-	7.52	-	-	7.38	7.24	-
10	-	-	-	-	-	-	-	7.40	-	-	-	7.28
11	-	-	7.48	7.64	-	-	7.46	-	7.54	-	-	-
12	7.56	-	-	-	7.50	7.60	7.46	-	-	7.34	-	-
13	-	7.62	-	-	-	-	-	-	-	-	7.18	7.26
14	-	-	7.48	-	-	-	-	7.36	7.50	-	-	-
15	-	-	-	7.54	7.46	7.90	-	-	-	-	-	-
16	7.52	7.60	-	-	-	-	7.44	-	-	7.26	-	-
17	-	-	-	-	-	-	-	7.36	-	-	7.28	7.28
18	-	-	7.46	7.48	-	-	-	-	7.44	-	-	-
19	7.52	-	-	-	7.42	7.82	7.42	-	-	7.28	-	-
20	-	7.52	-	-	-	-	-	-	-	-	7.26	7.28
21	-	-	7.44	-	-	-	-	7.42	7.40	-	-	-
22	-	-	-	7.46	7.42	7.70	-	-	-	-	-	-
23	7.54	7.54	-	-	-	-	7.42	-	-	7.24	7.22	-
24	-	-	-	-	-	-	-	7.48	-	-	-	7.32
25	-	-	7.50	7.44	-	-	-	-	7.36'	-	-	-
26	7.56	-	-	-	7.42	7.62	7.40	-	-	7.22	-	-
27	-	7.52	-	-	-	-	-	-	-	-	7.20	7.30
28	-	-	7.50	-	-	-	-	7.46	7.34	-	-	-
29	-	-	-	7.44	-	7.58	-	-	-	-	-	-
30	7.56	7.52	-	-	-	-	7.40	-	-	7.22	7.20	-
31	-	-	-	-	-	-	-	7.40	-	-	-	-

Note.- Add 90 feet to obtain elevation above datum assumed for this lake by Public Service Commission of Wisconsin.

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Milwaukee River at Milwaukee, Wis.

Location.- Water-stage recorder, lat. 43°06'00", long. 87°54'30", in NE¼ sec. 5, T. 7 N., R. 22 E., near north limits of Milwaukee, 2,000 feet downstream from Port Washington Road Bridge and 6 miles upstream from mouth. Datum of gage is 607.3 feet above mean sea level, adjustment of 1912.

Drainage area.- 661 square miles.

Records available.- April 1914 to September 1946.

Average discharge.- 32 years, 395 second-feet.

Extremes.- Maximum discharge during year, 6,330 second-feet Mar. 15 (gage height, 7.00 feet); minimum, 9 second-feet (regulated) Mar. 29 (gage height, 1.67 feet).
1914-46: Maximum discharge, 15,100 second-feet Mar. 20, 1918 (gage height, 9.00 feet, datum then in use, from floodmark); no flow Sept. 8, 1943, result of regulation.

Remarks.- Records good except those for periods of ice effect, which are fair. Occasional regulation caused by dams above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 8 to Sept. 10)

1.8	20	3.0	534	5.0	2,720
2.0	54	3.3	749	5.5	3,470
2.2	114	3.6	1,010	6.0	4,270
2.4	199	3.9	1,310	6.5	5,200
2.6	301	4.2	1,650	6.9	6,090
2.8	416	4.6	2,160		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	580	130	516	112	124	170	492	172	107	341	44	30
2	672	168	541	114	120	330	428	142	114	150	44	28
3	567	204	643	118	118	1,530	416	122	88	130	46	28
4	474	233	650	140	126	2,030	399	181	81	111	34	30
5	428	214	451	400	150	2,160	410	168	91	98	21	31
6	370	186	547	1,400	*345	2,720	381	a156	84	146	33	42
7	318	224	387	2,200	420	3,400	352	a152	76	248	42	34
8	269	433	404	3,000	360	3,620	410	146	81	134	46	50
9	233	269	324	2,500	330	2,570	404	154	62	107	73	40
10	209	269	259	2,400	290	1,420	393	154	114	94	40	65
11	186	307	163	2,100	270	1,030	341	163	134	78	40	62
12	190	290	238	1,700	250	1,330	335	142	280	76	38	59
13	163	280	214	1,200	230	2,990	335	190	264	84	40	57
14	181	381	186	760	215	5,300	330	138	228	76	40	54
15	130	428	181	445	200	6,090	274	142	186	70	40	44
16	142	264	160	445	186	5,200	280	199	190	52	44	44
17	168	312	142	370	174	4,100	253	126	186	59	54	50
18	122	290	128	335	160	3,320	248	111	181	62	38	50
19	130	285	116	259	154	2,380	233	158	107	54	34	40
20	122	248	106	248	148	1,960	204	154	134	52	36	44
21	118	290	100	225	144	1,590	186	146	111	59	38	57
22	146	264	100	205	138	1,400	194	190	107	54	34	44
23	122	199	100	184	136	1,360	168	146	98	54	36	81
24	122	209	100	172	134	1,150	194	190	78	54	36	68
25	122	a235	100	162	134	1,130	186	186	76	52	34	59
26	142	259	100	156	134	774	172	154	91	50	33	52
27	134	301	101	148	136	842	122	194	76	48	27	44
28	114	486	103	145	140	885	168	134	59	46	40	42
29	154	528	104	140	-	433	134	163	264	44	28	48
30	134	560	106	135	-	587	138	138	199	50	31	44
31	111	-	109	128	-	541	-	122	-	46	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,073	672	111	228	0.345	0.40
November	8,746	560	130	292	.442	.49
December	7,479	650	100	241	.365	.42
Calendar year 1945	91,489.2	1,710	6.2	251	.380	5.14
January	22,046	3,000	112	711	1.08	1.24
February	5,466	420	118	195	.295	.31
March	64,342	6,090	170	2,076	3.14	3.62
April	8,580	492	122	286	.433	.48
May	4,833	199	111	156	.236	.27
June	3,947	280	59	132	.200	.22
July	2,779	341	44	89.6	.136	.16
August	1,192	73	21	38.5	.058	.07
September	1,421	81	28	47.4	.072	.08
Water year 1945-46	137,904	6,090	21	378	.572	7.76

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Cedar Creek near Cedarburg.
Note.- Stage-discharge relation affected by ice Dec. 16 to Jan. 14, Jan. 21 to Mar. 2 (no gage-height record Dec. 16-20, Dec. 22 to Jan. 14; discharge computed on basis of 1 discharge measurement, weather records, observers' and engineers' notes, and records for Cedar Creek near Cedarburg.

Cedar Creek near Cedarburg, Wis.

Location.- Chain gage, lat. 43°19'25", long. 87°58'50", on line between secs. 14 and 23, T. 10 N., R. 21 E., at bridge on State Trunk Highway, 2 miles north of Cedarburg and 6 miles upstream from mouth.

Drainage area.- 113 square miles.

Records available.- August 1930 to September 1946.

Average discharge.- 16 years, 56.4 second-feet.

Extremes.- Maximum discharge observed during year, 3,140 second-feet Mar. 7 (gage height, 11.00 feet); minimum observed, 1.9 second-feet Aug. 7, 8, 10, 11 (gage height, 5.02 feet).

1930-46: Maximum discharge, 3,180 second-feet by discharge measurement June 23, 1940; maximum gage height observed, 12.00 feet Feb. 7, 1938 (backwater from ice); minimum discharge observed, 0.2 second-foot Aug. 9-12, 1936.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	41	158	18	22	40	111	25	19	25	3.5	3.9
2	170	54	158	19	21	150	94	25	18	19	2.6	3.9
3	158	54	158	20	21	350	89	23	18	18	2.1	3.9
4	146	49	152	21	22	800	89	32	17	15	2.1	3.5
5	105	49	12e	100	41	1,200	84	38	15	13	2.1	3.5
6	73	49	105	590	80	*1,530	84	32	13	12	2.1	3.5
7	63	58	78	904	93	1,950	84	27	11	10	1.9	3.5
8	49	73	44	506	86	406	89	25	10	8.2	1.9	5.2
9	38	78	25	390	78	54	89	25	10	8.2	2.1	8.2
10	38	78	45	422	70	358	84	23	19	7.4	1.9	8.2
11	35	68	*45	406	59	358	78	23	25	9.2	1.9	7.4
12	32	58	36	262	46	374	68	23	29	9.2	2.1	7.4
13	29	58	31	200	42	1,740	78	23	32	9.2	2.1	6.7
14	29	58	28	150	38	1,140	84	23	32	8.2	2.6	6.7
15	27	54	25	92	35	960	68	21	32	8.2	2.6	5.9
16	25	54	23	62	32	752	58	21	25	6.7	2.6	5.9
17	23	54	21	52	30	506	44	23	21	6.7	2.6	5.2
18	23	54	20	47	28	472	44	23	19	5.2	3.0	4.4
19	21	49	19	43	27	374	41	25	21	5.2	3.0	4.4
20	19	47	18	40	26	326	41	29	21	5.2	3.0	5.2
21	19	45	18	37	25	278	38	27	17	5.2	3.5	5.2
22	19	43	18	33	24	278	38	25	15	5.2	3.5	5.2
23	19	39	18	31	24	278	35	25	13	5.2	3.5	5.9
24	21	36	18	29	23	278	35	29	11	4.4	3.5	6.7
25	21	44	18	28	23	246	32	27	9.2	4.4	2.6	6.7
26	23	54	18	26	23	214	29	23	9.2	4.4	2.6	6.7
27	23	89	18	25	23	201	29	21	9.2	4.4	2.6	6.7
28	23	122	18	25	24	170	27	21	8.2	4.4	3.0	7.4
29	21	164	18	24	-	152	27	21	11	3.9	3.5	7.4
30	21	164	18	23	-	122	27	19	23	3.9	3.9	7.4
31	21	-	18	22	-	111	-	19	-	3.9	3.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,529	195	19	49.3	0.436	0.50
November	1,937	164	36	64.6	.572	.64
December	1,515	158	18	48.9	.433	.50
Calendar year 1945	16,306.7	374	5.9	44.7	.396	5.35
January	4,647	904	18	150	1.33	1.53
February	1,086	93	21	38.8	.343	.36
March	16,168	1,950	40	522	4.62	5.33
April	1,818	111	27	60.6	.536	.60
May	766	38	19	24.7	.219	.25
June	532.8	32	8.2	17.8	.158	.18
July	258.1	25	3.9	8.33	.074	.09
August	83.9	3.9	1.9	2.71	.024	.03
September	171.8	8.2	3.5	5.73	.051	.06
Water year 1945-46	30,512.6	1,950	1.9	83.6	.740	10.07

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 20-25, Dec. 10 to Jan. 6, Jan. 13 to Mar. 4.

Hart ditch at Munster, Ind.

Location.- Water-stage recorder and concrete control, lat. 41°33'35", long. 87°28'50", in N½ sec. 20, T. 36 N., R. 9 W., at city limit of Munster, a quarter of a mile downstream from U. S. Highway 6 and 0.4 mile upstream from mouth.

Drainage area.- 57 square miles.

Records available.- September 1942 to September 1946.

Extremes.- Maximum discharge during year, 780 second-feet Jan. 6 (gage height, 2.88 feet); minimum, 1.2 second-feet July 29 (gage height, 0.47 foot).
1942-46: Maximum discharge, 2,420 second-feet Mar. 15, 1944 (gage height, 7.23 feet); minimum, that of July 29, 1946.

Remarks.- Records excellent except those for periods of ice effect, which are fair. Flow from this ditch discharges into Little Calumet River near Munster, practically all of this flow discharging into the Calumet Sag Channel or Grand Calumet River; during high stages a small percentage may flow eastward into Burns ditch.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	197	9.5	46	81	15	88	28	11	20	34	3.7	4.5
2	225	9.5	42	55	14	145	26	11	19	25	4.5	4.5
3	107	9.5	39	42	13	104	23	11	16	18	5.3	3.7
4	68	8.6	35	85	12	110	21	14	14	15	6.9	4.5
5	51	8.6	31	516	16	192	20	14	11	12	4.5	3.7
6	40	8.6	28	705	40	435	31	13	10	12	5.3	3.7
7	33	9.5	27	405	26	327	31	14	10	10	5.3	6.9
8	27	10	26	207	26	173	28	14	8.6	10	5.3	12
9	23	14	22	527	21	158	24	13	7.8	9.3	9.3	5.3
10	20	15	18	118	18	107	21	13	7.8	10	6.9	10
11	18	13	16	198	15	83	19	16	7.8	10	5.3	7.7
12	16	13	12	134	15	74	18	15	33	9.3	4.5	6.9
13	14	38	13	79	21	60	16	12	260	9.3	4.5	6.1
14	14	31	13	79	21	73	15	11	140	9.3	4.5	6.1
15	12	20	11	64	25	130	20	10	66	8.5	6.1	5.3
16	12	18	10	50	25	97	23	95	48	9.3	6.1	4.5
17	12	27	9.5	45	24	500	20	57	38	7.7	232	5.3
18	12	50	*9.0	42	49	466	18	51	152	6.1	83	4.5
19	11	*32	8.5	38	88	225	18	53	426	6.1	34	4.5
20	10	30	8.5	30	66	145	15	72	488	6.9	22	5.3
21	11	27	8.5	21	59	104	14	50	264	6.9	15	5.3
22	13	28	8.5	16	66	81	14	33	132	4.5	11	5.3
23	15	22	8.5	*18	155	66	14	26	81	5.3	8.5	6.9
24	14	21	9.5	17	100	120	16	52	55	3.7	8.5	6.9
25	13	20	14	18	64	100	15	83	40	4.5	7.7	5.3
26	12	19	30	16	90	72	14	48	34	4.5	6.1	5.3
27	12	49	30	15	112	57	14	35	28	4.5	6.1	5.3
28	10	110	32	14	*57	46	14	27	21	5.3	5.3	3.7
29	10	79	35	14	-	42	14	22	18	3.0	6.1	3.7
30	10	59	120	15	-	35	12	18	20	3.0	5.3	3.7
31	11	-	160	15	-	31	-	18	-	4.5	5.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,053	225	10	34.0	0.596	0.69
November	808.8	110	8.6	27.0	.474	.53
December	880.5	160	8.5	28.4	.498	.57
Calendar year 1945	18,729.1	1,060	3.4	51.3	.900	12.24
January	3,979	705	14	128	2.25	2.60
February	1,253	155	12	44.8	.786	.82
March	4,446	500	31	143	2.51	2.90
April	576	31	12	19.2	.337	.38
May	932	95	10	30.1	.528	.61
June	2,476.0	488	7.8	82.5	1.45	1.62
July	287.5	34	3.0	9.27	.163	.19
August	543.9	232	3.7	17.5	.307	.35
September	166.4	12	3.7	5.55	.097	.11
Water year 1945-46	17,402.1	705	3.0	47.7	.837	11.37

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 11-28, Jan. 19-28, Feb. 15, 16.

Wolf Lake at Chicago, Ill.

Location.- Water-stage recorder, lat. 41°40'00", long. 87°32'15", in SW¼ sec. 29, T. 37 N., R. 15 E., at outlet on west shore in Chicago. Datum of gage is 580.45 feet above mean sea level, datum of 1929 (Cook County Highway bench mark).

Records available.- December 1939 to September 1946.

Extremes.- Maximum mean hourly gage height during year, 2.10 feet Oct. 1, 2; minimum mean hourly, 1.02 feet July 28 to Aug. 2.
1939-46: Maximum mean hourly gage height, 2.14 feet Sept. 29, 1944; minimum gage height observed, 0.76 foot Aug. 3, 1940.

Remarks.- Mean hourly values used to determine extremes, in order to dampen the effects of wind action.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.07	1.67	1.61	1.54	a1.63	a1.66	1.57	1.38	1.41	1.59	1.02	1.20
2	2.08	1.66	1.60	1.52	a1.62	a1.65	1.57	1.38	1.37	1.58	1.03	1.19
3	2.08	1.64	1.58	1.52	a1.62	a1.65	1.58	1.42	1.37	1.56	1.04	1.20
4	2.04	1.64	1.57	1.52	a1.62	a1.64	1.47	1.38	1.37	1.54	1.04	1.20
5	2.03	1.62	1.56	a1.53	a1.63	a1.70	1.54	1.33	1.35	1.51	1.06	1.20
6	2.00	1.61	1.56	a1.56	a1.64	1.74	1.59	1.36	1.32	1.49	1.08	1.20
7	1.96	1.61	1.56	a1.61	a1.64	1.78	1.58	1.35	1.32	1.47	1.09	1.22
8	1.92	1.60	1.54	a1.61	a1.63	1.77	1.56	1.30	1.30	1.46	1.10	1.23
9	1.93	1.62	1.50	a1.61	a1.63	1.76	1.58	1.28	1.30	1.45	1.17	1.22
10	1.92	1.65	1.51	a1.72	a1.63	1.74	1.59	1.28	1.26	1.45	1.17	1.19
11	1.89	1.62	1.50	h1.73	a1.62	1.73	1.58	1.28	1.25	1.44	1.15	1.25
12	1.88	1.60	1.50	a1.73	a1.62	1.70	1.55	1.23	1.33	1.44	1.14	1.25
13	1.87	1.65	1.51	a1.71	a1.68	1.72	1.53	1.23	1.49	1.42	1.15	1.24
14	1.86	1.65	1.52	a1.70	a1.73	1.76	1.53	1.23	1.47	1.39	1.16	1.23
15	1.85	1.64	1.52	a1.70	a1.73	1.77	1.56	1.28	1.46	1.38	1.17	1.20
16	1.84	1.62	1.50	a1.71	a1.72	1.77	1.56	1.36	1.43	1.34	1.19	1.21
17	1.83	1.65	1.49	a1.70	a1.70	1.80	1.52	1.36	1.45	1.31	1.29	1.22
18	1.82	1.65	1.50	a1.69	a1.69	1.81	1.53	1.37	1.59	1.29	1.25	1.23
19	1.79	1.65	1.51	a1.67	a1.68	1.81	1.51	1.37	1.65	1.28	1.23	1.23
20	1.79	1.66	1.51	a1.68	a1.67	1.80	1.51	1.38	1.68	1.27	1.25	1.22
21	1.78	1.60	1.52	a1.69	a1.66	1.78	1.47	1.40	1.70	1.24	1.28	1.21
22	1.79	1.57	a1.52	a1.68	a1.68	1.78	1.45	1.41	1.70	1.20	1.29	1.20
23	1.80	1.62	a1.52	a1.66	a1.68	1.77	1.48	1.41	1.67	1.16	1.28	1.20
24	1.75	1.61	a1.54	a1.65	a1.67	1.73	1.47	1.43	1.64	1.13	1.26	1.17
25	1.72	1.58	1.55	a1.67	a1.66	1.72	1.46	1.44	1.61	1.11	1.25	1.20
26	1.70	1.56	1.56	a1.65	a1.65	1.72	1.45	1.42	1.63	1.08	1.24	1.21
27	1.70	1.61	1.56	a1.64	a1.67	1.71	1.40	1.40	1.60	1.05	1.23	1.21
28	1.69	1.62	1.56	a1.63	h1.66	1.71	1.37	1.40	1.61	1.03	1.23	1.20
29	1.69	1.62	1.57	a1.62	-	1.70	1.37	1.39	1.60	1.02	1.23	1.17
30	1.66	1.62	1.59	h1.63	-	1.69	1.38	1.37	1.58	1.03	1.22	1.17
31	1.69	-	1.57	a1.63	-	1.64	-	1.39	-	1.03	1.21	-

a No gage-height record; gage heights computed from limits of pen trace on graph and weather records.
h Computed from float-gage readings.

Burns ditch at Gary, Ind.

Location.- Wire-weight gage, lat. 41°34'25", long. 87°17'15", in N½ sec. 13, T. 36 N., R. 8 W., at Central Avenue Bridge, half a mile east of Gary and 1¼ miles downstream from Deep River.

Records available.- October 1943 to September 1946.

Extremes.- Maximum discharge during year, 1,020 second-feet June 13 (gage height, 8.95 feet); minimum, 5.4 second-feet Aug. 13 (gage height, 3.69 feet).
1943-46: Maximum discharge, about 2,000 second-feet Mar. 15, 1944; maximum gage height, 16.44 feet Mar. 16, 1944 (from graph based on gage readings); minimum discharge, 3.6 second-feet July 22, 1944; minimum gage height, that of Aug. 13, 1946.

Remarks.- Records good except those for periods of ice effect, or no gage-height record, which are fair. Gage read once daily. Burns ditch is an artifical channel which reverses the direction of flow of part of Little Calumet River and flows into Lake Michigan at Wickliffe.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	22	84	329	59	203	71	28	66	163	30	26
2	199	20	75	194	56	253	65	29	55	141	29	19
3	186	18	75	127	50	290	60	29	42	109	25	14
4	147	18	79	105	49	290	59	32	33	86	17	10
5	112	18	75	286	66	339	52	37	30	66	14	6.9
6	89	17	72	732	121	490	59	38	28	57	16	6.3
7	71	17	65	826	92	594	66	38	24	53	12	7.9
8	66	21	59	640	87	536	66	35	20	47	12	18
9	60	30	58	663	86	435	69	32	14	36	17	15
10	50	25	47	802	75	329	60	31	10	31	10	32
11	45	24	40	778	67	253	55	38	9.4	28	5.8	41
12	40	26	36	560	67	203	52	48	148	26	5.8	30
13	37	44	35	380	89	163	45	36	850	21	5.8	23
14	35	54	33	309	121	141	46	30	709	20	7.9	18
15	37	41	31	271	244	191	64	37	424	20	11	16
16	44	37	b28	211	120	206	63	52	290	20	33	14
17	47	48	a25	178	115	213	58	54	262	17	271	11
18	40	56	*23	162	139	271	50	68	339	18	413	10
19	29	*58	24	147	171	329	43	53	594	19	319	10
20	26	56	21	132	203	290	36	106	874	18	174	12
21	27	53	20	121	173	226	33	115	826	17	99	11
22	35	53	22	110	166	181	32	92	640	15	69	9.4
23	35	41	22	*b120	198	149	36	78	424	12	53	13
24	32	41	24	121	271	163	36	72	290	9.4	43	15
25	34	40	26	127	218	165	32	91	215	a11	33	11
26	30	39	31	121	215	141	29	99	173	a13	28	8.4
27	28	43	38	84	300	130	28	82	132	a11	26	7.9
28	27	78	49	64	*226	110	27	65	147	a9.0	29	8.4
29	26	106	58	64	-	102	28	55	178	14	33	9.4
30	24	102	121	65	-	99	29	46	158	15	26	8.9
31	24	-	280	60	-	89	-	47	-	21	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,858	199	24	59.9		
November	1,246	106	17	41.5		
December	1,678	280	20	54.1		
Calendar year 1945	42,136	1,090	12	115		
January	8,889	826	60	287		
February	3,844	300	49	137		
March	7,574	594	89	244		
April	1,451	71	27	48.4		
May	1,693	115	28	54.6		
June	8,004.4	874	9.4	267		
July	1,143.4	163	9.0	36.9		
August	1,898.3	413	5.8	61.2		
September	444.5	41	6.3	14.8		
Water year 1945-46	39,721.6	874	5.8	109		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for Hart ditch at Munster.
b Stage-discharge relation affected by ice.

Little Calumet River at Porter, Ind.

Location.- Wire-weight gage, lat. 41°37'18", long. 87°05'13", in NE¼ sec. 34, T. 37 N., R. 6 W., at highway bridge, three-quarters of a mile northwest of Porter and 4½ miles upstream from Salt Creek.

Drainage area.- 66.4 square miles.

Records available.- May 1945 to September 1946.

Extremes.- 1945: Maximum discharge during period May to September, 3,930 second-feet June 28 (gage height, 9.88 feet); minimum, 28 second-feet Sept. 6-8; minimum gage height, 2.44 feet Sept. 7.

1945-46: Maximum discharge during water year, 715 second-feet June 13 (gage height, 6.99 feet); minimum, 18 second-feet Aug. 10, 11 (gage height, 2.19 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, May 1945 to September 1946, except periods of ice effect (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Oct. 3 to Dec. 11, 1945, Sept. 14-30, 1946)

2.2	18	4.3	135	6.9	670
2.4	26	4.8	180	7.4	930
2.6	35	5.4	258	7.9	1,290
3.0	52	5.9	345	8.3	1,670
3.5	80	6.4	485		

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								a75	54	250	532	32
2								a80	69	151	578	32
3								a250	58	106	236	30
4								a300	50	77	127	30
5								298	45	66	86	29
6								180	43	58	80	28
7								119	40	52	58	28
8								512	39	48	51	28
9								334	38	45	45	30
10								180	43	43	46	30
11								143	41	41	52	30
12								127	37	39	49	30
13								127	41	51	43	34
14								124	40	50	47	39
15								399	45	41	57	38
16								455	120	38	46	34
17								485	77	37	42	32
18								425	61	36	39	31
19								222	49	35	37	32
20								139	54	34	35	31
21								102	147	34	34	30
22								83	96	36	33	31
23								70	55	34	33	38
24								63	45	37	33	90
25								60	41	179	32	86
26								63	39	325	32	102
27								58	38	110	31	73
28								65	1,530	73	30	71
29								59	1,620	236	32	165
30								52	470	186	38	116
31								48	-	124	32	-

a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for Burns ditch at Gary and Hart ditch at Munster.

Discharge, in second-feet, of Little Calumet River at Porter, Ind., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	143	41	62	90	35	131	37	37	35	45	20	28
2	143	39	58	75	32	203	44	36	35	41	20	24
3	110	37	56	75	35	175	48	35	33	37	20	21
4	92	36	54	110	40	206	43	37	32	32	19	20
5	66	36	52	250	45	306	48	39	32	29	20	21
6	46	37	50	410	56	382	65	37	30	29	20	20
7	44	38	50	335	61	462	60	39	28	28	20	22
8	41	43	48	229	60	288	58	39	28	28	20	28
9	45	56	47	305	51	180	57	38	28	28	25	34
10	43	43	43	420	50	143	50	41	28	26	21	36
11	37	42	40	234	50	116	45	44	30	26	20	a30
12	37	40	37	151	45	99	45	41	69	26	20	25
13	38	44	38	113	96	86	44	37	392	26	21	24
14	40	49	36	86	113	92	57	36	378	26	21	24
15	37	44	35	77	75	106	99	36	115	25	22	23
16	35	41	33	73	60	116	102	46	73	24	23	23
17	33	45	32	67	68	143	86	51	58	23	78	22
18	32	52	35	61	69	210	65	58	110	24	77	22
19	33	50	*36	54	68	186	44	62	197	22	35	21
20	33	*47	36	50	66	116	44	56	250	22	27	21
21	34	45	36	45	64	89	42	42	243	21	24	21
22	56	43	38	40	61	80	41	41	114	21	24	25
23	44	42	40	*38	68	86	47	40	67	21	23	33
24	38	43	45	40	73	113	46	41	56	21	22	26
25	37	45	56	41	69	99	42	54	48	21	21	23
26	37	52	54	38	104	92	40	44	47	20	21	23
27	37	77	52	36	*165	86	39	41	39	20	22	23
28	37	86	54	35	106	80	38	38	42	20	22	22
29	37	77	60	39	-	74	38	36	80	21	24	22
30	43	68	100	41	-	62	37	34	48	20	23	22
31	42	-	105	37	-	52	-	33	-	20	22	-

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for Salt Creek near McCool.

Note.- Stage-discharge relation affected by ice Dec. 12 to Jan. 4, Jan. 19 to Feb. 5, Feb. 15-17.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May 1945	5,697	512	48	184	2.77	3.19
June	5,125	1,620	37	171	2.58	2.87
July	2,672	325	34	86.2	1.30	1.50
August	2,644	578	30	85.3	1.28	1.48
September	1,430	165	28	47.7	.718	.80
Water year	-	-	-	-	-	-
October 1945	1,570	143	32	50.6	.762	.88
November	1,438	86	36	47.9	.721	.81
December	1,518	105	32	49.0	.738	.85
Calendar year 1946	-	-	-	-	-	-
January	3,695	420	35	119	1.79	2.07
February	1,885	165	32	67.3	1.01	1.06
March	4,659	462	52	150	2.26	2.61
April	1,551	102	37	51.7	.779	.87
May	1,289	62	33	41.6	.627	.72
June	2,765	392	28	92.2	1.39	1.55
July	793	45	20	25.6	.386	.44
August	797	78	19	25.7	.387	.45
September	731	38	20	24.4	.367	.41
Water year 1945-46	22,691	462	19	62.2	.937	12.72

Time basis: Central war time up to 2 a.m., Sept. 30, 1945; central standard time thereafter. To convert war time to standard time, subtract 1 hour.

Salt Creek near McCool, Ind.

Location.- Wire-weight gage, lat. 41°35'48", long. 87°08'40", in SE¼ sec. 6, T. 36 N., R. 6 W., at county highway bridge, just downstream from Michigan Central Railroad bridge, 1¼ miles north of McCool, and 1½ miles upstream from Little Calumet River.

Drainage area.- 86.3 square miles.

Records available.- May 1945 to September 1946.

Extremes.- 1945: Maximum discharge during period period May to September, 990 second-feet June 29 (gage height, 10.88 feet, from graph based on gage readings); minimum, 20 second-feet Sept. 7, 8 (gage height, 3.28 feet).
1945-46: Maximum discharge during water year, 1,170 second-feet June 13 (gage height, 11.27 feet); minimum, 22 second-feet Aug. 3 (gage height, 3.16 feet, from graph based on gage readings).

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Rating tables, May 1, 1945, to Sept. 30, 1946, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 16 to Sept. 28, Oct. 3 to Nov. 17, Nov. 19 to Dec. 10, 1945, Jan. 4, Mar. 11-14, 21-23, Mar. 26 to May 3, Sept. 16-30, 1946)

May 1, 1945, to June 13, 1946

3.2	20	5.0	102	9.5	565
3.3	23	5.5	134	10.0	680
3.5	31	7.0	270	10.4	800
4.5	76	8.5	420		

June 14 to Sept. 30, 1946

3.2	23	4.5	79
3.3	27	5.0	102
3.4	32		

Note.- Same as preceding table above 5.0 feet.

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								a60	46	96	245	34
2								a70	57	71	204	24
3								a200	51	60	91	22
4								a300	46	53	56	23
5								315	43	48	48	22
6								142	41	43	51	22
7								a159	40	40	44	21
8								500	39	36	37	22
9								335	38	34	30	25
10								168	44	32	28	26
11								130	41	31	68	26
12								99	38	29	42	23
13								88	46	36	37	30
14								91	43	35	130	43
15								335	52	32	127	42
16								390	204	30	46	31
17								430	99	27	36	25
18								485	68	27	33	24
19								285	55	27	30	24
20								130	78	26	28	24
21								99	138	27	27	24
22								78	71	27	27	25
23								68	53	25	26	64
24								62	45	26	26	120
25								60	42	60	25	86
26								61	41	81	25	55
27								58	39	44	25	53
28								68	465	34	24	74
29								55	538	138	24	177
30								51	190	64	26	86
31								46	-	52	24	-

a No gage-height record; discharge computed on basis of 3 discharge measurements, weather records, and records for Little Calumet River at Porter, Hart ditch at Munster, and Burns ditch at Gary.

Discharge, in second-feet, of Salt Creek near McCool, Ind., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	111	32	54	65	30	88	46	36	37	108	23	26
2	142	32	51	55	28	150	44	36	34	77	24	26
3	81	30	50	62	27	138	40	34	32	60	23	26
4	61	28	48	127	32	114	40	44	31	50	23	26
5	51	31	46	365	50	154	39	43	28	46	23	24
6	46	31	44	420	108	280	58	39	29	40	25	25
7	43	31	42	365	60	335	54	41	28	38	25	27
6	42	34	41	190	64	172	51	41	28	38	25	42
9	41	45	38	234	50	154	48	39	27	36	34	28
10	38	41	32	355	46	114	42	40	26	35	32	52
11	36	35	31	182	60	91	41	46	26	35	24	38
12	32	35	30	62	46	81	39	41	44	33	25	30
13	31	42	31	75	108	71	38	37	793	32	26	29
14	34	38	30	80	110	78	40	35	565	31	25	30
15	36	36	29	70	66	111	64	36	193	30	29	29
16	34	36	28	60	74	99	55	48	111	29	33	27
17	32	41	27	68	94	99	46	42	120	27	234	26
18	30	a45	*27	56	94	186	42	68	168	28	360	26
19	30	41	28	52	99	146	40	62	370	28	86	26
20	29	*40	28	50	78	102	39	55	522	27	54	25
21	28	39	28	45	71	84	37	50	340	26	44	26
22	46	34	28	35	71	71	40	41	127	25	40	25
23	48	30	28	*40	130	66	52	37	86	25	34	32
24	38	36	35	43	91	102	42	39	71	25	32	35
25	36	36	52	42	74	96	40	46	62	25	31	30
26	34	36	70	37	120	78	37	41	58	25	29	28
27	32	62	54	32	164	68	38	37	53	25	28	27
28	30	91	45	35	*86	61	37	34	31	25	28	26
29	30	78	65	37	-	55	38	32	152	24	31	25
30	34	64	90	41	-	51	38	31	88	23	30	26
31	34	-	70	35	-	48	-	32	-	27	28	-

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Little Calumet River at Porter.
Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 3, Jan. 13-18, Jan. 19 to Feb. 5.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May 1945	5,418	500	46	175	2.03	2.33
June	2,791	538	38	93.0	1.08	1.20
July	1,391	138	25	44.9	.520	.60
August	1,690	245	24	54.5	.632	.73
September	1,297	177	21	43.2	.501	.56
Water year	-	-	-	-	-	-
October 1945	1,370	142	28	44.2	.512	.59
November	1,230	91	28	41.0	.475	.53
December	1,300	90	27	41.9	.486	.56
Calendar year	-	-	-	-	-	-
January 1946	3,415	420	32	110	1.27	1.47
February	2,131	164	27	76.1	.882	.92
March	3,543	335	48	114	1.32	1.55
April	1,303	64	36	43.4	.503	.56
May	1,283	68	31	41.4	.480	.55
June	4,300	793	26	143	1.66	1.85
July	1,105	108	24	35.6	.413	.48
August	1,508	360	23	48.6	.563	.65
September	868	52	24	28.9	.335	.37
Water year 1945-46	23,356	793	23	64.0	.742	10.06

Galien River near New Troy, Mich.

Location.- Wire-weight gage, lat. 41°51'23", long. 86°32'48", in SW¼ sec. 17, T. 7 S., R. 19 W., at highway bridge, 1 mile upstream from East Branch Galien River and 1.4 miles south of New Troy.

Drainage area.- 47 square miles.

Records available.- July 1945 to September 1946.

Extremes.- Maximum discharge during year, 427 second-feet Jan. 5 (gage height, 10.04 feet); minimum, 10 second-feet Aug. 28 (gage height, 3.54 feet).
1945-46: Maximum discharge, that of Jan. 5, 1946; minimum, that of Aug. 28, 1946.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 25 to May 2)

Oct. 1 to Mar. 6

4.0	16	5.8	98
4.2	24	7.2	182
4.3	29	8.6	291
4.5	38	9.5	376
5.0	60		

Mar. 7 to Sept. 30

3.5	9.5	4.8	54
3.6	11.5	5.3	74
3.8	17	5.8	98

Note.- Same as preceding table above 5.8 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	34	54	97	22	83	40	22	26	23	12	11
2	132	29	49	72	18	126	38	21	24	22	12	11
3	64	28	48	67	17	90	33	19	24	21	12	11
4	49	24	44	86	17	98	33	24	23	21	12	11
5	40	24	37	376	20	265	33	26	23	20	12	11
6	38	22	32	*346	32	356	36	24	21	20	12	11
7	31	21	29	*196	38	231	39	24	21	19	12	11
8	28	21	26	129	36	135	35	25	19	19	12	11
9	49	38	26	228	31	144	35	23	18	19	20	12
10	51	40	26	150	28	132	33	24	16	18	15	17
11	41	31	23	114	26	135	33	27	19	17	13	14
12	33	29	22	88	22	103	31	24	24	17	13	12
13	28	40	24	76	69	68	30	22	86	16	14	12
14	27	38	21	64	114	64	32	22	38	16	15	12
15	25	33	20	57	90	88	48	30	32	16	13	12
16	23	28	22	54	75	72	45	28	47	16	14	12
17	22	34	23	47	65	123	34	27	39	16	14	11
18	21	39	23	42	51	141	32	49	66	15	13	11
19	20	34	*26	41	52	98	30	37	86	14	12	11
20	21	*31	28	39	51	72	29	41	177	14	12	11
21	21	30	28	35	42	64	27	31	75	14	12	11
22	29	34	28	*37	39	58	25	26	50	15	11	12
23	31	28	27	38	47	70	28	23	40	14	11	17
24	26	24	29	33	52	117	30	35	35	13	11	14
25	24	26	35	29	43	72	29	76	26	13	11	14
26	23	27	39	27	*70	62	26	41	29	14	11	14
27	21	74	36	26	90	56	24	32	26	13	11	13
28	21	120	33	24	61	52	26	28	27	13	11	13
29	22	90	41	21	-	48	24	30	26	12	12	13
30	24	74	153	22	-	44	22	35	23	12	12	14
31	56	-	141	21	-	42	-	27	-	13	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,207	166	20	38.9	0.828	0.96
November	1,145	120	21	38.2	.813	.91
December	1,193	153	20	38.5	.819	.94
Calendar year	-	-	-	-	-	-
January	2,682	376	21	86.5	1.84	2.12
February	1,318	114	17	47.1	1.00	1.04
March	3,309	356	42	107	2.28	2.62
April	960	48	22	32.0	.681	.76
May	923	76	19	29.8	.634	.73
June	1,186	177	16	39.5	.840	.94
July	505	23	12	16.3	.347	.40
August	388	20	11	12.5	.268	.31
September	370	17	11	12.3	.262	.29
Water year 1945-46	15,186	376	11	41.6	.885	12.02

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 12-29, Jan. 26 to Feb. 4, Feb. 16.

East Branch Galien River near New Troy, Mich.

Location.- Staff gage, lat. 41°53'08", long. 86°30'50", in SE¼ sec. 4, T. 7 S., R. 19 W., at highway bridge, 2 miles northeast of New Troy and 2.6 miles upstream from mouth.

Drainage area.- 19.2 square miles.

Records available.- July 1945 to September 1946.

Extremes.- Maximum discharge during year, 94 second-feet Jan. 5 (gage height, 3.85 feet, from graph based on gage readings); minimum, 1.4 second-feet Sept. 19, 22; minimum gage height, 0.93 foot Sept. 14-19.

1945-46: Maximum discharge, that of Jan. 5, 1946; minimum, that of Sept. 19, 22, 1946; minimum gage height, that of Sept. 14-19, 1946.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice-daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	7.8	16	25	10	29	11	5.2	4.9	5.4	2.0	2.0
2	36	7.8	14	21	11	40	10	5.0	4.8	4.9	1.9	2.0
3	27	7.4	14	20	7.5	36	9.7	5.0	4.4	4.3	1.9	2.0
4	16	6.5	13	21	7.0	33	9.1	5.5	4.3	4.3	2.0	1.9
5	14	6.2	13	82	9.0	49	8.2	5.6	4.2	4.0	1.9	1.9
6	12	6.0	12	*79	13	84	9.1	5.4	4.0	3.6	2.0	2.0
7	10	6.0	11	*42	12	59	9.1	5.5	3.9	3.6	1.9	1.9
8	8.7	6.4	10	36	10	40	9.5	5.8	3.7	3.6	1.7	2.0
9	7.3	8.6	10	49	10	37	9.1	5.6	3.6	3.6	2.6	2.0
10	5.6	9.2	9.5	40	9.7	33	8.6	5.5	3.3	3.5	2.4	2.8
11	5.2	9.2	9.0	34	8.9	27	8.1	5.6	3.5	3.3	2.2	2.2
12	5.2	9.5	8.6	28	9.0	24	7.4	5.5	4.4	3.2	2.1	2.0
13	5.0	11	9.0	24	19	21	7.4	5.0	16	3.2	2.0	1.7
14	5.0	9.5	8.2	20	40	21	7.6	4.6	13	3.0	2.0	1.6
15	5.0	8.9	8.0	17	43	22	10	4.8	9.3	3.0	1.9	1.6
16	5.0	7.8	9.0	15	32	21	9.9	5.6	9.9	2.9	2.0	1.5
17	5.0	7.8	9.0	14	24	23	8.6	5.6	7.9	2.8	2.1	1.5
18	5.0	8.7	9.0	14	15	26	8.2	9.7	10	2.8	2.1	1.5
19	5.0	7.8	*10	14	15	24	7.6	10	15	2.8	1.9	1.4
20	5.4	*7.6	10	13	14	21	7.4	11	30	2.8	1.9	1.5
21	7.4	7.9	10	13	13	19	7.2	9.3	20	2.8	1.9	1.5
22	7.9	8.7	11	*15	13	17	8.6	7.6	14	2.6	1.9	1.4
23	7.6	14	11	13	14	20	7.1	7.1	11	2.5	1.9	1.9
24	6.2	7.9	12	12	13	26	7.1	7.9	8.9	2.5	1.9	1.7
25	6.2	7.9	15	11	12	24	6.8	9.1	8.4	2.5	2.0	1.9
26	6.4	8.2	14	10	*18	20	6.4	8.4	7.6	2.4	2.0	1.7
27	6.4	13	11	10	22	19	6.3	7.2	6.9	2.2	2.0	1.7
28	6.4	23	11	10	20	16	5.8	6.6	6.8	2.2	2.0	1.6
29	6.2	23	12	9.0	-	14	5.8	5.6	6.1	2.2	2.0	1.7
30	6.4	19	27	9.3	-	13	5.6	5.4	5.5	2.1	2.0	2.0
31	7.4	-	30	9.6	-	14	-	5.0	-	2.0	2.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	286.9	36	5.0	9.25	0.482	0.56
November	292.3	23	6.0	9.74	.507	.57
December	376.3	30	8.0	12.1	.630	.73
Calendar year	-	-	-	-	-	-
January	729.9	82	9.0	23.5	1.22	1.41
February	444.1	43	7.0	15.9	.828	.86
March	872	84	13	28.1	1.46	1.69
April	240.3	11	5.6	8.01	.417	.47
May	200.7	11	4.6	6.47	.337	.39
June	255.3	30	3.3	8.51	.443	.49
July	96.6	5.4	2.0	3.12	.162	.19
August	62.1	2.6	1.7	2.00	.104	.12
September	54.1	2.8	1.4	1.80	.094	.10
Water year 1945-46	3,910.6	84	1.4	10.7	.557	7.58

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 12-28, Jan. 26 to Feb. 4.

St. Joseph River at Mottville, Mich.

Location.- Float gage, lat. 41°48', long. 85°45', in NE¼ sec. 6, T. 8 S., R. 12 W., at hydroelectric plant of Michigan Gas & Electric Co. at Mottville, 5 miles downstream from Fawn River. Datum of gage is 759.5 feet above mean sea level (levels by Michigan Gas & Electric Co.).

Records available.- December 1923 to September 1946.

Average discharge.- 22 years (1924-46), 1,432 second-feet.

Extremes (regulated).- Maximum discharge during year, 3,480 second-feet Mar. 9 (gage height, 2.13 feet); minimum daily, 98 second-feet Sept. 1.
1924-46: Maximum discharge, 8,250 second-feet Apr. 20, 1926 (gage height, 4.4 feet); minimum, 20 second-feet Sept. 7, 1930; minimum daily, 44 second-feet Oct. 17, 1937.

Remarks.- Records fair. Flow regulated by power plant. Gage read hourly.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,570	998	1,160	1,290	1,190	1,530	1,800	989	908	827	480	98
2	1,820	1,060	1,060	1,540	1,010	1,650	1,830	982	818	827	495	173
3	1,820	1,180	1,420	1,510	976	1,810	1,690	854	1,070	863	410	466
4	1,920	827	1,470	1,520	1,430	2,160	1,640	827	818	510	122	466
5	2,090	1,420	1,150	1,490	1,090	2,350	1,380	578	638	827	548	371
6	2,140	1,030	1,080	1,790	1,310	2,640	1,300	1,040	719	678	525	378
7	1,870	944	1,370	2,140	1,350	3,240	1,470	944	686	364	532	225
8	1,870	1,090	1,140	2,310	1,210	3,240	1,400	746	592	791	510	142
9	1,920	1,070	917	2,580	1,220	3,480	1,490	764	822	800	410	585
10	1,870	1,260	1,320	2,640	1,120	3,360	1,540	863	800	815	291	473
11	1,570	791	1,060	2,700	1,380	3,360	1,450	622	615	532	147	488
12	1,520	1,270	1,260	2,760	1,220	3,120	1,520	854	592	532	488	466
13	1,190	1,180	917	2,640	1,400	3,000	1,420	944	773	364	480	502
14	1,270	1,250	1,080	2,480	1,400	2,820	1,320	737	662	327	452	211
15	1,470	1,250	980	2,350	1,330	2,760	1,570	773	686	678	466	102
16	1,470	1,110	678	2,190	1,230	2,700	1,470	764	562	630	488	502
17	1,240	1,320	1,250	1,900	1,570	2,640	1,170	662	836	502	258	502
18	1,210	953	1,050	1,880	1,800	2,580	1,420	622	773	600	114	410
19	1,170	1,370	1,200	1,820	1,760	2,640	1,110	1,020	702	525	518	459
20	1,100	1,370	1,140	1,420	1,870	2,700	1,140	1,220	838	830	445	480
21	1,030	1,270	1,090	1,650	1,880	2,840	1,220	1,320	755	220	510	182
22	1,420	989	854	1,490	1,760	2,700	1,370	1,520	755	488	384	134
23	1,260	1,210	562	1,270	1,760	2,560	1,100	1,370	854	578	424	578
24	1,160	1,120	980	1,350	1,570	2,490	1,030	1,320	773	582	156	510
25	1,090	935	1,150	1,360	1,720	2,410	1,080	1,420	719	488	345	525
26	1,180	1,320	1,320	1,440	1,450	2,390	1,120	1,270	755	502	297	502
27	1,120	1,370	1,240	1,060	1,600	2,130	1,140	1,370	764	384	390	510
28	917	1,220	1,160	1,440	1,630	2,090	926	1,100	773	182	486	378
29	1,420	1,320	1,210	1,110	-	2,160	1,270	773	578	565	397	263
30	1,190	1,130	1,180	1,280	-	1,980	982	710	525	578	378	638
31	1,240	-	1,280	1,350	-	1,840	-	953	-	654	274	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	44,727	2,140	917	1,443		
November	34,607	1,420	791	1,154		
December	34,728	1,470	562	1,120		
Calendar year 1945	493,092	4,500	287	1,351		
January	55,730	2,760	1,060	1,798		
February	40,216	1,870	976	1,436		
March	79,170	3,480	1,530	2,554		
April	40,348	1,830	926	1,345		
May	29,911	1,520	578	965		
June	21,781	1,070	525	725		
July	17,643	863	182	569		
August	12,200	548	114	394		
September	11,719	638	98	391		
Water year 1945-46	422,780	3,480	98	1,158		

St. Joseph River at Niles, Mich.

Location.- Water-stage recorder, lat. 41°49'45", long. 86°15'35", in sec. 26, T. 7 S., R. 17 W., at Niles, 1 mile upstream from Dowagiac Creek. Datum of gage is 635.02 feet above mean sea level, datum of 1929. Auxiliary float gage in powerhouse of Buchanan Dam, 8 miles downstream.

Drainage area.- 3,620 square miles.

Records available.- October 1930 to September 1946.

Average discharge.- 14 years (1930-37, 1938-39, 1940-46) 2,791 second-feet.

Extremes.- Maximum daily discharge during year, 6,680 second-feet Mar. 7; maximum gage height, 6.56 feet Mar. 8; minimum daily discharge, 636 second-feet Aug. 25.
1930-46: Maximum discharge, 17,300 second-feet May 26, 1943 (gage height, 11.78 feet); minimum daily, 407 second-feet (regulated) Aug. 2, 1936.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow regulated by power plants above station. Discharge computed by using fall as determined by hourly readings of auxiliary gage as a factor.

Cooperation.- Gage-height record at auxiliary gage furnished by Indiana & Michigan Electric Co.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,460	2,180	2,220	3,500	2,060	3,510	3,760	1,990	2,370	1,830	1,220	910
2	5,640	1,910	2,510	3,300	2,150	3,770	3,590	2,160	2,190	2,250	1,180	807
3	6,520	2,160	2,470	3,200	1,950	3,700	3,490	2,110	2,230	1,840	1,110	938
4	5,280	1,980	2,750	3,600	2,190	4,160	3,180	1,880	2,190	1,860	661	990
5	4,810	2,010	2,560	4,060	2,440	4,790	3,000	2,040	1,780	1,470	1,180	1,120
6	4,250	2,260	2,280	4,900	2,780	6,070	2,750	2,050	1,840	1,820	1,110	1,050
7	4,240	1,970	1,970	5,120	2,760	6,680	2,560	2,310	1,790	1,480	1,050	990
8	3,570	1,870	2,410	5,090	2,440	6,560	3,050	2,220	1,590	1,770	1,070	780
9	3,770	2,060	2,090	5,240	2,560	6,410	3,040	1,820	1,500	1,780	1,160	1,190
10	3,630	2,100	2,280	5,910	2,390	6,440	2,970	1,920	1,930	1,550	1,090	1,280
11	3,550	2,200	2,550	5,880	2,420	6,260	2,970	1,910	1,870	1,510	904	1,350
12	3,150	1,920	1,680	5,620	2,370	5,760	2,750	2,140	1,690	1,370	1,100	1,240
13	3,250	2,360	2,140	5,260	2,480	5,760	2,640	1,910	2,890	1,400	1,030	1,120
14	2,170	2,440	1,940	4,400	3,930	5,310	2,580	1,890	2,360	1,150	1,110	1,050
15	3,180	2,380	1,680	4,890	3,890	5,620	2,860	1,890	2,440	1,430	1,100	816
16	2,740	2,330	1,790	4,280	3,420	5,190	3,080	2,200	2,810	1,400	1,160	1,180
17	2,670	2,480	3,040	4,160	4,180	5,300	2,800	2,020	2,360	1,660	1,070	1,090
18	2,490	2,520	3,730	3,990	4,980	5,630	2,160	2,190	2,880	1,360	844	1,290
19	2,280	2,380	4,100	3,850	4,740	5,730	2,860	2,490	2,970	1,300	1,110	1,050
20	2,300	2,490	2,840	3,310	4,320	5,520	2,070	3,310	2,840	1,150	1,080	1,070
21	1,980	2,420	3,120	3,150	4,130	5,250	2,230	3,050	2,870	1,020	1,220	1,020
22	2,610	2,010	2,800	2,910	3,950	5,330	2,720	2,690	2,590	1,460	1,120	774
23	2,550	2,300	1,500	2,560	3,870	4,920	2,530	3,000	2,360	1,280	1,040	1,280
24	2,400	2,290	1,900	2,540	3,890	5,150	2,600	2,700	2,600	1,200	1,040	1,410
25	2,400	2,100	2,200	2,730	3,740	5,400	2,310	2,560	2,380	1,360	636	948
26	2,150	2,210	2,400	3,190	3,460	5,050	2,330	2,620	2,360	1,230	1,180	1,100
27	2,130	2,440	2,300	2,530	3,840	4,800	2,240	2,580	1,880	1,250	1,030	1,140
28	1,910	2,690	2,500	2,500	3,860	3,880	2,110	2,480	2,330	825	977	1,080
29	2,470	2,450	2,400	2,450	-	4,730	2,410	2,420	2,000	1,480	925	787
30	2,300	2,730	2,800	2,550	-	4,110	2,380	1,700	1,700	1,210	1,010	1,060
31	2,300	-	3,300	2,850	-	3,980	-	2,020	-	1,130	770	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	98,150	6,520	1,910	3,166	0.875	1.01
November	67,640	2,730	1,870	2,255	.623	.70
December	76,470	4,100	1,500	2,467	.681	.79
Calendar year 1945	1,082,760	9,440	1,140	2,966	.819	11.13
January	119,500	5,910	2,450	3,855	1.06	1.22
February	91,190	4,980	1,950	3,257	.900	.94
March	160,770	6,680	3,510	5,186	1.43	1.65
April	82,020	3,760	2,070	2,734	.755	.84
May	70,270	3,310	1,700	2,267	.826	.72
June	67,590	2,970	1,500	2,253	.622	.69
July	44,825	2,250	825	1,446	.399	.46
August	32,287	1,220	636	1,042	.288	.33
September	31,910	1,410	774	1,064	.294	.33
Water year 1945-46	942,622	6,680	636	2,583	.714	9.68

Note.- No gage-height record at upper gage Dec. 23 to Jan. 4; discharge computed on basis of weather records, records for station at Mottville, and power-plant records at Buchanan.

East Branch Coldwater River at Coldwater, Mich.

Location.- Staff gage, lat. 41°55'50", long. 85°00'50", in sec. 21, T. 6 S., R. 6 W., at sewage-treatment plant in Coldwater, 2 miles upstream from mouth.

Drainage area.- 59 square miles.

Records available.- December 1937 to September 1946.

Extremes. Maximum discharge observed during year, 109 second-feet Mar. 9 (gage height, 2.02 feet); minimum discharge observed, 0.3 second-foot Aug. 15, Sept. 11-13; minimum gage height observed, 0.82 foot Aug. 13-15.

1937-46: Maximum discharge, 490 second-feet May 25, 1943 (gage height, 3.65 feet, from graph based on gage readings), from rating curve extended above 340 second-feet; minimum observed, that of Aug. 15, Sept. 11-13, 1946.

Remarks.- Records fair. Gage read twice daily.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 9 to Dec. 13, May 27 to Sept. 30)

0.6	0.2	0.9	4.0	1.6	56
.7	.9	1.0	7.0	1.6	80
.8	2.0	1.2	19	2.1	119

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	11	8.6	17	22	42	48	17	18	10	0.9	0.5
2	24	12	9.8	18	23	48	48	16	17	10	.9	.4
3	22	12	11	19	18	48	46	15	15	9.8	.9	.4
4	21	11	9.2	20	15	50	42	14	14	8.6	.9	.5
5	20	11	11	30	18	72	40	16	13	8.1	.8	.6
6	22	11	10	47	20	85	38	16	12	6.7	.6	.5
7	21	12	11	40	19	103	34	15	11	6.1	.6	.6
8	19	12	10	41	19	96	37	14	11	5.8	.5	1.7
9	18	16	11	56	18	106	34	13	10	5.5	.5	.6
10	17	14	10	67	20	102	32	15	9.2	4.9	.6	.4
11	18	12	11	60	18	97	29	16	9.8	4.6	.5	.3
12	15	12	8.6	54	16	92	28	15	9.8	4.0	.4	.4
13	14	12	8.6	48	25	86	27	14	14	4.0	.4	.4
14	12	11	9.8	54	49	81	28	12	13	3.6	.4	.4
15	12	8.1	8.6	49	47	83	29	13	13	3.4	.3	.4
16	12	7.6	7.6	55	58	80	27	18	12	3.0	.4	.6
17	12	8.6	8.1	39	68	84	26	17	11	2.6	.6	.6
18	11	8.6	7.0	37	66	102	25	22	14	3.0	.4	.8
19	11	7.6	7.0	46	61	93	25	22	12	3.0	.4	.6
20	12	6.7	7.6	33	55	89	23	24	11	3.0	.4	.6
21	11	8.1	7.6	33	48	84	22	24	11	2.4	.4	.5
22	14	8.6	8.1	32	46	80	21	22	10	2.2	.4	.5
23	12	10	8.1	31	42	78	23	21	9.2	1.9	.4	.6
24	11	8.1	8.1	29	42	75	23	20	7.6	1.6	a.4	.7
25	11	7.6	9.8	26	39	74	22	22	6.7	1.3	.4	.7
26	11	6.7	9.2	27	41	72	20	21	11	1.3	.5	.6
27	11	7.8	9.8	16	44	69	19	18	9.2	1.3	.4	.7
28	11	9.2	10	22	42	66	19	16	8.6	1.4	.4	.6
29	10	8.6	11	22	-	62	18	16	8.1	1.1	.4	.8
30	11	8.1	16	24	-	57	18	14	9.2	1.1	.4	.8
31	12	-	18	21	-	50	-	18	-	1.0	.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	461	25	10	14.9	0.253	0.29
November	298.8	16	6.7	9.96	.169	.19
December	301.2	18	7.0	9.72	.165	.19
Calendar year 1945	11,770.0	188	1.1	32.2	.548	7.44
January	1,113	67	16	35.9	.608	.70
February	998	68	15	35.6	.603	.63
March	2,406	106	42	77.8	1.32	1.52
April	871	48	18	29.0	.492	.55
May	538	24	12	17.3	.293	.54
June	340.4	18	6.7	11.3	.192	.21
July	126.3	10	1.0	4.07	.069	.08
August	15.9	.9	.3	.513	.0087	.01
September	17.6	1.7	.3	.587	.0099	.01
Water year 1945-46	7,485.2	106	.3	20.5	.347	4.72

a No gage-height record; discharge interpolated.

Pawn River at Orland, Ind.

Location.- Staff gage, lat. 41°44'30", long. 85°10'15", in N½ sec. 20, T. 38 N., R. 12 E., at bridge on State Highway 327, 1,300 feet upstream from concrete dam at Pawn River State Fish Hatchery and 0.7 mile north of Orland.

Drainage area.- 88.4 square miles.

Records available.- August 1943 to September 1946.

Extremes.- Maximum daily discharge during year, 113 second-feet Mar. 18; maximum gage height, 2.12 feet June 29, from graph based on gage readings; minimum daily discharge, 4.0 second-feet Sept. 8, 9, 30; minimum gage height, 0.90 foot Dec. 15, 16.

1943-46: Maximum daily discharge, 205 second-feet Mar. 23, 24, 1944; maximum gage height, 2.30 feet Mar. 17, 1944, from graph based on gage readings; minimum daily discharge, that of Sept. 8, 9, 30, 1946; minimum gage height, that of Dec. 15, 16, 1945.

Remarks.- Records fair except those for periods of ice effect, which are poor. Discharge includes diversion for fish hatchery at station. Occasional regulation by Nevada Mills above station. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	44	a41	*28	39	65	49	48	19	9.4	9.2	4.4
2	30	44	a40	29	64	67	56	25	16	17	9.9	4.4
3	80	44	40	29	46	69	55	27	14	37	9.8	4.4
4	83	44	40	29	*54	70	51	30	14	40	7.9	4.4
5	97	42	38	35	55	79	53	29	14	39	8.0	4.4
6	76	44	37	43	58	80	53	26	19	39	8.0	4.4
7	75	44	37	43	44	81	52	22	21	38	8.0	4.4
8	75	44	37	38	60	79	53	20	22	37	8.0	4.0
9	72	44	37	42	54	80	54	20	22	35	9.4	4.0
10	75	44	34	45	55	80	52	19	22	35	9.5	4.9
11	71	44	25	43	53	78	52	20	22	33	9.0	7.2
12	71	44	b35	51	53	77	52	18	25	28	8.1	6.7
13	70	44	b35	58	57	85	52	18	28	29	7.2	5.8
14	69	46	b30	58	71	101	53	18	28	29	7.2	5.4
15	64	46	b22	65	61	109	54	19	26	29	6.7	5.4
16	48	44	b21	61	70	109	52	21	21	28	7.1	5.8
17	44	44	b25	58	71	110	52	21	22	28	8.1	5.8
18	44	44	b25	58	68	113	50	27	23	28	9.1	6.3
19	44	44	b25	56	64	111	52	32	23	28	7.7	7.1
20	44	44	b25	b47	62	110	52	35	22	28	7.6	7.1
21	44	44	b25	b48	58	108	50	34	21	28	6.8	7.1
22	46	44	b27	b43	63	106	50	33	21	27	5.3	7.1
23	46	44	b27	b54	62	109	48	32	21	27	5.3	8.0
24	46	44	b29	61	60	85	51	29	20	27	5.3	8.0
25	46	48	b32	59	62	76	51	29	20	26	5.4	7.1
26	44	46	b34	50	62	70	50	28	22	21	5.3	4.9
27	46	44	b34	40	65	69	43	27	26	14	4.4	4.9
28	46	55	b37	56	65	69	40	26	26	9.1	4.4	4.5
29	44	*45	b40	58	-	69	38	22	39	6.9	4.4	4.4
30	42	a43	43	58	-	63	38	22	16	6.1	4.4	4.0
31	44	-	42	52	-	51	-	19	-	9.2	4.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,757	97	30	56.7	0.641	0.74
November	1,339	55	42	44.6	.505	.56
December	1,019	43	21	32.9	.372	.43
Calendar year 1945	17,446.9	155	8.5	47.8	.541	7.34
January	1,495	65	28	48.2	.545	.63
February	1,656	71	39	59.1	.669	.70
March	2,628	113	51	84.8	.959	1.11
April	1,508	56	38	50.3	.569	.63
May	796	48	18	25.7	.291	.33
June	655	39	14	21.8	.247	.28
July	815.7	40	6.1	26.3	.298	.34
August	221.3	9.9	4.4	7.14	.081	.09
September	166.3	8.0	4.0	5.54	.063	.07
Water year 1945-46	14,056.3	113	4.0	38.5	.436	5.91

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of 1 discharge measurement and weather records.
b Stage-discharge relation affected by ice.

Pigeon Creek near Flint, Ind.

Location.- Wire-weight gage, lat. 41°38'18", long. 85°06'46", in NW¼ sec. 26, T. 37 N., R. 12 E., at highway bridge, 1 mile southeast of Flint and 1½ miles downstream from outlet of Hogback Lake.

Drainage area.- 109 square miles.

Records available.- October 1945 to September 1946.

Extremes.- Maximum discharge or gage height during year not determined; maximum daily discharge, 220 second-feet Feb. 19; minimum discharge not determined; minimum daily discharge, 13 second-feet July 24-28, Aug. 27, Sept. 16-30; minimum gage height observed, 6.74 feet July 26, but may have been less during period of no gage-height record.

Remarks.- Records fair except those below 30 second-feet or for periods of no gage-height record, which are poor. Gage read twice daily.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 5 to July 17, July 30 to Sept. 30)

6.8	13	7.8	31	8.6	99
7.1	15	8.0	42	8.8	126
7.4	18	8.2	57	9.1	178
7.6	22	8.4	76	9.3	220

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	28	30	60	57	115	78	33	27	49	15	15
2	76	26	30	65	58	120	74	32	25	54	16	15
3	72	28	32	68	42	131	70	32	24	46	16	15
4	72	27	31	69	43	137	66	33	24	43	16	15
5	78	27	29	74	43	140	62	30	23	41	16	15
6	82	27	30	87	48	137	58	30	23	45	15	15
7	82	26	32	98	48	136	56	30	22	43	15	15
8	82	26	30	100	51	140	54	30	21	41	14	15
9	76	26	30	132	49	170	53	30	23	40	14	15
10	70	25	30	140	52	175	51	28	28	42	14	15
11	65	28	30	147	55	170	50	30	34	38	14	15
12	60	28	30	150	55	170	48	28	35	37	14	15
13	56	28	30	154	57	160	48	28	37	36	14	15
14	52	28	32	147	56	140	46	28	43	30	15	15
15	48	28	32	149	85	130	48	28	47	24	15	15
16	43	28	30	139	150	130	45	30	51	20	15	13
17	37	28	30	139	170	135	44	31	53	18	15	13
18	34	30	30	139	210	135	41	34	53	16	15	13
19	37	30	30	132	220	135	41	36	51	15	15	13
20	22	30	30	97	210	135	40	39	48	15	15	13
21	28	25	29	79	200	130	36	38	49	14	15	13
22	32	28	30	79	170	125	38	39	48	14	15	13
23	32	30	30	79	150	120	38	38	40	14	15	13
24	30	24	29	82	140	115	38	38	43	13	14	13
25	30	26	28	80	130	105	36	37	45	13	14	13
26	29	27	28	79	120	100	36	35	45	13	14	13
27	27	28	28	66	115	96	40	34	43	13	13	13
28	22	28	28	57	110	94	37	32	44	13	14	13
29	26	32	28	53	-	90	37	30	46	14	15	13
30	27	32	36	54	-	86	34	28	46	14	15	13
31	26	-	38	55	-	82	-	28	-	15	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,533	82	22	49.5	0.454	0.52
November	823	32	24	27.7	.254	.28
December	940	38	28	30.3	.278	.32
Calendar year	-	-	-	-	-	-
January	3,049	154	53	98.4	.903	1.04
February	2,894	220	42	103	.945	.99
March	3,984	175	82	129	1.18	1.36
April	1,443	78	34	48.1	.441	.49
May	997	39	28	32.2	.295	.34
June	1,141	53	21	38.0	.349	.59
July	843	54	13	27.2	.250	.29
August	456	16	13	14.7	.135	.16
September	420	15	13	14.0	.128	.14
Water year 1945-46	18,532	220	13	50.8	.466	6.32

Note.- No gage-height record Oct. 1-15, Feb. 15 to Mar. 2, Mar. 9, 10, Mar. 12 to Apr. 8, Sept. 1-12, 14-30; discharge computed on basis of 4 discharge measurements, weather records, and unpublished records for outlet of Hogback Lake, 1¼ miles upstream.

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Elkhart River at Goshen, Ind.

Location.- Water-stage recorder, lat. 41°35', long. 85°50', near line between secs. 8 and 9, T. 36 N., R. 6 E., at River Avenue Bridge at Goshen, half a mile upstream from Rock Run.

Drainage area.- 573 square miles.

Records available.- April 1931 to September 1946 in reports of Geological Survey. September 1924 to September 1927 in reports of Indiana Department of Conservation.

Average discharge.- 18 years (1924-27, 1931-46), 447 second-feet.

Extremes.- Maximum discharge during year, 3,360 second-feet Oct. 2 (gage height, 7.55 feet); minimum, 59 second-feet (regulated) June 6 (gage height, 1.58 feet); minimum daily, 76 second-feet Sept. 7.

1931-46: Maximum discharge, 5,090 second-feet May 25, 1943 (gage height, 9.46 feet), from rating curve extended above 4,000 second-feet; minimum, 28 second-feet (regulated) Sept. 5, 6, 1941; minimum daily, 35 second-feet Sept. 26, 1941; minimum gage height, 1.27 feet May 25, 30, 1932.

Remarks.- Records good except those for periods of ice effect, which are fair. Flow regulated by three power plants above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,450	378	343	620	346	719	543	265	198	519	137	125
2	3,160	362	336	*520	340	695	524	253	198	506	148	80
3	2,370	358	336	520	327	695	488	232	208	414	148	143
4	1,660	339	319	540	338	695	435	231	194	405	64	137
5	1,290	337	301	700	*358	792	492	205	155	389	205	123
6	1,160	333	280	1,090	406	990	414	234	188	370	142	120
7	1,080	337	285	1,090	418	1,190	369	242	166	343	141	76
8	1,010	314	322	965	381	1,060	410	231	153	336	127	80
9	955	343	304	1,040	410	990	422	232	171	311	199	139
10	931	339	297	1,340	410	940	406	213	174	301	147	152
11	881	354	241	1,160	398	866	398	217	151	301	112	140
12	824	362	212	990	377	841	377	238	256	287	169	122
13	776	365	245	890	508	816	358	235	1,190	268	132	113
14	728	366	230	739	1,220	792	350	233	1,580	250	143	77
15	639	370	240	816	1,000	816	358	216	1,040	242	140	78
16	681	362	200	695	900	841	354	232	872	236	139	143
17	604	362	220	695	1,320	890	354	265	840	228	140	133
18	567	362	210	743	1,340	1,060	343	135	816	155	169	126
19	535	339	210	637	1,190	1,090	336	357	960	175	139	128
20	414	322	210	552	1,060	965	290	346	1,130	194	177	121
21	456	*318	220	484	940	890	315	325	1,010	207	146	80
22	496	318	220	397	915	841	333	321	878	175	144	80
23	527	308	230	381	890	792	326	304	807	211	143	144
24	494	298	240	466	841	792	282	291	760	211	177	154
25	500	284	260	492	768	866	290	284	713	192	85	130
26	388	294	260	431	743	816	311	284	644	154	136	123
27	410	328	250	380	866	792	262	268	579	163	136	129
28	401	339	250	388	816	743	263	224	569	179	129	86
29	397	339	270	373	-	695	269	202	569	138	136	86
30	382	339	400	377	-	647	223	223	538	188	80	134
31	382	-	700	362	-	590	-	213	-	164	123	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	26,568	3,180	382	857	1.50	1.72
November	10,169	378	284	339	.592	.66
December	8,641	700	200	279	.487	.56
Calendar year 1945	182,448	3,180	130	500	.873	11.84
January	20,873	1,340	362	673	1.17	1.35
February	19,826	1,340	327	708	1.24	1.29
March	26,207	1,190	590	845	1.47	1.70
April	10,895	543	223	363	.634	.71
May	7,931	357	202	256	.447	.51
June	17,707	1,580	151	590	1.03	1.15
July	8,212	519	138	265	.462	.53
August	4,373	205	80	141	.246	.28
September	3,502	154	76	117	.204	.23
Water year 1945-46	164,904	3,180	76	452	.789	10.69

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 5, Feb. 2, 15, 16.

Kalamazoo River near Battle Creek, Mich.

Location.- Water-stage recorder, lat. 42°20'45", long. 85°15'45", in NE¼ sec. 32, T. 1 S., R. 8 W., half a mile upstream from Wabascon Creek and 3 miles downstream from city of Battle Creek. Datum of gage is 797.00 feet above mean sea level, datum of 1929.

Drainage area.- 849 square miles.

Records available.- July 1937 to September 1946.

Extremes.- Maximum discharge during year, 2,940 second-feet Mar. 8 (gage height, 7.14 feet); minimum, 147 second-feet (regulated) July 29; minimum daily, 177 second-feet (regulated) Sept. 24; minimum gage height, 1.84 feet Apr. 13.
1937-46: Maximum discharge, 4,020 second-feet June 4, 1943 (gage height, 8.00 feet); minimum, 50 second-feet (regulated) Sept. 22, 1939; minimum daily, 143 second-feet (regulated) Aug. 21, 1941; minimum gage height, 1.51 feet Feb. 22, 1940.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Slight regulation from power plants upstream.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	513	476	606	635	460	600	569	344	739	434	178	201
2	572	476	594	670	446	945	530	396	676	388	215	191
3	659	438	618	635	395	1,080	524	335	666	331	215	192
4	605	451	582	600	416	1,400	524	330	579	343	206	212
5	605	457	565	845	460	2,060	503	363	495	316	213	208
6	582	407	565	1,040	495	2,740	466	363	462	292	187	225
7	539	419	495	1,080	548	2,940	466	317	430	286	202	221
8	455	407	548	1,260	495	2,940	461	363	420	344	201	229
9	475	439	512	1,400	530	2,840	431	345	402	262	248	203
10	447	451	512	1,490	495	2,470	583	342	365	279	253	233
11	420	451	512	1,400	495	2,180	486	386	378	303	287	260
12	394	426	460	1,400	460	1,840	456	349	368	319	258	260
13	411	433	530	1,260	495	1,590	396	313	362	287	235	238
14	417	420	495	1,080	600	1,440	480	338	356	273	258	207
15	413	433	a480	945	565	1,350	435	323	378	273	277	210
16	367	407	a460	845	530	1,340	435	483	340	220	258	218
17	384	433	453	745	765	1,210	402	464	343	266	277	194
18	378	396	410	705	670	1,210	445	664	374	266	282	206
19	401	456	389	670	600	1,200	460	625	437	273	272	198
20	407	396	425	512	635	1,060	382	602	515	237	249	206
21	445	346	a430	565	548	1,150	411	675	491	252	234	213
22	451	456	a430	456	582	980	382	652	471	223	233	213
23	438	384	a430	478	530	917	376	580	472	230	245	213
24	470	371	a410	495	530	830	435	543	451	201	228	177
25	482	376	a410	512	495	792	392	606	392	223	258	223
26	470	432	432	460	453	784	392	678	344	237	242	201
27	444	392	512	456	600	765	371	583	365	223	217	215
28	482	427	460	478	512	700	339	493	365	237	209	208
29	431	603	495	439	-	682	373	534	330	184	236	208
30	418	582	582	495	-	656	325	499	367	223	232	181
31	425	-	705	495	-	623	-	571	-	208	236	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	14,400	659	367	465	0.548	0.63
November	13,041	603	346	435	.512	.57
December	15,507	705	389	500	.589	.68
Calendar year 1945	204,940	3,150	218	561	.661	8.97
January	24,546	1,490	439	792	.933	1.08
February	14,805	765	395	529	.623	.65
March	43,314	2,940	600	1,397	1.65	1.90
April	13,230	583	325	441	.519	.58
May	14,459	678	313	466	.549	.63
June	13,133	739	330	438	.516	.58
July	8,433	434	184	272	.320	.37
August	7,341	287	178	237	.279	.32
September	6,364	260	177	212	.250	.28
Water year 1945-46	188,573	2,940	177	517	.609	8.27

a No gage-height record; discharge computed on basis of weather records and records for Kalamazoo River at Comstock and Battle Creek at Battle Creek.

Kalamazoo River at Comstock, Mich.

Location.- Water-stage recorder, lat. 42°17'05", long. 83°30'50", in NE¼ sec. 19, T. 2 S., R. 10 W., at highway bridge at Comstock, a quarter mile downstream from Comstock Creek. Datum of gage is 759.12 feet (revised) above mean sea level, datum of 1929. Prior to Oct. 24, wire-weight gage at same site and datum.

Drainage area.- 1,010 square miles.

Records available.- April to August 1931, October 1932 to September 1946.

Average discharge.- 12 years (1934-46), 813 second-feet.

Extremes.- Maximum discharge during year, 3,400 second-feet Mar. 9 (gage height, 4.96 feet); minimum discharge, 233 second-feet Aug. 2; minimum gage height, 0.79 foot Sept. 25. 1931, 1932-46: Maximum discharge, 4,770 second-feet June 5, 1943 (gage height, 6.41 feet, from graph based on gage readings); minimum observed, 199 second-feet Oct. 14, 1934; minimum gage height observed, 0.56 foot May 4, 1931.

Remarks.- Record good. Gage read twice daily prior to Oct. 24. Flow regulated by power plants above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,140	527	731	871	647	759	787	488	1,100	533	370	310
2	1,250	510	724	780	640	1,140	717	498	1,100	620	335	310
3	1,250	594	717	808	521	1,470	752	527	990	620	340	300
4	1,320	647	717	871	551	1,470	703	521	892	504	315	290
5	1,210	640	661	990	640	2,040	731	545	850	455	365	280
6	a1,150	634	647	1,320	675	2,480	717	588	745	460	365	280
7	a1,100	582	647	1,250	689	3,040	703	551	675	415	355	290
8	1,020	515	594	1,320	710	3,220	896	488	575	430	340	310
9	864	471	582	1,580	689	3,310	634	476	510	420	345	315
10	829	488	594	1,660	710	3,130	668	488	557	415	355	335
11	822	521	601	1,660	689	2,880	724	488	557	375	385	370
12	815	601	588	1,510	627	2,340	731	504	557	375	400	450
13	a800	710	551	1,470	661	2,060	696	498	551	425	380	445
14	a760	703	569	1,250	752	1,620	594	466	521	415	350	410
15	a720	696	557	1,250	682	1,660	647	466	482	450	345	385
16	703	682	430	1,100	703	1,470	703	533	521	415	350	375
17	627	654	400	920	1,020	1,620	668	745	527	370	330	365
18	594	654	471	920	920	1,470	634	801	527	370	350	340
19	588	675	493	920	829	1,440	627	1,060	551	370	355	345
20	640	731	515	703	829	1,320	668	1,060	634	345	355	345
21	a700	634	545	717	794	1,210	634	906	829	370	350	320
22	801	551	551	594	738	1,280	614	920	815	370	345	330
23	773	682	557	575	752	1,210	575	913	696	370	335	455
24	1,060	614	510	787	717	1,060	582	780	724	365	340	466
25	990	557	510	773	738	990	608	815	647	340	335	340
26	920	654	557	682	668	955	594	955	601	355	325	360
27	955	696	601	563	668	990	588	990	521	365	330	385
28	990	675	668	488	724	990	557	801	510	360	330	425
29	829	689	668	569	-	892	539	640	527	350	320	425
30	614	759	731	675	-	864	545	668	521	365	325	365
31	738	-	850	773	-	864	-	801	-	375	315	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	27,572	1,320	588	889	0.880	1.01
November	18,746	759	471	625	.619	.69
December	18,537	850	400	598	.592	.68
Calendar year 1945	288,361	3,580	385	790	.782	10.62
January	30,349	1,660	488	979	.969	1.12
February	19,983	1,020	521	714	.707	.74
March	51,244	3,310	759	1,653	1.64	1.89
April	19,636	787	539	655	.649	.72
May	20,980	1,060	466	677	.670	.77
June	19,813	1,100	482	660	.653	.73
July	12,767	620	340	412	.408	.47
August	10,735	400	315	346	.343	.40
September	10,741	466	280	358	.354	.40
Water year 1945-46	261,103	3,310	280	715	.708	9.62

a No gage-height record; discharge computed on basis of weather records and records for stations near Battle Creek and near Allegan.

Kalamazoo River at Calkins Dam, near Allegan, Mich.

Location.- Water-stage recorder, lat. 42°34', long. 85°57', in sec. 15, T. 2 N., R. 14 W., at hydroelectric plant of city of Allegan, 1 mile upstream from Swan Creek and 8 miles northwest of Allegan. Datum of gage is at mean sea level (levels by city of Allegan).

Drainage area.- 1,540 square miles.

Records available.- April 1929 to September 1936, October 1937 to September 1946.

Average discharge.- 15 years (1930-36, 1937-46), 1,236 second-feet.

Extremes.- Maximum discharge during year, 6,020 second-feet Mar. 9 (gage height, 604.25 feet); minimum daily discharge, 238 second-feet Aug. 11.
1929-36, 1937-46: Maximum daily discharge, 7,020 second-feet Mar. 16, 1943; maximum gage height, 605.63 feet Aug. 27, 1940 (discharge not determined); minimum daily discharge, 73 second-feet Aug. 31, 1941; minimum gage height, 594.32 feet Sept. 21, 22, 1941.

Remarks.- Records good except those below 500 or above 3,000 second-feet, which are fair, and those for periods of no gage-height record, which are poor. Discharge regulated by city of Allegan power plant.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,370	1,060	1,490	1,550	1,000	1,360	1,530	1,000	1,190	888	774	660
2	2,070	1,250	1,290	1,590	1,030	1,380	1,230	967	1,270	873	658	545
3	1,460	1,100	1,310	1,390	1,050	3,070	1,300	956	1,480	868	624	524
4	1,660	930	1,340	1,220	1,110	2,900	1,200	1,000	1,540	794	561	538
5	1,750	962	1,300	1,950	1,070	3,220	1,330	938	1,390	846	478	420
6	1,780	985	1,320	3,070	1,580	4,710	1,350	976	1,240	835	548	428
7	1,280	1,140	1,040	2,540	1,300	4,960	1,260	987	1,250	738	547	544
8	1,740	1,030	1,110	2,720	1,030	4,000	1,030	968	1,150	776	455	533
9	1,500	1,080	1,170	2,800	1,380	5,240	1,190	974	940	830	383	478
10	1,330	1,180	1,140	3,230	1,100	4,830	1,210	984	1,020	851	403	558
11	1,240	1,070	1,010	3,200	1,230	4,110	1,310	981	956	846	238	505
12	1,240	1,040	1,050	2,650	1,150	4,030	1,060	885	960	832	426	496
13	1,250	1,100	1,200	2,830	1,410	3,220	1,260	881	943	716	409	510
14	882	1,310	1,050	2,160	1,120	2,950	1,200	907	951	764	324	510
15	910	1,600	986	2,380	1,080	2,880	1,190	909	820	756	371	743
16	1,230	1,130	968	1,880	1,460	3,070	1,220	938	864	680	519	598
17	926	1,230	1,040	1,610	1,300	2,260	1,220	930	886	695	647	566
18	907	1,310	1,020	1,680	1,330	2,930	1,170	1,010	940	694	626	696
19	1,230	1,010	1,020	1,610	1,720	2,980	1,230	1,210	896	668	536	728
20	1,040	1,240	988	1,600	1,470	2,260	1,040	1,790	920	618	540	619
21	860	1,190	993	1,210	1,160	2,550	1,020	2,190	914	626	536	518
22	898	1,260	870	1,180	1,230	2,150	1,180	1,520	956	614	534	479
23	962	1,170	949	1,060	1,240	2,010	1,100	1,340	1,140	420	532	530
24	1,260	1,160	912	1,170	1,170	2,120	996	1,660	1,150	427	524	570
25	1,210	1,160	958	1,250	1,170	2,050	1,010	1,490	982	624	662	776
26	1,530	1,000	956	1,170	1,310	1,830	1,020	1,400	977	581	524	803
27	1,420	1,240	1,040	1,220	1,260	1,620	1,010	1,300	936	584	548	762
28	1,150	1,210	1,070	1,260	1,270	1,640	974	1,390	932	527	554	564
29	1,220	1,690	1,420	1,140	-	1,740	1,010	1,320	893	584	521	704
30	1,280	1,470	1,380	1,010	-	1,400	1,020	1,500	808	603	403	578
31	1,260	-	1,640	988	-	1,480	-	1,120	-	655	528	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	39,845	2,070	860	1,285	0.834	0.96
November	35,307	1,690	930	1,177	.764	.85
December	35,030	1,640	870	1,130	.734	.85
Calendar year 1945	460,506	4,010	325	1,262	.819	11.12
January	56,318	3,230	988	1,817	1.18	1.36
February	34,730	1,720	1,000	1,240	.805	.84
March	86,950	5,240	1,360	2,805	1.82	2.10
April	34,870	1,530	974	1,162	.755	.84
May	36,421	2,190	881	1,175	.763	.88
June	31,294	1,540	808	1,043	.677	.76
July	21,813	888	420	704	.457	.53
August	15,933	774	238	514	.334	.39
September	17,483	803	420	583	.379	.42
Water year 1945-46	445,994	5,240	238	1,222	.794	10.78

Battle Creek at Battle Creek, Mich.

Location.- Staff gage, lat. 42°19'55", long. 85°09'15", in sec. 5, T. 2 S., R. 7 W., 350 feet upstream from Verona Street Bridge in city of Battle Creek and 3 miles upstream from mouth.

Drainage area.- 241 square miles.

Records available.- October 1930 to July 1931, October 1932 to September 1946.

Average discharge.- 12 years (1934-46), 197 second-feet.

Extremes.- Maximum discharge observed during year, 1,780 second-feet Mar. 7 (gage height, 2.86 feet); minimum observed, 30 second-feet Aug. 29 to Sept. 9 (gage height, 0.52 foot).

1930-31, 1932-46: Maximum discharge, 2,580 second-feet June 3, 1943 (gage height, 3.52 feet, from floodmark); minimum, 22 second-feet Aug. 14, 1934; minimum gage height, about -0.5 foot in July 1936 and on Aug. 31, 1939, due to opening of gates at dam forming control.

Remarks.- Records good above 100 second-feet and fair below. Gage read twice daily.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 30 to Nov. 28, May 2 to June 21)

0.5	26	0.8	112	1.5	481
.6	50	1.0	193	1.9	800
.7	78	1.2	294	2.9	1,780

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	172	139	150	184	109	135	180	112	257	98	44	30
2	207	146	159	227	109	193	167	102	268	68	44	30
3	227	150	150	222	105	342	167	95	262	81	44	30
4	241	150	163	203	95	1,030	163	95	241	78	44	30
5	241	142	159	227	96	1,370	159	95	184	72	44	30
6	231	142	150	283	127	1,470	150	102	150	75	44	30
7	217	159	142	407	139	1,670	150	102	127	78	42	30
8	184	146	131	598	139	1,670	146	95	120	78	39	30
9	159	150	120	632	131	1,470	150	95	116	72	47	32
10	142	139	120	593	131	1,170	146	95	109	72	58	58
11	135	139	120	554	123	1,030	139	102	105	66	55	68
12	127	154	120	593	116	890	135	98	105	63	47	63
13	120	150	123	518	116	800	135	95	95	60	44	60
14	112	146	120	518	120	632	135	95	92	58	44	58
15	105	146	120	363	116	554	131	95	92	55	47	52
16	105	139	116	317	116	481	135	105	85	52	44	42
17	105	131	112	268	120	461	135	139	81	50	39	39
18	105	127	112	246	131	461	135	159	92	50	39	42
19	109	123	112	198	135	454	131	180	146	50	39	44
20	112	123	109	154	127	433	127	212	222	50	39	42
21	112	120	109	146	123	401	127	241	268	50	39	42
22	112	120	109	142	123	363	127	241	294	50	39	39
23	105	120	109	127	127	334	135	217	273	50	39	39
24	112	123	109	123	131	334	131	180	222	50	39	44
25	116	123	109	123	135	283	127	167	163	50	39	44
26	131	127	105	120	135	262	123	180	127	50	39	44
27	131	131	105	112	135	257	120	193	109	44	36	44
28	123	135	112	109	135	241	116	198	105	44	34	44
29	112	150	116	105	-	236	112	189	98	42	32	47
30	109	150	135	105	-	217	112	167	98	44	30	50
31	131	-	139	116	-	198	-	184	-	44	30	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,450	241	105	144	0.598	0.69
November	4,140	159	120	138	.573	.64
December	3,865	163	105	125	.519	.60
Calendar year 1945	62,431	1,470	57	171	.710	9.64
January	8,633	632	105	278	1.15	1.33
February	3,447	139	95	123	.510	.53
March	19,842	1,670	135	640	2.66	3.07
April	4,146	180	112	138	.573	.64
May	4,425	241	95	143	.593	.68
June	4,706	294	81	157	.651	.73
July	1,864	98	42	60.1	.249	.29
August	1,283	58	30	41.4	.172	.20
September	1,277	68	30	42.6	.177	.20
Water year 1945-46	62,078	1,670	30	170	.705	9.60

Grand River at Jackson, Mich.

Location.- Water-stage recorder, lat. 42°17'05", long. 84°24'30", in sec. 22, T. 2 S., R. 1 W., 1 mile north of Jackson and 2¼ miles upstream from Portage River. Datum of gage is 900.00 feet above mean sea level (Fargo Engineering Co. bench mark).

Drainage area.- 174 square miles.

Records available.- April 1935 to September 1946.

Average discharge.- 11 years, 112 second-feet.

Extremes.- Maximum discharge during year, 396 second-feet Mar. 6 (gage height, 10.53 feet); minimum, 15 second-feet Sept. 16; minimum daily, 20 second-feet July 28, Aug. 11, 18. 1935-46: Maximum discharge, 1,070 second-feet June 25, 1937 (gage height, 13.50 feet); minimum, 92 second-feet Aug. 22, 1936; minimum daily, 12 second-feet Aug. 23, 1936.

Remarks.- Records good except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	249	59	198	71	75	140	98	53	65	47	28	24
2	226	59	192	78	77	161	98	53	62	43	26	22
3	214	54	194	77	71	166	94	50	63	42	24	26
4	198	47	185	94	71	185	89	52	60	36	21	28
5	190	51	168	114	74	230	86	43	59	37	25	28
6	192	50	123	130	87	336	80	48	54	38	27	34
7	161	51	120	161	77	336	74	50	52	32	25	28
8	157	51	117	150	92	336	83	47	48	37	28	25
9	152	61	112	187	84	326	80	46	41	36	39	30
10	142	56	111	181	71	316	82	52	43	36	25	40
11	134	52	100	180	77	306	80	50	44	35	20	30
12	127	60	85	192	77	296	77	42	43	35	25	28
13	119	74	95	268	75	286	72	48	44	30	26	28
14	114	71	90	258	75	207	66	50	44	26	25	28
15	115	71	80	258	90	207	75	51	42	32	25	22
16	112	71	55	221	166	195	71	125	35	33	27	23
17	109	71	75	208	152	195	71	133	52	32	48	25
18	103	61	80	194	147	207	71	153	52	48	20	27
19	99	88	75	173	149	214	70	151	48	47	25	27
20	95	68	70	130	139	248	65	162	50	25	27	28
21	88	71	60	140	122	239	55	159	48	22	28	25
22	104	60	50	85	123	228	61	153	45	26	27	22
23	60	59	35	90	115	212	66	132	39	27	26	55
24	60	63	38	92	140	216	65	97	43	28	24	25
25	59	56	52	88	139	188	62	135	43	28	22	22
26	59	64	49	82	147	144	61	118	61	29	25	25
27	54	77	52	71	139	139	55	113	42	25	28	26
28	50	81	52	81	139	132	50	109	63	20	28	24
29	54	81	52	81	-	125	54	103	51	25	28	22
30	54	99	89	81	-	114	54	82	45	34	28	25
31	71	-	72	77	-	98	-	78	-	27	27	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,721	249	50	120	0.690	0.80
November	1,917	99	47	63.9	.367	.41
December	2,926	198	35	94.4	.543	.63
Calendar year 1945	47,107	623	33	129	.741	10.09
January	4,293	268	71	138	.793	.91
February	2,990	166	71	107	.615	.64
March	6,728	336	98	217	1.25	1.44
April	2,165	98	50	72.2	.415	.46
May	2,738	162	42	88.3	.507	.58
June	1,481	65	35	49.4	.284	.32
July	1,018	48	20	32.8	.189	.22
August	827	48	20	26.7	.153	.18
September	822	40	22	27.4	.157	.18
Water year 1945-46	31,628	336	20	86.6	.498	6.77

Note.- Stage-discharge relation affected by ice Dec. 11-23, Jan. 20-22, Feb. 13-15.

Grand River at Lansing, Mich.

Location.- Water-stage recorder, lat. 42°45'20", long. 84°34'55", in SW¼ sec. 5, T. 4 N., R. 2 W., at northwest limits of Lansing, 3½ miles downstream from Cedar River.

Drainage area.- 1,230 square miles.

Records available.- November 1934 to September 1946. March 1901 to August 1906 at site Seymour Street bridge, 1¾ miles upstream.

Extremes.- Maximum discharge during year, 5,120 second-feet Mar. 7 (gage height, 8.74 feet); minimum, 39 second-feet (regulated) Sept. 13; minimum daily, 43 second-feet Sept. 15.

1934-46: Maximum discharge, 8,130 second-feet June 3, 1943 (gage height, 11.26 feet); minimum, 6 second-feet (regulated) Aug. 26, 1941; minimum daily, 20 second-feet Aug. 25, 1941.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Flow regulated by power plants above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,430	640	665	1,200	434	689	830	324	517	325	135	55
2	2,060	685	639	1,200	419	2,190	805	341	623	345	154	56
3	2,370	625	645	1,000	395	3,880	730	320	589	349	93	81
4	2,350	585	644	800	371	4,580	685	386	492	270	75	119
5	2,330	585	658	1,500	350	4,180	640	334	433	250	100	121
6	1,980	545	632	1,910	439	4,680	572	328	401	261	128	149
7	1,770	547	595	2,330	558	4,900	564	307	337	228	123	134
8	1,630	528	553	1,980	460	4,380	618	320	344	198	118	116
9	1,420	540	538	2,050	496	4,080	590	320	285	170	126	117
10	1,300	560	505	2,480	486	3,780	582	334	269	170	76	210
11	1,120	540	429	2,560	460	3,320	554	254	278	170	58	124
12	1,000	520	400	2,260	441	2,800	550	320	236	160	84	95
13	885	560	366	1,840	446	2,560	510	319	266	150	111	117
14	810	620	384	1,350	449	2,400	506	218	263	150	115	59
15	760	600	375	1,530	540	2,260	510	287	213	150	113	43
16	705	580	310	945	692	2,190	514	403	224	140	111	77
17	665	540	320	926	730	2,120	502	713	277	140	68	106
18	645	540	327	1,180	967	1,980	482	938	482	130	49	104
19	585	540	342	944	1,030	1,910	466	905	496	130	76	104
20	565	520	364	756	885	1,700	430	1,110	638	130	102	106
21	545	520	324	720	745	1,700	426	1,170	578	150	105	64
22	625	571	299	625	645	1,520	420	1,020	372	170	106	55
23	725	532	301	547	645	1,430	426	940	443	170	109	60
24	835	510	325	574	625	1,370	383	806	370	150	69	90
25	705	472	341	350	605	1,370	343	807	357	140	50	100
26	665	476	308	517	585	1,370	406	779	297	140	82	95
27	605	534	346	463	545	1,250	423	968	275	130	111	85
28	565	596	366	440	545	1,160	338	891	314	130	135	75
29	565	658	431	412	-	1,070	360	778	299	130	132	80
30	540	631	632	411	-	930	344	618	311	120	122	85
31	600	-	940	455	-	880	-	560	-	130	77	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	33,355	2,370	540	1,076	0.875	1.01
November	16,900	685	472	563	.458	.51
December	14,304	940	299	461	.375	.43
Calendar year 1945	300,736	7,290	145	824	.670	9.10
January	36,455	2,560	411	1,176	.956	1.10
February	15,988	1,030	350	571	.464	.48
March	74,629	4,900	689	2,407	1.96	2.26
April	15,509	830	338	517	.420	.47
May	18,118	1,170	218	584	.475	.55
June	11,279	638	213	376	.306	.34
July	5,576	349	120	180	.146	.17
August	3,093	135	49	99.8	.081	.09
September	2,882	210	43	96.1	.078	.09
Water year 1945-46	248,088	4,900	43	680	.553	7.50

Note.- No gage-height record Oct. 30 to Nov. 1, Nov. 9-21, Dec. 12, 16, 17, Jan. 1-5, July 9 to Aug. 1, Sept. 23-30; discharge computed on basis of weather records and records for Grand River at Grand Rapids and Cedar River at East Lansing.

Grand River at Grand Rapids, Mich.

Location.- Water-stage recorder, lat. 42°57'10", long. 85°41'15", at municipal sewage pumping plant near west limits of Grand Rapids, Kent County, three-quarters of a mile upstream from Plaster Creek. Datum of gage is 589.01 feet above mean sea level (levels by city of Grand Rapids).

Drainage area.- 4,900 square miles.

Records available.- October 1930 to September 1946. March 1901 to December 1905, and January 1906 to September 1918 (gage heights only) at site at Fulton Street Bridge in Grand Rapids.

Average discharge.- 16 years (1930-46), 3,080 second-feet.

Extremes.- Maximum discharge during year, 26,800 second-feet Mar. 9 (gage height, 13.52 feet); minimum observed, 888 second-feet Aug. 5, 8; minimum gage height observed, -4.42 feet Aug. 8.

1930-46: Maximum discharge, 34,000 second-feet Mar. 20, 1942 (gage height, 15.13 feet); minimum observed, 341 second-feet Aug. 17, 1936; minimum daily, 381 second-feet Aug. 17, 1936.

A stage of 19.3 feet occurred at the Fulton Street gage Mar. 27, 1904 (discharge, 53,000 second-feet).

Remarks.- Records good except those for periods of ice effect, which are fair. Flow slightly regulated by power plants above station.

Cooperation.- Gage-height record furnished by city of Grand Rapids.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

-4.4	880	0.0	3,790	11.4	20,300
-4.0	1,030	2.0	5,720	13.0	24,800
-3.0	1,480	4.0	7,820	13.5	26,800
-2.0	2,160	6.0	10,300		
-1.0	2,940	8.5	14,200		

Discharge, in second-feet, water year October 1945 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,420	2,700	3,880	4,240	2,900	2,700	3,970	1,670	2,620	1,810	955	920
2	7,380	2,940	3,700	4,330	2,800	3,520	3,880	1,670	2,460	1,740	955	920
3	8,060	3,100	3,700	4,420	2,600	6,220	3,610	1,880	2,300	1,670	972	1,070
4	8,300	3,260	3,430	4,240	2,600	9,540	3,430	1,600	2,160	1,540	920	1,070
5	8,540	3,260	3,260	4,520	2,700	14,000	3,260	1,430	2,160	1,540	888	955
6	8,420	2,940	3,180	7,160	2,800	17,900	3,260	1,600	2,160	1,540	972	955
7	8,060	2,940	3,100	9,280	3,100	21,600	3,180	1,600	2,020	1,380	1,010	955
8	7,490	2,940	3,020	9,800	3,300	24,200	2,940	1,540	2,020	1,380	955	938
9	6,830	3,100	2,940	10,300	3,300	26,400	2,860	1,540	1,740	1,480	1,030	990
10	6,220	3,180	2,700	11,400	3,200	26,400	3,020	1,430	1,740	1,430	1,010	1,070
11	5,820	3,260	2,780	11,700	3,000	23,600	3,020	1,430	1,600	1,380	1,030	1,150
12	5,520	3,100	2,230	11,900	2,900	21,000	2,860	1,430	1,740	1,280	1,070	1,110
13	4,920	3,430	1,950	11,700	2,900	18,600	2,620	1,480	1,880	1,030	1,070	1,110
14	4,420	3,970	1,600	10,700	2,900	16,900	2,540	1,540	1,880	1,200	990	1,110
15	3,970	3,970	1,600	9,540	2,800	15,300	2,540	1,430	1,740	1,200	972	1,070
16	3,880	3,700	1,600	7,600	2,800	14,200	2,460	1,430	1,480	1,240	1,010	1,070
17	3,700	3,610	1,600	6,720	2,800	13,200	2,460	1,540	1,810	1,110	1,010	1,070
18	3,430	3,430	1,700	6,520	3,340	12,400	2,300	1,600	2,540	1,070	1,010	1,010
19	3,180	3,260	1,700	5,720	3,430	11,700	2,160	1,950	3,260	1,070	1,110	990
20	3,100	3,100	1,700	6,220	3,700	10,900	2,230	2,940	3,700	990	1,110	1,030
21	3,100	3,100	1,600	6,500	3,810	9,930	2,020	3,880	3,520	990	1,030	1,010
22	3,280	3,260	1,500	5,800	3,340	8,660	1,950	4,060	3,610	1,010	1,030	972
23	2,940	3,280	1,500	5,200	3,430	7,820	2,090	3,790	3,610	990	1,010	1,070
24	2,620	3,100	1,500	4,800	3,260	7,180	1,950	3,430	3,180	1,070	938	1,110
25	2,620	3,100	1,800	4,400	3,100	6,720	1,950	3,430	2,860	990	972	1,200
26	3,340	3,020	1,700	4,000	3,020	6,320	1,880	3,610	2,540	1,030	1,010	1,070
27	3,180	2,940	1,700	3,800	2,780	5,820	1,810	3,340	2,380	990	1,030	1,030
28	2,780	3,340	1,600	3,700	2,700	5,620	1,670	3,100	2,090	938	1,070	1,030
29	2,860	3,610	1,600	3,700	-	5,020	1,670	3,020	1,950	955	1,010	1,030
30	2,700	3,880	2,000	3,400	-	4,520	1,670	2,780	1,810	1,010	920	1,030
31	2,700	-	3,260	3,000	-	4,150	-	2,700	-	955	938	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	149,560	8,540	2,620	4,825	0.985	1.14
November	97,800	3,970	2,700	3,260	.665	.74
December	70,930	3,880	1,500	2,288	.467	.54
Calendar year 1945	1,159,320	15,900	1,030	3,176	.648	8.80
January	206,310	11,900	3,000	6,655	1.36	1.57
February	85,110	3,700	2,600	3,040	.620	.65
March	362,020	26,400	2,700	12,323	2.51	2.89
April	77,260	3,970	1,670	2,575	.526	.59
May	69,870	4,060	1,430	2,254	.460	.53
June	70,560	3,700	1,480	2,352	.480	.54
July	38,008	1,810	938	1,226	.250	.29
August	31,007	1,070	888	1,000	.204	.24
September	31,115	1,200	920	1,037	.212	.24
Water year 1945-46	1,309,550	26,400	888	3,588	.732	9.96

Note.- Stage-discharge relation affected by ice Dec. 15-30, Jan. 21 to Feb. 17. During periods July 12, 13, 16 to Sept. 24, Sept. 26-30 water was below intake and gage heights were obtained from graph based on readings three times daily. The recorder operated for short periods of day during this time on July 12, 16-19, 24, Aug. 12, 19, 20, 26, Sept. 3, 10-14, 17, 23, 24, 30.

Portage River below Little Portage Lake, near Munith, Mich.

Location.- Wire-weight gage, lat. 42°20'55", long. 84°13'45", in NW¼ sec. 32, T. 1 S., R. 2 E., at highway bridge on Portage Lake Road, 0.3 mile downstream from Little Portage Lake and 3¼ miles southeast of Munith. Datum of gage is 900.00 feet above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Nov. 9, 1945, staff gage at same site and datum.

Drainage area.- 55 square miles.

Records available.- April 1944 to September 1946.

Extremes.- Maximum daily discharge during year, 260 second-feet Mar. 8; minimum, no flow July 28 to Aug. 14, Aug. 22 to Sept. 7; minimum gage height observed, 8.15 feet Aug. 31 to Sept. 6.

1944-46: Maximum discharge, 364 second-feet May 19, 1945 (gage height, 12.1 feet, from high-water mark); minimum, that of July 28 to Aug. 14, Aug. 22 to Sept. 7, 1946; minimum gage height, that of Aug. 31 to Sept. 6, 1946.

Remarks.- Records good except those for period of doubtful gage-height record, which are fair. Gage read twice daily.

Rating tables, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 8		Nov. 9 to Sept. 30			
9.0	22	8.2	0	9.5	51
9.5	46	8.4	5.0	9.9	77
10.0	78	8.6	11.5	10.4	119
10.3	101	8.7	15.0	11.0	185
		9.1	30.5	11.6	273

Dischsrge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	25	31	23	13	22	31	10	29	74	0	0
2	72	25	31	26	14	24	30	8.7	31	66	0	0
3	82	25	31	24	14	26	27	8.0	34	58	0	0
4	89	25	29	22	13	30	26	7.7	33	47	0	0
5	97	24	29	27	14	38	25	8.7	30	40	0	0
6	91	24	29	52	15	d160	23	8.7	26	28	0	0
7	84	23	27	69	18	d230	22	9.0	23	22	0	0
8	77	22	24	90	19	d260	21	9.0	20	20	0	.5
9	69	27	24	108	19	d220	22	7.4	18	17	0	.7
10	62	27	23	113	18	185	21	7.4	15	14	0	1.4
11	56	27	20	104	17	173	20	7.4	14	13	0	1.8
12	46	26	19	102	16	156	18	7.1	13	10	0	1.1
13	40	27	17	95	24	134	18	7.4	12	6.8	0	.9
14	36	29	16	84	34	116	17	7.1	10	5.3	0	.7
15	33	29	14	73	40	110	18	8.0	9.4	4.7	.2	.7
16	30	28	12	59	44	104	18	15	10	3.8	.7	.9
17	28	26	12	42	48	99	16	30	11	3.2	.7	.9
18	25	26	10	36	47	95	17	40	30	2.6	.9	.9
19	24	26	9.4	30	44	93	15	42	45	2.4	.9	.7
20	22	24	8.0	27	42	87	15	44	59	2.1	.5	.2
21	21	24	6.5	22	36	79	14	44	61	2.1	.1	.1
22	22	23	5.0	19	30	71	13	41	55	1.6	0	.1
23	24	20	6.2	16	28	63	14	36	44	1.6	0	.7
24	24	20	5.9	16	21	61	14	31	35	1.1	0	.7
25	24	20	1.4	15	22	56	13	30	31	.9	0	.5
26	23	19	2.1	14	23	52	12	30	30	.2	0	.2
27	22	20	7.7	14	22	49	12	30	38	.1	0	.2
28	22	23	10	13	21	46	11	28	40	0	0	.2
29	21	26	11	12	-	43	11	27	65	0	0	.2
30	21	26	17	12	-	39	10	23	77	0	0	.2
31	24	-	17	13	-	34	-	24	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,361	97	21	43.9	0.798	0.92
November	736	29	19	24.5	.445	.50
December	505.2	31	1.4	16.3	.296	.34
Calendar year 1945	14,871.3	350	1.4	40.7	.740	10.07
January	1,372	113	12	44.3	.805	.93
February	716	48	13	25.6	.465	.48
March	2,955	260	22	95.3	1.73	1.99
April	544	31	10	18.1	.329	.37
May	636.6	44	7.1	20.5	.373	.43
June	948.4	77	9.4	31.6	.575	.64
July	447.5	74	0	14.4	.262	.30
August	4.0	.9	0	.129	.0023	.003
September	14.5	1.8	0	.483	.0088	.01
Water year 1945-46	10,240.2	260	0	28.1	.511	6.91

d Doubtful gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for Portage River near Munith and Orchard Creek at Munith.

Portage River near Munith, Mich.

Location.- Wire-weight gage, lat. 42°21'00", long. 84°15'45", at highway bridge on Dunn Road, on line between secs. 25 and 36, T. 1 S., R. 1 E., half a mile downstream from Orchard Creek and 2½ miles south of Munith. Datum of gage is 900.00 feet above mean sea level, datum of 1929 (levels by Michigan State Department of Conservation).

Drainage area.- 118 square miles.

Records available.- Feburary 1944 to June 30, 1946 (discontinued).

Extremes.- Maximum daily discharge during period October to June, 430 second-feet Mar. 6, 7; minimum daily, 16 second-feet Dec. 23-25.
1944-46: Maximum discharge observed, 625 second-feet May 19, 1945 (gage height, 9.84 feet); minimum daily, 6.0 second-feet Aug. 15, 1944.

Remarks.- Records poor. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	149	60	65	46	27	85	81	30	104			
2	247	60	65	55	27	160	76	29	95			
3	220	58	65	50	26	140	72	26	88			
4	200	54	60	47	25	200	69	25	84			
5	175	48	58	85	28	350	65	25	75			
6	160	46	*55	130	40	430	60	27	71			
7	140	48	53	175	*50	*430	57	26	63			
8	130	52	48	220	52	400	51	28	69			
9	115	55	46	250	55	375	63	26	70			
10	105	50	42	270	52	350	67	27	64			
11	95	52	39	250	45	325	64	27	59			
12	85	55	36	210	40	290	60	25	52			
13	75	60	34	175	65	260	51	26	51			
14	65	65	32	150	80	250	47	25	45			
15	60	60	29	120	95	230	43	25	40			
16	60	55	28	120	105	250	44	26	43			
17	55	55	26	100	110	276	51	40	70			
18	50	55	24	90	105	264	43	82	120			
19	48	52	22	75	95	216	43	90	160			
20	45	50	21	70	85	195	42	106	110			
21	45	50	19	60	75	190	42	115	120			
22	50	50	18	55	65	180	40	100	105			
23	55	45	16	*48	50	175	42	60	90			
24	55	45	16	43	42	165	41	60	80			
25	55	43	16	38	38	150	40	90	79			
26	50	41	18	34	40	140	38	120	69			
27	48	48	21	32	40	126	36	96	62			
28	46	55	24	29	45	122	33	107	76			
29	43	70	28	26	-	113	31	108	120			
30	44	65	32	26	-	103	30	101	130			
31	55	-	38	26	-	95	-	103	-			

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,825	247	43	91.1	0.772	0.89
November	1,602	70	41	53.4	.453	.51
December	1,094	65	16	35.3	.299	.34
Calendar year 1945	29,543	625	11	80.9	.686	9.31
January	3,105	270	26	100	.847	.98
February	1,602	110	25	57.2	.485	.50
March	7,035	430	85	227	1.92	2.21
April	1,522	81	30	50.7	.430	.48
May	1,801	120	25	58.1	.492	.57
June	2,464	160	40	82.1	.696	.78
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
Water year	-	-	-	-	-	-

* Winter discharge measurement made on this day.

Note.- Doubtful gage-height record Oct. 3 to Nov. 15, Nov. 17 to Dec. 10, Apr. 20-30, June 17-24; stage-discharge relation affected by ice Dec. 10 to Mar. 4; no gage-height record Mar. 3-6, May 22-26; backwater from Grand River Mar. 7-16; discharge computed on basis of discharge measurements, weather records, records for Portage River below Little Portage Lake, near Munith, Orchard Creek at Munith, and Grand River at Jackson.

Orchard Creek at Munith, Mich.

Location.- Staff gage, lat. 42°23'35", long. 84°15'50", on line between secs. 12 and 13, T. 1 S., R. 1 E., at highway bridge, half a mile west of Munith and 3.0 miles upstream from mouth. Datum of gage is 900.00 feet above mean sea level, datum of 1929 (levels by Michigan State Department of Conservation).

Drainage area.- 49 square miles.

Records available.- March 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 274 second-feet Mar. 5 (gage height, 10.34 feet); minimum observed, 1.6 second-feet Sept. 5-7, 22, 23.
1944-46: Maximum discharge, 551 second-feet May 18, 1945 (gage height, 12.29 feet, from high-water mark); minimum observed, that of Sept. 5-7, 22, 23, 1946.

Remarks.- Records fair except those for periods of ice effect, which are poor. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	23	27	15	11	46	32	14	31	32	3.7	2.4
2	140	28	25	21	10	114	27	13	30	22	3.7	2.1
3	90	26	25	20	9	96	24	13	26	18	3.7	2.1
4	65	21	23	18	9	102	22	14	23	16	3.7	1.9
5	48	17	22	32	9.5	198	21	14	20	15	3.7	1.6
6	43	15	22	50	9.5	224	22	13	19	11	3.7	1.6
7	43	18	*18	60	*10	176	21	13	18	10	3.7	1.6
8	38	20	16	75	15	129	23	12	17	7.7	3.5	1.9
9	38	21	16	107	20	128	24	12	15	7.0	3.5	1.9
10	35	18	16	131	20	108	22	12	14	7.3	3.5	1.7
11	30	16	14	97	17	100	20	12	14	6.4	3.0	1.7
12	28	20	13	71	14	91	19	12	13	6.4	3.0	1.7
13	26	22	12	63	28	84	18	12	12	6.4	3.0	1.7
14	26	22	12	59	38	83	19	12	11	6.4	3.0	1.7
15	23	21	11	50	45	110	20	12	11	5.8	3.0	1.7
16	21	17	11	43	50	100	20	24	11	5.4	3.0	1.9
17	22	21	10	35	50	86	18	33	15	5.4	2.8	1.7
18	20	22	10	32	45	85	17	30	71	5.4	2.8	1.7
19	18	21	9.5	28	42	86	17	35	102	5.4	2.8	1.7
20	16	19	9	26	39	73	16	47	32	5.1	2.8	1.7
21	16	20	8.5	24	31	62	16	39	45	4.2	2.8	1.7
22	22	20	8	23	23	57	16	29	46	4.2	2.8	1.6
23	28	19	8	*22	15	55	16	19	45	4.2	2.8	1.6
24	21	18	8	20	15	56	15	20	37	4.0	2.8	3.0
25	22	18	8	18	14	54	15	32	29	4.0	2.6	2.4
26	23	16	8.5	16	14	52	15	67	28	4.0	2.6	2.4
27	20	19	9	14	13	48	15	56	33	4.0	2.8	2.1
28	18	27	9	13	14	46	14	40	30	3.7	2.4	2.1
29	17	30	9	12	-	40	14	28	41	3.7	2.6	2.1
30	16	30	11	11	-	36	14	21	36	4.2	2.4	2.1
31	22	-	15	11	-	34	-	21	-	4.2	2.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,097	140	16	35.4	0.722	0.83
November	625	30	15	20.8	.424	.47
December	423.5	27	8	13.7	.280	.32
Calendar year 1945	11,991.4	462	4.5	32.9	.671	9.11
January	1,217	131	11	39.3	.802	.92
February	630.0	50	9	22.5	.459	.48
March	2,759	224	34	89.0	1.82	2.10
April	572	32	14	19.1	.390	.44
May	731	67	12	23.6	.482	.56
June	875	102	11	29.2	.596	.66
July	248.5	32	3.7	8.02	.164	.19
August	94.4	3.7	2.4	3.05	.062	.07
September	57.1	3.0	1.6	1.90	.039	.04
Water year 1945-46	9,329.5	224	1.6	25.6	.522	7.08

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 12 to Jan. 7, Jan. 16 to Feb. 19.

Cedar River at East Lansing, Mich.

Location.- Water-stage recorder and concrete dam, lat. 42°43'40", long. 84°28'40", in SW¼ sec. 18, T. 4 N., R. 1 W., at East Lansing, 3 miles upstream from Sycamore Creek and 4 miles upstream from mouth. Datum of gage is 824.39 feet above mean sea level, datum of 1929.

Drainage area.- 355 square miles.

Records available.- March 1931 to September 1946. August 1902 to December 1903 at site three-quarters of a mile downstream.

Average discharge.- 15 years (1931-46), 169 second-feet.

Extremes.- Maximum discharge during year, 2,320 second-feet Mar. 4 (gage height, 7.35 feet); minimum, 7.4 second-feet Sept. 9.
1902-3, 1931-46: Maximum discharge, 4,020 second-feet Feb. 14, 1938 (gage height, 9.20 feet); minimum, 3 second-feet July 31, 1931.
Maximum stage known, about 14.5 feet during flood of 1921.

Remarks.- Records good except those for periods of no gage-height record, which are fair.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 15 to July 10, Sept. 14-30)

Oct. 1 to May 16				May 17 to Sept. 30			
3.3	63	4.5	478	3.0	6.4	3.4	85
3.4	87	5.0	720	3.1	21	3.6	139
3.6	141	6.0	1,290	3.2	39	3.9	235
3.9	237	7.0	2,000	3.3	61	4.1	309
4.2	350	7.5	2,400				

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	580	177	171	391	103	153	181	75	133	48	24	21
2	964	187	162	292	95	712	187	73	139	46	24	23
3	1,110	190	153	244	90	1,740	181	73	139	46	23	18
4	964	171	150	a200	90	2,080	162	73	125	41	23	26
5	772	156	141	a400	87	1,660	159	75	111	39	21	24
6	618	150	133	a700	124	1,880	150	80	95	36	21	21
7	a600	147	127	a850	150	1,800	141	75	85	30	21	21
8	a550	147	121	720	133	1,480	138	75	75	28	21	18
9	a450	153	119	720	133	1,290	150	75	63	26	24	10
10	a350	156	113	992	119	1,140	147	73	61	34	24	12
11	a300	147	97	936	108	908	135	75	57	34	24	21
12	a250	144	75	668	103	772	130	75	57	34	24	19
13	a210	153	92	501	105	720	121	75	66	34	24	18
14	a200	171	92	404	95	633	119	75	61	34	26	10
15	a160	168	87	330	105	628	113	75	50	a30	26	8.6
16	a140	156	75	217	144	658	119	141	46	a30	24	8.6
17	a120	147	80	237	184	594	110	208	54	a28	14	8.6
18	a120	147	82	259	234	538	103	223	160	a28	14	11
19	a110	150	85	184	251	519	100	223	172	a26	14	12
20	a125	147	85	144	203	487	97	305	204	a26	14	10
21	133	141	82	156	156	417	95	298	217	a38	16	18
22	159	141	77	127	141	362	90	242	179	a41	16	19
23	244	135	73	124	141	323	87	188	145	a36	16	18
24	241	133	73	124	144	307	87	154	117	a31	18	30
25	213	130	77	119	127	315	87	160	98	a28	18	30
26	193	124	87	113	124	311	87	214	85	a28	18	26
27	181	124	100	100	121	284	82	253	73	a28	28	23
28	168	144	113	95	113	262	77	230	68	a26	43	21
29	159	174	116	92	-	237	77	191	63	a26	32	23
30	150	181	217	95	-	213	75	154	61	a24	23	23
31	156	-	404	105	-	190	-	128	-	23	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,690	1,110	110	345	0.972	1.12
November	4,591	190	124	153	.431	.48
December	3,659	404	73	118	.332	.38
Calendar year 1945	78,909	2,840	22	208	.586	7.95
January	10,639	992	92	343	.966	1.11
February	3,723	251	87	133	.375	.39
March	23,813	2,080	153	782	2.15	2.48
April	3,587	187	75	120	.338	.38
May	4,434	305	73	143	.403	.46
June	3,059	217	46	102	.287	.32
July	1,007	48	23	32.5	.092	.11
August	682	43	14	22.0	.062	.07
September	551.8	30	8.6	18.4	.052	.06
Water year 1945-46	70,235.8	2,080	8.6	192	.541	7.36

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Raisin River at Monroe.

Lookingglass River near Eagle, Mich.

Location.- Wire-weight gage, lat. 42°49'45", long. 84°46'40", in sec. 10, T. 5 N., R. 4 W., at highway bridge, 1½ miles northeast of Eagle and 10 miles upstream from mouth.

Drainage area.- 281 square miles.

Records available.- August 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 2,330 second-feet Mar. 4; maximum gage height observed, 7.11 feet Mar. 5 (ice jam); minimum discharge observed, 22 second-feet Sept. 5, 6; minimum gage height observed, 1.15 feet Sept. 6.

1944-46: Maximum discharge observed, that of Mar. 4, 1946; maximum gage height observed, that of Mar. 5, 1946; minimum discharge observed, that of Sept. 5, 6, 1946; minimum gage height observed, 1.12 feet Aug. 13, 1944.

Remarks.- Records good except those for period of ice effect, which are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	652	194	144	130	130	160	201	69	114	60	30	26
2	652	251	142	170	130	705	180	67	100	56	30	26
3	618	259	138	230	125	1,350	171	67	98	50	30	24
4	510	264	131	240	120	2,120	169	68	93	48	30	23
5	480	266	124	250	125	*1,910	156	65	84	44	30	22
6	480	264	119	300	140	1,630	142	65	75	43	30	22
7	465	259	114	350	165	1,320	135	63	69	42	30	23
8	480	224	109	450	165	1,190	138	63	63	42	29	25
9	465	216	111	570	160	1,250	135	60	56	41	35	26
10	435	211	109	635	140	1,220	131	57	53	41	36	33
11	390	199	82	600	*120	1,190	131	57	53	40	35	35
12	362	192	78	570	110	1,160	124	55	58	40	34	35
13	330	192	80	510	110	1,100	117	53	82	37	35	34
14	295	175	80	510	110	1,010	114	49	68	37	35	30
15	264	171	80	450	115	930	116	50	68	36	33	24
16	238	164	80	400	120	830	114	55	63	36	31	25
17	208	160	80	325	130	792	112	62	64	35	30	24
18	180	154	80	290	150	722	106	91	192	37	30	23
19	160	144	80	250	150	670	102	100	162	37	29	23
20	148	136	76	210	150	600	96	194	204	35	29	23
21	140	133	76	190	150	555	93	201	231	34	30	23
22	140	133	80	170	140	510	89	196	248	33	31	23
23	144	129	84	150	130	465	88	196	256	32	31	26
24	154	126	84	150	130	420	87	182	259	32	31	26
25	167	119	84	150	130	376	84	162	254	34	30	25
26	169	117	90	145	130	346	80	158	236	33	30	28
27	171	119	95	135	130	316	78	152	189	32	28	28
28	169	136	100	130	130	290	75	148	131	31	27	26
29	162	140	105	130	-	266	72	135	95	30	26	26
30	154	144	110	130	-	241	71	120	72	30	25	25
31	169	-	120	130	-	221	-	106	-	31	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	9,551	652	140	308	1.10	1.27
November	5,391	266	117	180	.641	.72
December	3,065	144	76	98.9	.352	.41
Calendar year 1945	60,919	920	30	167	.594	8.07
January	9,050	635	130	292	1.04	1.20
February	3,735	165	110	133	.473	.49
March	25,865	2,120	160	834	2.97	3.42
April	3,507	201	71	117	.416	.46
May	3,166	201	49	102	.363	.42
June	3,790	259	53	126	.448	.50
July	1,189	60	30	38.4	.137	.16
August	944	36	24	30.5	.109	.13
September	782	35	22	26.1	.093	.10
Water year 1945-46	70,035	2,120	22	192	.683	9.28

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 7, Jan. 15 to Mar. 1, Mar. 5.

Maple River at Maple Rapids, Mich.

Location.- Wire-weight gage, lat. 43°06'35", long. 84°41'35", in sec. 5, T. 8 N., R. 3 W., at highway bridge at Maple Rapids, just downstream from Pine Creek.

Drainage area.- 434 square miles.

Records available.- August 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 3,280 second-feet Mar. 8 (gage height, 9.70 feet); minimum observed, 16 second-feet Sept. 21, 22; minimum gage height observed, 1.85 feet Sept. 21.

1944-46: Maximum discharge observed, that of Mar. 8, 1946; minimum observed, 8.2 second-feet Aug. 11, 1944 (gage height, 1.61 feet).

Remarks.- Records good except those for period of no gage-height record, which are fair. Gage read twice daily.

Rating tables, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 29 to Sept. 30)

Oct. 4 to Mar. 7						Mar. 8 to Sept. 30					
3.3	63	5.9	305	8.4	1,320	1.7	15	4.4	168	7.7	910
3.6	78	6.4	415	9.0	2,180	2.0	22	5.0	241	8.1	1,180
4.0	102	7.1	600	9.6	3,120	2.5	38	6.0	400	8.7	1,790
4.5	139	7.8	870			3.0	64	6.5	510	9.3	2,640
5.3	221	8.1	1,050			3.6	102	7.2	700	9.7	3,280

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	800	192	233	182	122	84	345	63	117	74	20	20
2	900	187	233	197	115	99	315	60	106	98	20	19
3	1,000	177	227	215	105	221	300	58	95	109	20	19
4	1,000	167	221	227	99	585	270	56	92	102	20	18
5	1,000	182	221	290	93	1,270	255	58	82	82	20	18
6	950	177	203	490	126	2,400	241	62	74	64	21	18
7	850	182	197	745	167	3,120	227	62	67	52	20	18
8	800	172	187	980	182	3,200	214	61	60	44	20	18
9	750	177	177	1,220	187	2,960	208	57	54	40	22	18
10	650	197	162	1,580	182	2,640	195	56	49	38	24	20
11	600	197	157	1,660	167	2,180	189	54	46	42	24	22
12	550	203	144	1,510	157	1,730	178	52	46	48	23	25
13	500	239	134	1,320	144	1,510	173	50	45	44	23	26
14	450	290	130	1,050	139	1,360	158	50	43	37	22	24
15	400	305	118	870	130	1,320	154	49	42	34	20	21
16	375	315	112	745	118	1,270	145	48	40	31	20	21
17	350	315	105	618	112	1,100	137	52	60	28	20	21
18	300	305	99	515	108	1,030	129	58	106	27	20	19
19	275	290	90	465	105	970	125	75	121	26	20	18
20	250	275	84	415	105	860	117	113	129	25	22	17
21	235	260	78	355	102	775	106	137	145	24	23	16
22	220	245	73	325	99	700	98	149	149	24	26	16
23	220	233	68	275	93	640	92	154	149	23	26	17
24	220	227	66	245	93	585	85	154	145	23	26	18
25	227	221	62	221	96	560	82	154	133	23	24	19
26	221	209	73	203	93	535	76	158	117	21	23	19
27	215	197	81	182	90	510	72	154	98	21	21	19
28	215	215	84	162	87	485	68	149	79	20	21	18
29	209	233	87	148	-	450	68	145	67	19	21	17
30	197	239	99	134	-	420	65	137	66	20	20	17
31	192	-	152	130	-	380	-	125	-	20	20	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,121	1,000	192	488	1.12	1.29
November	6,823	315	167	227	.523	.58
December	4,157	233	62	134	.309	.36
Calendar year 1945	78,290	1,680	18	214	.493	6.71
January	17,674	1,660	130	570	1.31	1.51
February	3,416	187	87	122	.281	.29
March	35,949	3,200	84	1,160	2.87	3.08
April	4,887	345	65	163	.376	.42
May	2,810	158	48	90.6	.209	.24
June	2,622	149	40	87.4	.201	.22
July	1,283	109	19	41.4	.095	.11
August	672	26	20	21.7	.050	.06
September	576	26	16	19.2	.044	.05
Water year 1945-46	95,990	3,200	16	263	.606	8.21

Note.- No gage-height record Oct. 1-24; discharge computed on basis of 1 discharge measurement, weather records, and records for Lookingglass River near Eagle, Thornapple River near Hastings, and Grand River at Lansing.

Thornapple River near Hastings, Mich.

Location.- Wire-weight gage, lat. 42°36'55", long. 85°14'15", in sec. 27, T. 3 N., R. 8 W., at highway bridge, a half mile downstream from Cedar Creek, 2 miles downstream from Thornapple Lake, and 3½ miles southeast of Hastings.

Drainage area.- 385 square miles.

Records available.- October 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 3,290 second-feet Mar. 7 (gage height, 7.92 feet); minimum observed, 43 second-feet Aug. 26-28 (gage height, 2.82 feet).
1944-46: Maximum discharge observed, that of Mar. 7, 1946; minimum observed, that of Aug. 26-28, 1946.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	693	221	256	455	166	181	241	122	175	158	54	48
2	777	260	248	475	163	329	214	122	175	145	54	48
3	855	294	240	425	154	631	222	122	172	132	54	46
4	915	299	224	385	154	1,770	208	120	160	120	54	46
5	855	260	210	400	154	2,360	208	120	148	108	52	46
6	735	236	199	631	210	2,930	197	132	135	102	51	46
7	582	228	186	598	241	3,290	181	135	130	100	51	51
8	495	221	176	1,010	230	3,110	197	128	125	98	51	51
9	425	240	170	1,040	230	2,760	214	122	118	92	54	46
10	360	268	170	1,100	a210	2,360	208	120	110	86	56	59
11	317	277	166	1,200	191	1,920	197	118	122	85	54	68
12	277	268	154	1,170	188	1,590	184	115	122	81	54	68
13	248	277	142	a1,000	184	1,310	178	115	115	79	54	68
14	228	277	145	765	184	1,100	169	112	110	76	56	67
15	214	281	145	582	178	945	175	110	104	72	56	65
16	186	264	142	475	172	855	197	128	98	68	52	65
17	179	244	145	393	184	825	187	148	130	72	58	63
18	176	228	145	360	a190	825	181	172	328	72	54	61
19	170	217	139	316	207	765	169	225	592	72	49	59
20	160	196	136	251	197	687	160	328	687	72	49	58
21	163	189	139	237	181	620	155	385	658	70	49	a60
22	173	179	139	217	184	538	152	375	614	67	46	63
23	189	186	142	194	191	499	148	297	526	67	44	76
24	210	189	130	188	191	455	145	253	411	67	44	92
25	214	192	133	194	184	450	142	229	293	67	44	90
26	206	189	145	a170	181	433	138	237	222	63	43	88
27	192	182	160	163	184	411	135	237	181	81	43	83
28	186	203	179	163	178	360	132	218	158	59	44	81
29	176	256	186	154	-	336	130	190	158	58	44	79
30	176	281	232	163	-	314	128	a180	152	59	44	88
31	192	-	346	a165	-	269	-	152	-	56	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,924	915	160	352	0.914	1.05
November	7,102	299	179	237	.616	.69
December	5,469	346	130	176	.457	.53
Calendar year 1945	96,030	2,360	89	263	.683	9.28
January	15,039	1,200	154	485	1.26	1.45
February	5,261	241	154	188	.488	.51
March	35,228	3,290	181	1,136	2.95	3.40
April	5,292	241	128	176	.457	.51
May	5,567	385	110	180	.468	.54
June	7,229	687	98	241	.626	.70
July	2,584	158	56	83.4	.217	.25
August	1,556	58	43	50.2	.130	.15
September	1,909	92	46	63.6	.165	.18
Water year 1945-46	103,160	3,290	43	283	.735	9.96

a No gage-height record; discharge computed on basis of weather records and records for Grand River at Grand Rapids

Higgins Lake Outlet near Roscommon, Mich.

Location.- Wire-weight gage, lat. 44°25'50", long. 84°40'10", in sec. 34, T. 24 N., R. 3 W., on upstream side county highway bridge over Higgins Lake Outlet, 3 miles southwest of Roscommon and 8 miles upstream from Backus Creek. Datum of gage is 1,150.88 feet above mean sea level (levels by Michigan Department of Conservation).

Drainage area.- 58 square miles.

Records available.- June 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 73 second-feet Apr. 2 (gage height, 2.29 feet); minimum observed, 26 second-feet Sept. 21, 22, 27 (gage height, 1.39 feet).
1942-46: Maximum discharge observed, 110 second-feet June 28, 1943 (gage height, 3.15 feet); minimum observed, 10 second-feet Dec. 2, 1944 (gage height, 0.97 foot), ice jam upstream.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	39	a40	43	a52	58	61	50	52	a60	a47	32
2	53	43	a41	*44	53	58	71	49	a52	63	46	30
3	51	43	*43	43	54	57	60	48	52	a60	43	30
4	45	42	40	43	54	57	59	47	51	a58	42	a29
5	45	42	40	43	54	58	60	51	50	57	42	28
6	46	42	40	43	54	58	58	52	51	55	41	a28
7	45	43	40	42	a54	59	a58	51	52	55	40	28
8	48	44	39	43	53	60	57	49	54	56	a40	28
9	47	48	40	45	52	60	59	48	51	55	40	28
10	46	44	a40	45	a52	61	57	47	51	55	a40	29
11	45	46	a40	45	52	60	56	48	50	54	38	30
12	48	44	a39	44	51	61	55	48	49	57	38	a29
13	44	48	a38	a45	51	60	55	48	a48	57	36	29
14	43	47	38	a46	a54	61	57	46	48	54	36	a28
15	43	46	39	47	57	61	63	46	48	54	35	a27
16	42	44	39	a47	57	64	56	46	49	55	a34	a26
17	a42	44	b40	a48	56	67	55	46	51	55	34	26
18	a42	44	b40	a48	a56	67	58	47	52	55	34	a26
19	43	43	b40	a47	56	66	a56	49	51	56	35	a26
20	40	42	b40	a47	57	65	54	51	51	a56	34	26
21	42	42	b40	47	56	65	52	51	52	a58	35	26
22	43	a43	b41	a47	56	a66	54	51	52	53	35	26
23	41	43	b41	47	56	64	55	51	51	52	a34	28
24	40	43	b41	a47	57	63	54	52	50	51	34	28
25	41	a43	b41	a48	a57	63	53	54	50	53	a34	27
26	42	a42	b42	49	58	a63	51	54	51	52	34	27
27	39	42	42	48	59	63	51	a53	51	a50	34	26
28	39	a43	42	a48	59	63	51	52	a50	49	34	a26
29	39	a44	42	a47	-	63	a51	51	a50	49	32	28
30	39	41	43	50	-	63	51	52	53	49	a32	28
31	40	-	43	a52	-	61	-	52	-	48	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,351	53	39	43.6	0.752	0.87
November	1,304	48	39	43.5	.750	.84
December	1,254	43	38	40.5	.698	.80
Calendar year 1945	16,707	89	23	45.8	.790	10.73
January	1,428	52	42	46.1	.795	.92
February	1,537	59	51	54.9	.947	.99
March	1,915	67	57	61.8	1.07	1.23
April	1,688	71	51	56.3	.971	1.08
May	1,540	54	46	49.7	.857	.99
June	1,523	54	48	50.8	.876	.98
July	1,691	63	48	54.5	.940	1.08
August	1,145	47	32	36.9	.636	.73
September	833	32	26	27.8	.479	.53
Water year 1945-46	17,209	71	26	47.1	.812	11.04

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated, or computed on basis of level of Higgins Lake, weather records, and records for Manistee River near Grayling.
b Stage-discharge relation affected by ice.

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Muskegon River at Evart, Mich.

Location.- Wire-weight gage, lat. 43°54', long. 85°15', in sec. 34, T. 18 N., R. 8 W., on highway bridge at east edge of Evart, half a mile upstream from Twin Creek.

Drainage area.- 1,450 square miles.

Records available.- November 1930 to June 1931, January 1934 to September 1946.

Average discharge.- 12 years (1934-46), 943 second-feet.

Extremes.- Maximum discharge observed during year, 5,780 second-feet Mar. 18 (gage height, 13.00 feet); minimum observed, 310 second-feet Aug. 23, Sept. 3 (gage height, 6.77 feet).

1930-31, 1934-46: Maximum discharge observed, 7,000 second-feet June 3, 4, 1945 (gage height, 13.68 feet, from high-water mark); minimum observed, 237 second-feet Aug. 28, 1941 (gage height, 6.58 feet).

Remarks.- Records fair prior to Apr. 15 and good thereafter. Gage read twice daily.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 21 to Apr. 14)

Oct. 1 to Apr. 15				Apr. 16 to Sept. 30	
7.6	710	10.0	2,540	6.7	282
8.0	980	11.5	4,040	7.0	410
9.0	1,680	13.0	5,780	7.5	685
				8.3	1,260

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,540	1,160	1,330	950	800	788	1,610	869	1,100	995	388	331
2	1,610	1,330	1,300	950	750	820	1,540	848	1,100	995	383	322
3	1,580	1,440	1,230	950	750	875	1,500	848	1,030	890	365	314
4	1,500	1,500	1,190	1,020	800	910	1,470	841	925	883	352	314
5	1,330	1,500	*1,190	1,190	896	1,050	1,440	890	813	785	352	322
6	1,260	1,470	1,120	1,800	875	1,840	1,400	925	799	711	361	318
7	1,230	1,470	1,080	1,920	882	3,310	1,360	890	778	730	356	322
8	1,230	1,500	1,050	2,140	945	4,590	1,360	869	750	750	335	331
9	1,190	1,760	1,020	2,200	945	4,480	1,360	876	679	704	352	365
10	1,190	1,920	1,020	2,100	980	4,150	1,330	862	655	625	370	365
11	1,160	1,840	1,020	1,900	980	3,310	1,300	869	643	711	370	374
12	1,160	1,880	1,000	1,700	945	2,910	1,300	855	625	764	348	370
13	1,160	1,920	1,000	1,500	*861	3,510	1,260	848	613	744	352	365
14	1,120	2,000	1,000	1,300	850	4,150	1,260	869	543	637	352	365
15	1,120	2,000	1,000	1,200	800	4,820	a1,200	855	505	560	348	365
16	1,080	1,960	1,000	*1,200	850	5,540	1,140	848	495	532	361	352
17	1,020	1,760	950	1,200	875	5,540	1,100	855	548	490	352	348
18	980	1,680	950	1,200	889	5,780	1,060	834	785	460	352	344
19	945	d1,600	950	1,150	900	5,300	1,030	995	869	450	339	339
20	a925	1,540	950	1,100	900	*4,480	1,030	1,140	995	425	339	331
21	910	1,470	900	1,100	900	3,930	1,030	1,220	1,140	410	339	326
22	1,080	1,470	900	1,100	800	3,510	995	1,220	1,100	396	322	331
23	1,230	1,440	900	1,050	723	3,010	995	1,140	995	415	314	344
24	1,360	1,360	950	1,000	730	2,630	995	1,140	881	410	318	388
25	1,360	1,330	1,000	950	716	2,270	960	1,100	771	383	322	392
26	1,360	1,300	1,000	900	736	2,140	960	1,100	685	383	322	388
27	1,360	1,330	950	850	768	2,180	925	1,030	625	370	322	383
28	1,330	1,360	950	850	749	2,090	890	995	601	378	339	374
29	1,300	1,360	950	900	-	1,880	876	960	649	365	356	374
30	1,190	1,360	950	900	-	1,800	855	869	724	361	348	370
31	1,120	-	950	850	-	1,720	-	869	-	378	344	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	37,930	1,610	910	1,224	0.844	0.97
November	47,010	2,000	1,300	1,567	1.08	1.20
December	31,750	1,330	900	1,024	.706	.81
Calendar year 1945	417,022	6,880	475	1,143	.788	10.67
January	39,120	2,200	850	1,262	.870	1.00
February	23,595	980	716	843	.581	.60
March	95,313	5,780	788	3,075	2.12	2.44
April	35,531	1,610	855	1,184	.817	.91
May	29,329	1,220	834	946	.652	.75
June	23,421	1,140	495	781	.539	.60
July	18,090	995	361	584	.403	.46
August	10,773	388	314	348	.240	.28
September	10,527	392	314	351	.242	.27
Water year 1945-46	402,389	5,780	314	1,102	.760	10.29

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
d Doubtful gage-height record; discharge interpolated.
Note.- Stage-discharge relation affected by ice Dec. 12 to Jan. 3, Jan. 9 to Feb. 4, Feb. 14-16, 19-22.

Muskegon River at Newaygo, Mich.

Location.- Water-stage recorder, lat. 43°25', long. 85°48', in sec. 24, T. 12 N., R. 13 W., in tailrace of power plant operated by Consumers Power Co. at Newaygo, 600 feet downstream from Penoyer Creek.

Drainage area.- 2,350 square miles.

Records available.- October 1930 to September 1946. June 1901 to December 1906 at site above Newaygo.

Average discharge.- 16 years (1930-46), 1,726 second-feet.

Extremes (regulated).- Maximum daily discharge during year, 9,400 second-feet Mar. 18; minimum, 684 second-feet Sept. 8 (gage height, 46.43 feet); minimum daily, 732 second-feet Sept. 8.

1901-6, 1930-46: Maximum discharge recorded, 11,600 second-feet June 2, 1945 (gage height, 53.76 feet); minimum, about 150 second-feet June 4, 1941; minimum daily, 390 second-feet July 13, 1934.

Remarks.- Records good except those below 1,500 second-feet or those for periods of doubtful or no gage-height record, which are fair. Flow regulated by Hardy Dam (since 1931), Croton Dam, and several smaller dams, and by power plant at Newaygo.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 8		Mar. 9 to Sept. 30	
46.9	990	46.5	740
47.2	1,300	46.8	1,000
47.7	1,890	47.4	1,590
48.5	3,110	48.0	2,350
50.0	5,510	50.0	5,510
52.2	9,190	52.4	9,350

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,670	2,100	2,400	1,700	2,550	1,650	3,190	1,770	1,830	1,430	1,060	946
2	3,670	2,320	2,170	1,960	2,100	1,820	3,190	1,770	1,830	1,710	1,060	937
3	3,670	2,400	2,320	2,100	2,100	1,760	3,190	1,570	1,830	1,770	901	955
4	3,670	2,400	2,400	2,100	2,040	1,890	3,190	1,130	1,830	1,830	812	955
5	3,430	2,630	2,320	2,100	2,100	2,170	2,950	1,140	1,830	1,830	1,010	964
6	3,190	2,790	2,320	2,770	2,100	3,430	2,650	1,690	1,830	1,830	937	955
7	2,870	2,790	2,240	3,670	2,100	6,900	2,580	1,830	1,650	1,140	883	928
8	2,630	2,870	1,760	3,670	2,100	9,190	2,500	1,830	1,120	1,770	919	732
9	2,320	3,510	1,760	4,230	1,960	7,590	2,420	1,830	1,120	1,770	937	874
10	2,320	3,670	1,760	5,830	1,640	5,990	2,500	1,830	1,770	1,830	919	964
11	2,320	3,270	1,760	5,830	1,760	a5,600	2,420	1,770	1,830	1,540	.910	964
12	2,240	3,110	1,760	5,830	1,760	a5,200	2,080	1,120	1,830	1,120	910	955
13	2,100	2,950	1,760	4,520	1,760	a6,400	1,950	1,650	1,590	1,120	982	1,030
14	1,760	3,190	1,760	3,190	1,760	a7,400	1,950	1,830	1,130	1,110	1,040	1,110
15	1,760	3,190	1,090	3,190	1,640	a8,000	1,890	1,830	1,140	1,120	1,050	955
16	1,960	3,190	1,010	3,190	1,760	a9,000	1,950	1,830	1,140	1,130	1,050	964
17	2,100	3,190	1,010	3,190	1,760	a9,200	1,950	1,710	1,140	1,130	804	964
18	2,100	2,790	1,380	3,190	1,760	a9,400	1,950	1,140	1,830	1,130	812	964
19	2,170	2,870	1,700	3,190	1,760	7,910	1,770	1,130	1,770	1,100	955	964
20	1,890	2,790	1,380	3,190	1,760	7,750	1,710	1,590	1,160	1,110	1,080	964
21	1,760	2,790	1,010	3,190	1,760	6,470	1,650	1,890	1,140	1,100	1,080	780
22	1,960	2,170	1,010	3,190	1,760	5,990	1,650	1,890	1,140	1,210	1,070	756
23	2,320	2,170	980	3,190	1,760	5,830	1,710	1,890	1,130	1,220	991	946
24	2,400	2,170	990	3,190	1,760	5,830	1,710	1,890	1,710	1,160	928	1,110
25	2,320	2,170	1,360	3,190	1,760	4,810	1,650	1,890	1,770	1,130	919	1,110
26	2,170	2,240	1,760	d2,700	1,760	4,390	1,280	1,890	1,770	1,090	982	1,130
27	2,170	2,630	1,760	d2,300	1,760	4,230	1,770	2,020	1,770	1,050	1,070	1,040
28	2,100	2,790	1,760	3,190	1,760	3,910	1,770	2,210	1,590	1,040	1,200	955
29	2,170	2,870	1,760	3,190	-	3,670	1,770	2,140	1,120	1,050	1,200	964
30	2,170	2,790	1,760	3,190	-	3,590	1,770	1,890	1,150	1,070	1,030	1,020
31	2,100	-	1,760	3,030	-	3,750	-	1,830	-	1,070	955	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	75,480	3,670	1,760	2,435	1.04	1.20
November	82,810	3,670	2,100	2,760	1.17	1.30
December	51,970	2,400	980	1,676	.713	.82
Calendar year 1945	728,083	10,300	509	1,995	.849	11.52
January	102,190	5,830	1,700	3,296	1.40	1.61
February	52,350	2,550	1,640	1,870	.796	.83
March	170,720	9,400	1,650	5,507	2.34	2.70
April	64,710	3,190	1,280	2,157	.918	1.02
May	53,420	2,210	1,120	1,723	.733	.85
June	45,490	1,830	1,120	1,516	.645	.72
July	40,710	1,830	1,040	1,313	.559	.64
August	30,436	1,200	804	982	.418	.48
September	28,855	1,130	732	962	.409	.46
Water year 1945-46	799,141	9,400	732	2,189	.931	12.63

a No gage-height record; discharge computed on basis of weather records and records for station at Evart.

d Doubtful gage-height record; discharge computed on basis of power-plant records at Croton hydro station and records for Muskegon River at Evart.

Pere Marquette River at Scottville, Mich.

Location.- Water-stage recorder, lat. 43°46'40", long. 86°16'45", in sec. 19, T. 18 N., R. 16 W., at Scottville, 5¾ miles downstream from South Branch. Datum of gage is 606.30 feet above mean sea level, datum of 1929.

Drainage area.- 709 square miles.

Records available.- June 1943 to September 1946. August 1939 to June 1943 at site 4¼ miles upstream, published as Pere Marquette River at Custer.

Extremes.- Maximum daily discharge during year, 1,700 second-feet Mar. 9, 10; maximum gage height, 6.35 feet Mar. 9 (backwater from ice); minimum discharge, 351 second-feet Aug. 9 (gage height, 1.83 feet).

1939-46: Maximum discharge, 2,400 second-feet June 4, 5, 1945 (gage height, 5.84 feet); minimum discharge observed, 310 second-feet Aug. 9, 10, 1941 (gage height, 2.12 feet, site and datum then in use).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.8	342	3.5	835
2.1	398	4.0	1,045
2.5	487	4.5	1,310
3.0	641	5.1	1,730

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	775	624	935	650	700	680	a760	575	545	474	379	370
2	775	659	895	600	680	700	a760	575	560	487	370	360
3	795	696	855	600	650	700	755	560	560	501	360	360
4	815	715	*815	620	700	750	755	560	530	474	351	360
5	795	715	775	800	700	800	755	591	515	450	351	360
6	715	677	755	1,250	750	900	755	624	545	439	351	360
7	677	677	715	1,440	725	1,100	735	641	515	428	351	360
8	677	696	696	1,340	700	1,400	735	624	515	428	351	370
9	677	755	677	1,250	700	1,700	735	591	487	428	379	379
10	659	835	677	1,100	650	1,700	735	575	501	418	418	389
11	641	875	650	1,000	625	1,600	735	591	545	408	418	379
12	607	875	640	900	*625	1,550	715	575	575	408	398	379
13	591	855	640	850	825	1,540	696	575	575	408	389	379
14	591	895	640	800	625	1,510	677	560	545	398	379	379
15	575	978	640	*750	550	1,510	677	560	545	398	370	370
16	575	1,000	620	800	600	1,580	659	545	487	398	379	360
17	560	935	620	750	650	1,510	659	545	515	389	389	360
18	560	855	620	750	650	1,440	641	545	575	389	389	360
19	560	795	620	700	650	*1,340	641	560	591	389	379	351
20	560	755	620	650	650	1,250	624	624	591	379	379	351
21	560	735	600	650	625	1,200	624	677	591	379	370	360
22	607	735	600	650	600	1,120	607	696	607	379	360	360
23	677	755	600	650	650	1,070	624	659	591	379	360	389
24	755	775	600	700	650	1,020	641	624	545	370	360	408
25	795	775	600	700	650	a1,000	641	624	501	370	360	439
26	775	755	630	700	650	a930	641	624	487	370	360	408
27	735	735	650	650	625	a880	624	607	474	370	380	398
28	715	755	650	600	650	a830	607	575	462	370	379	398
29	677	815	700	650	-	a800	591	545	462	360	379	389
30	659	915	700	700	-	a780	591	530	474	370	379	389
31	641	-	670	700	-	a760	-	530	-	379	379	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	20,776	815	560	670	0.945	1.09
November	23,617	1,000	624	787	1.11	1.24
December	21,105	935	600	681	.961	1.11
Calendar year 1945	226,867	2,300	408	622	.877	11.92
January	24,950	1,440	600	805	1.14	1.31
February	18,305	750	550	654	.922	.96
March	35,650	1,700	680	1,150	1.62	1.87
April	20,395	760	591	680	.959	1.07
May	18,287	696	530	590	.832	.96
June	16,011	607	462	534	.753	.84
July	12,587	501	360	460	.573	.66
August	11,576	418	351	373	.526	.81
September	11,274	439	351	376	.530	.59
Water year 1945-46	234,533	1,700	351	643	.907	12.31

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Big Sable River near Free Soil and Manistee River near Sherman.
Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 6, Jan. 9 to Mar. 12.

Big Sable River near Free Soil, Mich.

Location.- Staff gage, lat. 44°07'15", long. 86°16'50", in sec. 24, T. 20 N., R. 17 W., 30 feet downstream from bridge on U. S. Highway 31, 2¼ miles northwest of Free Soil, and 6 miles upstream from Hamlin Lake. Datum of gage is 615.32 feet above mean sea level, datum of 1929 (levels by Michigan State Department of Conservation).

Drainage area.- 127 square miles.

Records available.- May 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 416 second-feet Mar. 8 (gage height, 3.20 feet); minimum observed, 89 second-feet Aug. 7, 8, 27, Sept. 19, 22.

1942-46: Maximum discharge observed, 419 second-feet Mar. 26, 27, 1943; maximum gage height observed, 3.26 feet Jan. 20, 1943 (backwater from ice); minimum discharge observed, 81 second-feet Aug. 14, 1944.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	165	148	191	159	191	153	159	130	151	119	93	91
2	171	165	198	148	184	159	159	127	147	117	91	91
3	171	165	191	148	153	165	153	128	142	116	91	91
4	171	159	178	148	171	165	153	135	131	114	91	91
5	159	154	*165	253	171	177	153	157	125	110	90	91
6	159	154	165	378	a190	324	153	154	124	104	90	90
7	154	165	159	378	205	378	153	148	123	102	90	91
8	159	191	154	360	198	408	159	141	122	102	89	94
9	159	221	154	333	191	397	153	139	119	103	92	96
10	154	229	154	306	184	360	153	135	121	102	93	96
11	148	213	154	275	165	324	148	140	133	102	95	95
12	143	198	143	240	*171	315	148	145	135	101	95	95
13	143	221	138	210	165	333	148	141	135	100	94	94
14	143	221	140	180	159	360	142	135	122	98	93	93
15	138	213	140	*160	150	360	142	135	117	97	92	93
16	138	198	140	170	140	360	140	134	114	96	92	92
17	133	184	140	170	150	342	138	131	122	95	93	91
18	133	178	140	160	155	324	136	128	153	95	94	90
19	133	165	140	150	159	*306	136	125	162	95	93	89
20	133	165	140	140	153	279	134	143	161	95	93	90
21	133	159	140	140	165	244	133	148	156	95	92	90
22	138	165	140	140	165	220	131	142	143	94	92	90
23	148	171	140	140	153	205	140	136	133	93	92	93
24	148	171	150	150	153	198	145	139	125	93	91	94
25	148	171	150	150	148	191	135	139	118	92	91	93
26	148	165	150	150	153	184	134	145	117	92	90	95
27	148	159	140	140	138	184	134	139	116	92	89	94
28	148	178	153	140	148	177	134	128	114	91	93	95
29	143	191	153	140	-	171	131	125	113	92	95	95
30	138	198	159	160	-	165	130	123	123	95	93	95
31	138	-	165	171	-	165	-	137	-	95	92	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	4,585	171	133	148	1.17	1.35
November	5,435	229	148	181	1.43	1.60
December	4,764	198	138	154	1.21	1.40
Calendar year 1945	51,419	309	94	141	1.11	15.11
January	6,087	378	140	196	1.54	1.78
February	4,628	205	138	165	1.30	1.35
March	8,093	408	153	261	2.06	2.38
April	4,307	159	130	144	1.13	1.26
May	4,252	157	123	137	1.08	1.24
June	3,917	162	113	131	1.03	1.15
July	3,087	119	91	99.6	.784	.90
August	2,854	95	89	92.1	.725	.84
September	2,778	96	89	92.6	.729	.81
Water year 1945-46	54,787	408	89	150	1.18	16.06

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.- Stage-discharge relation affected by ice Dec. 14-26, Jan. 11-30, Feb. 15-18.

Manistee River near Grayling, Mich.

Location.- Water-stage recorder, lat. 44°41'35", long. 84°50'50", in sec. 31, T. 27 N., R. 4 W., just upstream from bridge on State Highway 72, 2½ miles downstream from Goose Creek and 6½ miles northwest of Grayling.

Drainage area.- 159 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum discharge during year, 292 second-feet Mar. 15 (gage height, 1.52 feet); minimum, 146 second-feet Feb. 15 (gage height, 0.48 foot).
1942-46: Maximum discharge, 333 second-feet Sept. 25, 1945 (gage height, 1.78 feet); minimum, 122 second-feet Feb. 14, 1943 (gage height, 0.49 foot).

Remarks.- Records good.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	235	218	a200	182	195	188	210	182	188	235	162	166
2	244	253	a200	195	195	195	210	182	188	244	162	166
3	244	262	202	188	195	188	202	182	182	210	162	166
4	226	244	202	188	195	195	218	182	182	195	166	166
5	218	226	195	202	195	188	218	195	182	188	162	166
6	218	226	195	244	202	210	210	195	182	188	162	171
7	226	244	195	244	195	262	202	188	182	188	162	176
8	235	253	195	226	188	253	202	188	182	188	162	171
9	226	262	195	218	195	235	210	182	182	182	162	176
10	218	244	195	218	188	218	202	182	176	182	171	182
11	218	235	195	210	195	210	202	188	182	188	171	195
12	218	226	195	202	188	210	202	188	182	182	166	188
13	218	235	195	195	188	235	202	182	182	176	166	176
14	210	226	195	195	182	262	202	188	176	176	166	171
15	210	218	188	210	162	282	202	182	176	176	166	171
16	210	218	182	210	202	292	195	182	182	176	166	171
17	210	218	195	202	226	282	195	182	195	171	166	171
18	210	210	195	202	210	262	195	182	210	171	166	171
19	202	210	195	195	195	253	195	195	188	171	166	171
20	202	210	195	195	188	244	195	210	188	171	171	171
21	202	210	195	202	195	235	195	218	188	171	171	171
22	218	218	202	195	202	235	195	202	188	171	171	171
23	218	210	183	195	195	226	195	195	182	171	166	176
24	210	210	188	202	188	218	195	195	182	171	166	176
25	210	210	202	195	188	218	188	210	182	166	166	176
26	218	a210	202	182	188	218	195	210	182	166	166	171
27	218	a210	202	182	182	218	188	195	176	166	166	171
28	218	a210	195	202	182	218	188	188	176	166	166	171
29	218	a210	195	218	-	210	188	188	176	166	171	176
30	210	a200	188	202	-	210	188	182	176	166	166	176
31	218	-	188	202	-	202	-	188	-	166	166	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,756	244	202	218	1.37	1.58
November	6,736	262	200	225	1.42	1.58
December	6,044	202	182	195	1.23	1.42
Calendar year 1945	72,158	322	163	198	1.25	16.89
January	6,298	244	182	203	1.28	1.48
February	5,399	226	162	193	1.21	1.26
March	7,072	292	188	228	1.43	1.65
April	5,984	218	188	199	1.25	1.40
May	5,908	218	182	191	1.20	1.38
June	5,495	210	176	183	1.15	1.28
July	5,604	244	166	181	1.14	1.31
August	5,144	171	162	166	1.04	1.20
September	5,197	195	166	173	1.09	1.22
Water year 1945-46	71,637	292	162	196	1.23	16.76

a No gage-height record; discharge computed on basis of weather records and records for station near Sherman.

Manistee River near Sherman, Mich.

Location.- Wire-weight gage, lat. 44°26', long. 85°42', on line between sec. 36, T. 24 N., R. 12 W., and sec. 31, T. 24 N., R. 11 W., 150 feet upstream from 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, January 1934 to September 1946.

Average discharge.- 24 years (1903-15, 1934-46), 1,088 second-feet.

Extremes.- Maximum discharge observed during year, 2,340 second-feet Mar. 17, 18; maximum gage height observed, 13.32 feet Mar. 17; minimum daily discharge, 775 second-feet Aug. 29, Sept. 5.

1903-16, 1930-31, 1934-46: Maximum discharge observed, 3,500 second-feet Mar. 25, 1913 (gage height, 7.0 feet, datum then in use); minimum observed, 540 second-feet Feb. 21-23, 1936 (backwater from ice).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Gage read once daily.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 8		Nov. 9 to Sept. 30	
10.4	1,000	9.5	775
11.0	1,200	10.0	920
12.0	1,580	11.0	1,250
		12.0	1,680
		13.3	2,340

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,270	1,130	1,140	a1,050	1,100	1,040	1,220	1,010	1,010	1,140	830	800
2	1,340	1,200	1,110	1,010	1,100	1,080	1,220	980	1,010	1,250	830	800
3	1,340	1,380	1,110	1,010	1,100	1,110	1,180	980	980	1,370	830	800
4	1,300	1,380	1,110	1,080	1,200	1,110	1,140	980	980	1,290	800	800
5	1,270	1,340	*1,110	1,290	1,250	1,110	1,180	1,040	950	1,180	800	775
6	1,240	1,300	1,110	1,770	1,290	1,500	1,180	1,040	950	1,080	800	800
7	a1,250	1,380	1,080	1,720	1,290	2,290	1,180	1,040	950	1,010	800	800
8	1,270	1,580	1,080	1,630	1,220	2,120	1,180	1,010	950	980	800	800
9	1,270	1,870	1,080	1,540	1,180	1,920	1,180	1,010	950	950	800	860
10	1,270	1,820	1,040	1,540	1,140	1,720	1,180	1,010	950	950	830	920
11	1,240	1,680	1,040	1,450	1,110	1,580	1,140	1,010	980	980	830	950
12	1,200	1,540	1,010	1,370	*1,080	1,540	1,140	1,040	980	950	830	920
13	1,200	1,630	980	1,290	1,080	1,820	1,110	1,010	980	920	830	890
14	a1,200	1,580	950	1,180	1,080	1,820	1,110	1,010	950	920	830	890
15	1,130	1,500	950	1,100	920	2,070	1,110	980	920	920	830	860
16	1,100	1,410	950	*1,200	860	2,290	1,110	980	920	920	830	860
17	1,060	1,330	950	1,100	950	2,340	1,080	980	950	890	830	830
18	1,060	1,290	950	1,080	980	2,340	1,080	980	1,010	860	830	830
19	1,030	1,250	950	1,050	1,080	2,240	1,040	1,010	1,010	890	830	830
20	1,000	1,220	950	1,000	1,110	2,070	1,040	1,110	1,040	860	800	830
21	1,000	1,220	900	1,000	980	1,870	1,040	1,180	1,040	860	800	830
22	1,060	1,220	900	1,000	1,110	1,720	1,040	1,180	1,010	860	830	830
23	1,100	1,220	900	1,000	1,110	1,630	1,080	1,180	980	860	800	860
24	1,100	1,220	900	1,100	1,110	1,540	1,080	1,180	950	860	800	890
25	1,060	1,180	950	1,100	1,080	1,450	1,040	1,180	920	860	a800	860
26	1,060	1,180	1,000	1,100	1,080	1,410	1,040	1,180	920	830	a780	860
27	1,060	1,140	1,000	1,000	1,040	1,370	1,040	1,110	920	830	a780	860
28	1,100	1,180	1,050	1,000	1,040	1,370	1,010	1,110	920	830	a780	830
29	1,080	1,180	1,110	1,000	-	1,330	1,010	1,080	890	830	775	860
30	1,060	1,140	1,110	1,100	-	1,290	1,010	1,010	980	830	800	860
31	1,030	-	1,110	1,100	-	1,250	-	1,010	-	830	800	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	35,730	1,340	1,000	1,153	1.28	1.48
November	40,690	1,870	1,130	1,356	1.51	1.68
December	31,580	1,140	900	1,019	1.13	1.30
Calendar year 1945	399,510	2,330	800	1,095	1.22	16.50
January	36,960	1,770	1,000	1,192	1.32	1.52
February	30,670	1,290	660	1,095	1.22	1.27
March	51,340	2,340	1,040	1,656	1.84	2.12
April	33,190	1,220	1,010	1,106	1.23	1.37
May	32,610	1,180	980	1,052	1.17	1.35
June	28,950	1,040	890	965	1.07	1.19
July	29,590	1,370	880	955	1.06	1.22
August	25,135	830	775	811	.901	1.04
September	25,385	950	775	846	.940	1.05
Water year 1945-46	401,830	2,340	775	1,101	1.22	16.59

* Winter discharge measurement made on this day
a No gage-height record; discharge computed on basis of weather records and records for Pere Marquette River at Scottville and Big Sable River near Free Soil.
Note.- Stage-discharge relation affected by ice Dec. 14-28, Jan. 15 to Feb. 4.

Sturgeon River near Wolverine, Mich.

Location.- Staff gage, lat. 45°17'25", long. 84°36'15", in sec. 31, T. 34 N., R. 2 W., 1½ miles north of Wolverine and 2 miles downstream from West Branch.

Drainage area.- 164 square miles.

Records available.- April 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 558 second-feet Nov. 3, Mar. 7 (gage height, 3.90 feet); minimum daily, 160 second-feet Aug. 1-8.
1942-46: Maximum discharge, 919 second-feet Apr. 1, 1943 (gage height, 5.45 feet, from floodmark); minimum observed, 118 second-feet Aug. 22, 24, 1944 (gage height, 2.17 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Gage read once daily.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.3	147	3.0	320
2.4	168	3.5	450
2.7	242	3.9	558

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	299	437	208	a200	a200	214	234	191	206	a250	a180	180
2	260	531	208	a200	a200	214	224	191	206	a350	a160	177
3	229	544	204	a200	a200	216	219	191	198	a325	a160	173
4	206	346	198	a225	a200	216	237	206	191	a250	a160	168
5	191	284	201	a275	a200	221	242	247	189	a210	a180	177
6	204	273	198	a350	a225	372	221	242	204	a190	a160	170
7	234	325	198	a375	a220	531	216	211	206	184	a160	168
8	278	372	198	a350	a210	450	237	206	194	182	a160	177
9	276	315	201	a300	a200	341	263	198	191	180	a180	271
10	247	271	*206	a260	a190	307	242	196	191	186	208	359
11	214	255	214	a240	a190	294	216	198	232	201	191	359
12	177	273	216	a230	a200	289	216	232	221	186	177	273
13	182	273	214	a220	a200	411	216	247	194	180	168	214
14	194	258	216	a210	a200	504	216	216	191	173	164	201
15	186	247	219	a200	a180	490	221	206	191	168	164	194
16	175	237	226	a210	a190	424	216	204	229	164	170	184
17	168	229	219	a230	a200	372	216	196	242	164	173	177
18	177	a230	204	a220	*186	359	211	204	221	164	168	173
19	182	234	204	a210	b190	*328	211	224	206	186	188	173
20	186	229	216	a210	b190	297	211	365	204	194	170	177
21	a190	250	a220	*a210	b190	289	211	359	196	a190	191	177
22	196	260	216	a210	b200	289	204	278	191	182	180	175
23	204	252	a210	a210	b200	286	201	239	191	182	173	182
24	196	242	a210	a210	201	260	201	232	177	177	170	194
25	198	229	a210	a200	198	250	196	232	182	173	168	186
26	268	219	b210	a200	196	263	196	239	196	168	168	186
27	260	219	b210	a200	196	263	196	242	175	188	170	189
28	201	237	b210	a200	211	263	196	221	168	a170	173	191
29	211	234	b200	a210	-	260	196	208	188	a170	175	201
30	258	221	b200	a210	-	242	196	206	168	a170	186	201
31	289	-	b200	a210	-	239	-	211	-	a170	184	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,736	299	168	217	1.32	1.52
November	8,526	544	219	284	1.73	1.93
December	6,464	226	198	209	1.27	1.46
Calendar year 1945	79,582	639	143	218	1.33	18.00
January	7,185	375	200	232	1.41	1.63
February	5,583	225	180	199	1.21	1.26
March	9,754	531	214	315	1.92	2.21
April	6,478	263	196	216	1.32	1.47
May	7,038	365	191	227	1.38	1.59
June	5,919	242	168	197	1.20	1.34
July	6,007	350	164	194	1.18	1.36
August	5,319	208	160	172	1.05	1.21
September	6,027	359	168	201	1.23	1.37
Water year 1945-46	81,016	544	160	222	1.35	18.35

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records, 1 discharge measurement, and records for Manistee River and Middle Branch Au Sable River near Grayling.
b Stage-discharge relation affected by ice.

Indian River at Indian River, Mich.

Location.- Water-stage recorder, lat. 45°24'35", long. 84°37'10", in sec. 24, T. 35 N., R. 3 W., at Indian River, an eighth of a mile downstream from Burt Lake and 3½ miles upstream from Mullett Lake. Datum of gage is 590.21 feet above mean sea level, datum of 1929 (levels by Michigan State Department of Conservation).

Drainage area.- 583 square miles.

Records available.- April 1942 to September 1946.

Extremes.- Maximum discharge during year, 927 second-feet Apr. 2 (gage height, 5.19 feet); minimum, 400 second-feet Sept. 5 (gage height, 3.80 feet).
1942-46: Maximum discharge, 1,080 second-feet Apr. 25, 1943 (gage height, 5.65 feet); minimum, 359 second-feet Aug. 31, 1945; minimum gage height, 3.76 feet Aug. 30, 1944.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	508	588	638	633	715	a640	818	661	652	644	485	434
2	520	621	632	622	715	a630	825	661	652	644	472	427
3	508	634	632	622	722	626	809	644	626	644	472	417
4	495	634	632	622	702	a640	809	644	626	626	472	421
5	495	634	632	622	702	a660	816	661	605	626	461	421
6	50e	652	615	630	702	a660	816	638	605	626	461	436
7	520	670	615	664	708	a660	800	638	621	603	449	436
8	535	670	615	682	70e	a680	800	638	634	603	453	440
9	535	682	615	682	708	713	800	638	634	603	453	440
10	535	682	b600	704	714	a710	807	621	609	586	465	455
11	535	682	*b580	710	695	a720	784	633	628	619	453	470
12	549	682	b580	710	695	a720	784	633	622	603	441	470
13	535	704	b580	710	695	728	767	633	622	586	441	463
14	535	697	598	710	701	744	767	633	603	a580	431	463
15	535	676	615	717	a700	759	767	627	597	568	431	468
16	535	676	615	717	a700	774	767	627	597	554	431	472
17	535	676	615	717	688	796	746	610	627	554	431	476
18	535	670	615	717	667	767	746	610	663	554	431	476
19	535	670	615	717	a680	788	726	605	645	554	453	480
20	535	670	604	702	a680	788	726	622	638	354	441	473
21	535	670	604	702	a680	788	706	638	638	554	441	489
22	549	670	604	702	a680	820	706	638	621	554	441	477
23	535	663	604	702	a680	820	726	633	615	539	431	481
24	549	663	604	702	673	820	706	633	615	539	435	486
25	549	663	610	708	a660	820	706	670	615	524	435	486
26	556	645	610	708	a660	827	706	664	615	510	425	478
27	556	645	610	689	a660	827	706	664	615	510	425	478
28	556	636	610	889	a660	835	684	664	609	510	435	482
29	556	638	616	889	-	860	667	658	592	498	429	494
30	556	638	633	715	-	835	661	658	592	485	429	498
31	572	-	633	715	-	818	-	652	-	485	434	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	16,592	572	495	535	0.918	1.06
November	19,821	704	588	661	1.13	1.86
December	18,981	638	580	612	1.05	1.21
Calendar year 1945	210,274	774	360	576	.988	13.42
January	21,331	717	622	688	1.18	1.36
February	19,350	722	660	691	1.19	1.24
March	23,273	860	626	751	1.29	1.49
April	22,654	825	661	755	1.30	1.45
May	19,849	670	605	640	1.10	1.27
June	18,633	663	592	621	1.07	1.19
July	17,639	644	485	569	.976	1.13
August	13,787	485	425	445	.763	.88
September	13,887	498	417	463	.794	.89
Water year 1945-46	225,797	860	417	619	1.06	14.43

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
b Stage-discharge relation affected by ice.

Cheboygan River near Cheboygan, Mich.

Location.- Water-stage recorder, lat. 45°34'40", long. 84°29'15", in sec. 19, T. 37 N., R. 1 W., 300 feet downstream from Mullett Lake, 2½ miles upstream from Black River, and 5 miles south of Cheboygan. Datum of gage is 591.21 feet above mean sea level, datum of 1929. Auxiliary staff gage at Cheboygan, 5 miles downstream. Datum of auxiliary gage is 590.00 feet above mean sea level, datum of 1929.

Drainage area.- 865 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum daily discharge during year, 1,290 second-feet Mar. 27, 28; maximum daily gage height, 2.96 feet Nov. 9; minimum daily discharge, 366 second-feet Oct. 7; minimum daily gage height, 1.38 feet Sept. 28, 30.

1942-46: Maximum daily discharge, 1,590 second-feet Apr. 16, 1943; maximum daily gage height, 3.13 feet Apr. 17, 1945; minimum daily discharge, 128 second-feet Oct. 14, 1943; minimum daily gage height, that of Sept. 28, 30, 1946.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Discharge computed by using fall as determined from hourly reading of auxiliary staff gage as a factor. Flow affected by backwater from power plant at Cheboygan.

Cooperation.- Auxiliary gage readings furnished by Michigan Public Service Co.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	591	551	854	766	1,250	989	1,170	822	944	900	726	838
2	604	780	892	a800	1,210	896	1,200	827	1,020	a900	683	868
3	554	818	950	a850	1,210	913	1,130	851	1,040	a900	724	772
4	483	809	967	a850	1,180	875	1,140	708	935	a900	867	796
5	539	848	975	782	1,180	861	1,130	773	915	a900	719	a700
6	532	763	a1,000	917	1,150	757	1,180	767	882	818	658	a650
7	366	759	a1,000	1,260	1,140	675	1,210	829	915	892	589	787
8	563	867	904	1,170	1,150	839	1,220	738	866	845	814	859
9	680	1,090	778	1,200	1,120	944	1,200	783	960	843	647	813
10	642	1,050	738	1,190	1,120	902	1,190	819	808	845	739	771
11	582	1,030	804	1,200	1,100	954	1,200	819	825	863	837	820
12	600	1,030	a800	1,190	1,070	987	1,170	886	866	1,080	597	a850
13	650	1,160	a850	1,210	1,030	962	1,130	793	892	1,010	708	a850
14	586	a1,200	a950	1,120	1,090	1,060	1,020	781	873	1,060	803	848
15	593	a1,100	1,070	1,170	1,080	1,110	1,060	771	820	968	752	796
16	598	a1,000	1,080	1,140	1,070	1,160	1,150	738	772	818	763	697
17	598	988	1,080	1,060	1,070	1,220	1,120	708	785	791	823	814
18	552	1,090	1,030	a1,100	1,050	1,240	1,180	738	863	743	936	826
19	576	980	935	1,030	1,020	1,240	1,120	679	1,090	686	746	806
20	554	742	730	887	1,000	1,260	992	643	1,020	764	678	762
21	492	902	a750	906	988	1,260	642	683	962	983	676	760
22	647	1,120	761	873	968	1,270	630	574	1,070	842	705	827
23	652	1,120	780	881	1,020	1,270	684	636	1,080	641	728	799
24	622	1,110	782	856	1,030	1,260	658	752	944	705	777	718
25	581	1,180	752	1,120	997	1,270	722	829	1,080	750	900	654
26	570	1,000	690	1,210	980	1,280	744	918	996	715	831	642
27	603	850	694	752	999	1,290	886	877	1,030	725	658	652
28	591	899	713	691	1,020	1,290	874	885	954	894	652	866
29	608	842	668	660	-	1,270	781	918	915	728	741	628
30	566	871	670	697	-	1,270	828	902	931	650	750	714
31	584	-	696	1,160	-	1,250	-	878	-	714	779	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	17,959	680	366	579	0.669	0.77
November	28,549	1,200	551	952	1.10	1.23
December	26,343	1,080	668	850	.983	1.13
Calendar year 1945	284,604	1,260	366	780	.902	12.22
January	30,698	1,260	660	990	1.14	1.31
February	30,292	1,250	968	1,082	1.25	1.30
March	33,824	1,290	675	1,091	1.26	1.45
April	30,341	1,220	630	1,011	1.17	1.30
May	24,305	918	574	784	.906	1.04
June	28,053	1,090	772	935	1.08	1.20
July	25,853	1,080	641	834	.984	1.11
August	22,806	936	589	736	.851	.98
September	22,983	868	628	766	.886	.99
Water year 1945-46	322,006	1,290	366	882	1.02	13.81

a No gage-height record at upper gage; discharge computed on basis of weather records and gage-height record at auxiliary gage.

Pigeon River at Afton, Mich.

Location.- Staff gage, lat. 45°22'25", long. 84°30'50", in sec. 2, T. 34 N., R. 2 W., three-quarters of a mile west of Afton, 2 miles downstream from Wilkes Creek, and 5½ miles upstream from Mullett Lake.

Drainage area.- 159 square miles.

Records available.- April 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 1,040 second-feet Mar. 15 (gage height, 6.44 feet); minimum observed, 73 second-feet Aug. 5, 6, 8, 9 (gage height, 4.18 feet).

1942-46: Maximum daily discharge, 1,100 second-feet Mar. 31, 1943; maximum gage height, about 10.5 feet Mar. 31, 1943, from floodmarks (ice jam); minimum discharge observed, 60 second-feet Aug. 12, 1945 (gage height, 4.04 feet).

Remarks.- Records fair except those for periods of ice effect or doubtful gage-height record, which are poor. Gage read once daily.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 14		Mar. 15 to Sept. 30			
4.3	106	4.1	61	4.8	218
4.4	129	4.2	76	5.1	323
4.6	188	4.3	93	5.5	510
5.0	345	4.4	112	6.0	775
5.7	660	4.6	159	6.5	1,070
6.2	900				

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	d250	210	170	130	130	160	187	130	134	159	79	106
2	d200	a350	160	120	130	180	176	132	136	176	78	108
3	d170	a300	150	120	130	200	179	136	134	234	76	97
4	d150	225	150	130	130	230	206	139	119	209	76	91
5	d130	225	140	150	130	300	212	142	119	162	73	102
6	d140	229	140	180	130	500	193	146	130	125	73	108
7	a160	237	140	200	130	600	187	144	132	104	74	101
8	d200	241	140	210	140	450	196	139	149	104	74	93
9	d220	225	130	220	140	350	212	132	156	110	73	95
10	d190	281	*130	200	140	300	218	134	156	116	78	144
11	d150	309	130	170	130	270	212	154	154	116	81	212
12	142	297	130	140	130	250	190	179	154	110	86	176
13	148	293	135	130	130	500	181	167	139	97	93	125
14	156	289	140	120	130	900	159	154	146	95	81	112
15	140	281	140	130	130	1,040	154	154	154	97	76	97
16	145	285	130	140	130	1,010	146	130	136	99	76	99
17	151	285	130	140	130	d800	139	125	134	101	79	108
18	153	241	130	140	130	d500	144	134	134	101	90	110
19	156	*182	130	140	130	d350	144	136	149	102	90	112
20	156	175	130	120	*130	*282	142	179	156	102	86	110
21	153	172	130	140	130	d250	136	279	144	110	81	106
22	148	166	130	140	130	d220	134	297	134	97	79	104
23	142	162	130	*140	140	d210	136	228	125	93	76	93
24	142	166	125	140	150	d200	134	206	110	91	76	90
25	145	169	125	140	150	d200	123	241	112	86	76	90
26	148	170	125	130	150	d200	121	276	112	83	76	91
27	172	170	125	120	150	d200	119	228	97	86	76	93
28	199	170	130	120	150	209	114	165	104	84	76	97
29	214	170	140	130	-	196	119	146	123	84	83	97
30	203	170	140	130	-	190	127	136	146	79	90	97
31	199	-	135	130	-	187	-	134	-	79	97	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,172	250	130	167	1.05	1.21
November	6,845	350	162	228	1.43	1.60
December	4,210	170	125	136	.855	.99
Calendar year 1945	54,471	638	60	149	.937	12.75
January	4,490	220	120	145	.912	1.05
February	3,780	150	130	135	.849	.88
March	11,434	1,040	160	369	2.32	2.68
April	4,840	218	114	161	1.01	1.13
May	5,222	297	125	168	1.06	1.22
June	4,028	156	97	134	.843	.94
July	3,491	234	79	113	.711	.82
August	2,478	97	73	79.9	.503	.58
September	3,264	212	90	109	.686	.77
Water year 1945-46	59,254	1,040	73	162	1.02	13.87

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated, or computed on basis of weather records and records for Sturgeon River neer Wolverine.

d Doubtful gage-height record; discharge computed on basis of weather records and records for Sturgeon River near Wolverine and Black River near Tower.

Note.- Stage-discharge relation affected by ice Nov. 26 to Mar. 14.

Black River near Tower, Mich.

Location.- Water-stage recorder, lat. 45°22'55", long. 84°19'10", in sec. 33, T. 35 N., R. 1 E., 1½ miles upstream from Milligan Creek and 2 miles northwest of Tower.

Drainage area.- 310 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum discharge during year, 1,150 second-feet Mar. 15 (gage height, 4.60 feet); minimum, 12 second-feet (regulated) Aug. 8, Sept. 5 (gage height, 1.97 feet); minimum daily, 105 second-feet (regulated) Aug. 8.

1942-46: Maximum discharge, 1,660 second-feet Apr. 1, 1943 (gage height, 5.30 feet); minimum, 10 second-feet (regulated) Aug. 26, 27, Nov. 8, 1944 (gage height, 1.94 feet); minimum daily, 90 second-feet (regulated) Aug. 27, 1944.

Remarks.- Records good except those for period of ice effect, which are fair. Low and medium flow regulated by power plant at Tower.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

2.4	90	3.3	410
2.6	141	3.6	550
2.8	207	4.0	755
3.0	285	4.3	945

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	367	342	336	230	230	250	378	228	254	323	129	156
2	367	650	324	230	240	250	349	230	256	410	127	149
3	363	700	339	240	250	300	341	233	264	424	149	152
4	369	728	307	250	250	300	344	226	234	370	122	141
5	357	755	317	250	230	370	350	241	237	291	147	148
6	336	640	304	400	250	450	339	283	220	210	127	126
7	308	630	291	420	270	675	350	282	237	202	113	144
8	325	600	296	450	280	700	328	270	255	243	105	147
9	367	610	266	430	260	675	336	264	267	264	116	158
10	371	615	291	350	270	675	359	236	255	233	111	225
11	394	580	222	350	270	615	360	258	247	267	147	272
12	382	555	*165	270	260	540	337	269	252	208	142	308
13	346	515	200	250	270	700	322	310	265	198	157	289
14	337	491	250	200	270	785	300	280	240	172	139	249
15	314	464	250	150	250	945	313	281	203	185	138	192
16	252	432	240	200	230	912	302	266	212	154	129	210
17	264	401	180	210	250	848	277	237	265	163	136	182
18	250	388	200	210	300	755	289	229	320	158	148	165
19	238	380	230	260	400	700	268	244	370	143	203	165
20	236	375	260	270	*250	*645	262	313	344	178	135	169
21	222	377	300	260	230	580	262	378	294	168	155	146
22	253	402	280	250	240	550	278	428	269	174	172	148
23	269	414	280	*240	230	520	270	455	268	191	180	178
24	290	424	300	250	250	491	280	442	241	176	165	172
25	321	424	280	240	250	455	270	401	202	158	125	167
26	326	392	280	250	250	442	271	419	217	150	167	168
27	369	357	290	240	240	424	247	468	192	157	162	173
28	390	341	300	220	240	428	241	450	177	116	138	172
29	393	342	250	240	-	424	262	374	199	134	132	159
30	370	354	230	230	-	414	236	304	213	133	160	176
31	345	-	230	240	-	388	-	294	-	142	143	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,091	394	222	326	1.05	1.21
November	14,678	755	341	489	1.58	1.76
December	8,308	339	165	268	.865	1.00
Calendar year 1945	102,852	1,060	116	282	.910	12.34
January	8,280	450	150	267	.861	.99
February	7,210	400	230	258	.832	.87
March	17,206	945	250	555	1.79	2.06
April	9,121	378	236	304	.981	1.09
May	9,593	468	226	309	.997	1.15
June	7,469	370	177	249	.803	.90
July	6,495	424	116	210	.677	.78
August	4,419	203	105	143	.461	.53
September	5,406	308	126	180	.581	.65
Water year 1945-46	108,276	945	105	297	.958	12.99

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 13 to Mar. 6.

Black River near Cheboygan, Mich.

Location.- Water-stage recorder, lat. 45°30'00", long. 84°19'24", in sec. 21, T. 36 N., R. 1 E., half a mile downstream from Black Lake, 5½ miles upstream from Alverno Dam, and 12 miles southeast of Cheboygan. Datum of gage is 609.26 feet above mean sea level (levels by Michigan State Department of Conservation). Auxiliary water-stage recorder 3 miles downstream at same datum.

Drainage area.- 597 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum daily discharge during year, 1,410 second-feet Mar. 21; minimum daily, 46 second-feet May 3.
1942-46: Maximum daily discharge, 2,070 second-feet Apr. 12, 1943; minimum daily, 21 second-feet Jan. 1, 2, Sept. 10, 1944.

Remarks.- Records good above 200 second-feet and fair below except those for periods of no gage-height record, which are poor. Discharge computed by using fall as determined by auxiliary water-stage recorder as a factor. Flow affected during most of time by backwater from power plant at Alverno Dam.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	327	410	741	a350	497	451	912	118	632	364	338	133
2	421	292	595	a400	464	554	1,000	139	517	378	410	83
3	343	357	575	a375	e400	486	996	46	515	368	395	249
4	311	229	558	a375	e450	540	934	139	463	344	97	221
5	365	192	548	345	447	544	998	182	353	471	448	349
6	326	510	506	242	441	496	955	310	330	567	484	298
7	280	477	514	336	455	548	794	138	347	482	482	262
8	353	819	474	326	479	602	780	174	416	630	500	145
9	379	879	422	336	480	860	837	194	281	530	528	257
10	353	847	529	369	452	719	749	58	374	546	495	324
11	425	808	556	318	521	732	732	78	470	463	84	220
12	541	790	508	315	512	697	719	57	432	261	372	221
13	477	1,060	504	275	509	686	687	85	436	198	410	167
14	442	1,230	493	438	444	738	719	96	399	164	258	87
15	435	1,230	433	380	525	730	748	171	385	359	328	55
16	360	1,210	414	368	424	898	561	204	310	347	329	165
17	360	1,020	416	512	449	1,020	443	139	469	423	270	146
18	458	862	435	500	478	1,090	451	155	515	497	137	123
19	439	833	462	413	499	1,280	390	225	384	514	464	181
20	406	854	451	508	519	1,400	310	294	505	394	401	232
21	406	822	470	492	488	1,410	198	333	544	120	408	199
22	202	831	462	489	490	1,380	275	348	416	481	353	101
23	281	828	475	426	449	1,340	310	329	441	587	362	222
24	a350	851	469	526	432	1,380	297	a450	481	553	250	328
25	a400	838	486	464	506	1,290	298	a550	542	559	86	238
26	a450	869	458	456	544	1,150	262	628	471	552	a350	a200
27	405	806	463	410	530	1,160	173	681	415	423	a450	a150
28	317	750	423	511	460	983	146	668	495	112	a500	269
29	360	755	463	496	-	998	255	578	388	500	a400	195
30	292	777	a450	519	-	1,000	212	642	361	527	a300	270
31	503	-	a400	520	-	772	-	594	-	406	a200	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	11,767	541	202	380	0.637	0.73
November	23,036	1,230	192	768	1.29	1.44
December	15,153	741	400	489	.819	.94
Calendar year 1945	147,354	1,230	22	404	.677	9.19
January	12,790	526	242	413	.692	.80
February	13,344	544	400	477	.799	.83
March	27,754	1,410	451	895	1.50	1.73
April	17,141	1,000	146	571	.956	1.07
May	8,803	681	46	284	.476	.55
June	13,087	632	281	436	.730	.81
July	13,120	630	112	423	.709	.82
August	10,889	528	84	351	.588	.68
September	6,090	349	55	203	.340	.38
Water year 1945-46	172,974	1,410	46	474	.794	10.78

a No gage-height record at upper gage; discharge computed on basis of gage-height record at lower gage.
e No gage-height record at lower gage; discharge computed on basis of hourly readings at Alverno Dam.

Rainy River near Onaway, Mich.

Location.- Staff gage, lat. 45°21'25", long. 84°10'00", in sec. 2, T. 34 N., R. 2 E., 1½ miles downstream from Little Rainy River and 3 miles east of Onaway.

Drainage area.- 79 square miles.

Records available.- January 1942 to September 1946.

Extremes.- Maximum discharge observed during year, 337 second-feet Mar. 15 (gage height, 4.50 feet); minimum observed, 0.3 second-foot Sept. 3; minimum gage height observed, 1.96 feet Aug. 6-8.

1942-46: Maximum discharge observed, 668 second-feet Apr. 1, 1943 (gage height, 5.55 feet); minimum observed, 0.1 second-foot Aug. 15 to Sept. 3, 1944, Aug. 25-30, 1945.

Remarks.- Records good except those for periods of ice effect or doubtful or no gage-height record, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	a100	40	a23	12	13	64	22	35	d40	2.3	1.2
2	5.9	214	a40	a24	12	14	61	20	34	d55	1.5	.5
3	5.2	169	40	a27	12	16	60	19	34	d58	1.5	.3
4	5.2	112	38	a30	12	17	60	20	30	d55	1.2	.4
5	5.9	a105	36	a40	12	20	57	24	29	d45	1.0	.6
6	6.9	101	34	a50	12	34	54	26	26	d35	.8	.8
7	9.0	100	31	a70	13	112	52	26	26	d30	.7	.8
8	12	98	29	56	14	206	52	25	26	34	.6	.9
9	13	95	27	47	15	183	53	22	25	34	.7	1.4
10	12	95	24	43	15	124	55	21	25	36	.8	1.4
11	9.4	a85	23	41	14	93	52	23	28	36	.8	2.2
12	8.6	72	*22	39	14	122	49	22	27	36	.7	2.5
13	8.6	68	20	35	14	163	45	22	22	37	.5	3.4
14	a8.0	64	18	32	14	282	43	21	20	37	.4	4.1
15	7.2	59	18	26	13	334	43	21	20	37	.6	3.7
16	6.6	53	a17	28	13	296	43	20	a20	33	.6	3.4
17	5.9	49	a16	a35	13	251	40	20	a22	25	.5	3.0
18	5.9	46	a15	a30	13	228	39	20	a30	14	.4	2.2
19	5.2	*44	a15	a25	11	206	36	20	a40	11	.4	2.0
20	5.2	43	a15	a22	*11	*173	35	23	a45	9.4	.8	2.3
21	5.5	43	a15	a20	10	145	34	30	a50	8.6	1.3	2.3
22	8.3	44	a15	a18	9	119	33	36	a45	8.6	2.2	2.5
23	8.6	57	a15	*18	9	124	33	34	d40	7.9	2.3	2.5
24	9.4	a60	a16	18	9	113	34	35	d35	6.9	1.8	a3.0
25	9.8	a60	a17	18	9	101	33	50	d28	5.2	1.5	3.7
26	24	a55	a17	18	10	94	31	54	d25	4.5	1.6	3.2
27	47	46	a17	17	11	88	29	50	d23	3.9	1.6	3.0
28	49	45	a18	16	12	83	26	47	d22	3.7	1.8	2.7
29	a45	a43	a19	15	-	81	26	38	d23	3.2	2.2	3.0
30	a50	a40	a20	13	-	73	25	36	d25	2.8	2.2	3.0
31	a70	-	a22	12	-	67	-	36	-	2.8	2.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	478.2	70	5.2	15.4	0.195	0.22
November	2,265	214	40	75.5	.956	1.07
December	709	40	15	22.9	.290	.33
Calendar year 1945	9,102.2	219	.1	24.9	.315	4.28
January	906	70	12	29.2	.370	.43
February	338	15	9	12.1	.153	.16
March	3,975	334	13	128	1.62	1.87
April	1,297	64	25	43.2	.547	.61
May	883	54	19	28.5	.361	.42
June	880	50	20	29.3	.371	.41
July	755.5	58	2.8	24.4	.309	.36
August	37.8	2.5	.4	1.22	.015	.02
September	66.0	4.1	.3	2.20	.028	.03
Water year 1945-46	12,590.5	334	.3	34.5	.437	5.93

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for North Branch Thunder Bay River near Bolton and Black River near Tower, or interpolated.

d Doubtful gage-height record; discharge computed on basis of weather records and records for North Branch Thunder Bay River near Bolton and Black River near Tower.

Note.- Stage-discharge relation affected by ice Dec. 9-15, Jan. 23 to Mar. 4.

Thunder Bay River near Hillman, Mich.

Location.- Water-stage recorder, lat. 45°00'30", long. 83°58'15", on line between secs. 8 and 9, T. 30 N., R. 4 E., just upstream from bridge on State Highway 32, a quarter of a mile downstream from Miller Creek, and 5 miles southwest of Hillman.

Drainage area.- 232 square miles.

Records available.- June 1945 to September 1946.

Extremes.- 1945: Maximum discharge during period June to September, 500 second-feet Sept. 1 (gage height, 6.79 feet); minimum daily, 120 second-feet Aug. 4, 30.
1945-46: Maximum discharge during water year, 772 second-feet Mar. 14; maximum gage height, 8.46 feet Mar. 9 (backwater from ice); minimum daily discharge, 120 second-feet Dec. 23, 24, July 29, Aug. 2, 8, 9.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation from power plant at Atlanta.

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-			-	154	136	430
2						-			-	144	139	380
3						-			-	176	131	268
4						-			-	136	120	200
5						-			-	155	124	181
6						-			-	181	132	176
7						-			-	165	155	150
8						-			-	163	132	136
9						-			-	170	146	141
10						-			-	179	124	141
11						-			-	165	140	155
12						-			-	160	136	155
13						-			-	165	124	136
14						-			-	155	156	155
15						-			-	170	174	181
16						-			-	150	132	160
17						-			-	155	141	146
18						-			-	150	141	170
19						-			-	136	155	150
20						-			-	141	128	170
21						-			193	141	146	170
22						†447			200	150	146	176
23						-	†196		176	150	144	160
24						-		†176	165	141	128	339
25						-			165	131	141	348
26						-			160	135	140	232
27						-			165	135	128	215
28						-			155	132	124	215
29						†347			164	147	134	308
30						-			174	124	120	250
31						-			-	130	141	-

† Result of discharge measurement.

Discharge, in second-feet, of Thunder Bay River near Hillman, Mich, 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	250	241	215	180	250	270	251	155	193	293	130	139
2	298	432	232	190	240	280	247	151	167	400	120	136
3	259	422	233	200	230	290	247	159	150	313	130	136
4	224	400	201	250	220	300	242	156	156	262	140	142
5	195	328	198	350	250	300	256	237	159	212	130	124
6	186	298	208	450	260	350	232	223	167	155	140	130
7	223	328	196	*370	270	400	230	180	161	170	130	157
8	253	358	191	340	220	500	226	192	193	213	120	159
9	250	390	196	310	250	600	280	173	184	187	120	239
10	248	380	183	280	220	550	251	172	144	176	125	277
11	221	318	170	210	210	520	224	183	173	160	125	341
12	250	250	160	190	*220	500	240	185	166	164	130	313
13	231	318	150	200	220	*599	213	180	158	165	132	268
14	212	358	140	220	210	750	200	173	136	150	140	243
15	185	288	130	280	200	706	225	166	138	150	124	176
16	188	268	150	280	220	620	210	178	153	140	137	150
17	184	259	170	280	230	578	192	160	250	140	140	149
18	159	250	*170	280	240	515	203	170	460	142	145	146
19	168	259	150	250	250	473	185	250	380	146	132	142
20	173	232	150	230	250	400	203	400	332	132	151	145
21	154	237	150	230	250	380	188	530	313	146	141	142
22	186	280	140	220	260	390	192	420	268	180	146	145
23	216	268	120	210	260	360	193	340	235	160	150	140
24	205	250	120	220	270	330	197	251	187	170	138	166
25	210	250	200	220	270	300	199	300	187	150	132	155
26	238	232	260	210	270	290	189	270	160	130	129	159
27	255	224	280	190	270	330	184	208	155	150	142	153
28	208	268	280	210	270	330	174	230	155	130	138	143
29	208	*250	240	200	-	300	169	177	170	120	149	176
30	196	232	200	220	-	300	183	183	164	140	136	165
31	246	-	180	230	-	260	-	156	-	150	140	-

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 11 to Mar. 12 (no gage-height record Dec. 13 to Jan. 7). No gage-height record May 17-21, June 17, July 14-17, July 22 to Aug. 12; discharge computed on basis of weather records and records for Thunder Bay River near Bolton and Upper South Branch Thunder Bay River near Lachine.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June 21-30, 1945	1,717	200	155	172	0.741	0.28
July	4,686	181	124	151	.651	.75
August	4,258	174	120	137	.591	.68
September	6,194	430	136	206	.888	.99
Water year	-	-	-	-	-	-
October 1945	6,677	298	154	215	.927	1.07
November	8,868	432	224	296	1.28	1.43
December	5,763	280	120	186	.802	.92
Calendar year	-	-	-	-	-	-
January 1946	7,700	450	180	248	1.07	1.23
February	6,780	270	200	242	1.04	1.08
March	13,071	750	260	422	1.82	2.10
April	6,425	280	169	214	.922	1.03
May	6,908	530	151	223	.961	1.11
June	6,014	460	136	200	.862	.96
July	5,496	400	120	177	.763	.88
August	4,180	151	120	135	.582	.67
September	5,256	341	124	175	.754	.84
Water year 1945-46	83,138	750	120	228	.983	13.32

Time basis: Eastern standard time.

Thunder Bay River near Bolton, Mich.

Location.- Water-stage recorder, lat. 45°07'40", long. 83°38'30", in sec. 36, T. 32 N., R. 6 E., half a mile upstream from Orchard Hill bridge, 4 miles upstream from North Branch Thunder Bay River, 5 miles southwest of Bolton, and 11 miles northwest of Alpena. Prior to Aug. 12, 1945, staff gage at site 500 feet downstream at different datum.

Drainage area.- 588 square miles.

Records available.- March 1945 to September 1946.

Extremes.- 1945: Maximum discharge observed during period March to September, 1,650 second-feet May 30 (gage height, 3.48 feet); minimum observed, 219 second-feet June 30 (gage height, 0.84 foot).

1945-46: Maximum discharge during water year, 3,690 second-feet Mar. 15 (gage height, 8.78 feet); minimum, 168 second-feet June 28, 29, Sept. 23 (gage height, 2.98 feet).

Remarks.- Records good except those for periods of ice effect, which are fair. Flow regulated by power plant at Hillman and by Fletcher Pond on Upper South Branch Thunder Bay River. Gage read twice daily prior to Aug. 12, 1945.

Rating tables, Mar. 23, 1945, to Sept. 30, 1946, except period of ice effect (gage height, in feet, and discharge, in second-feet)

Mar. 23 to Aug. 11, 1945				Aug. 12, 1945, to Sept. 30, 1946			
0.9	232	2.4	820	3.0	172	5.5	1,040
1.2	310	2.8	955	3.5	278	6.0	1,365
1.6	442	3.4	1,570	4.0	403	7.0	2,150
2.0	615			4.5	568	8.7	3,600
				5.0	780		

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	386	299	685	246	413	362
2						-	353	310	660	277	403	463
3						-	328	302	638	282	406	479
4						-	316	293	710	279	406	337
5						-	356	269	710	325	403	375
6						-	372	277	685	396	389	337
7						-	340	266	660	406	406	325
8						-	319	340	556	310	431	325
9						-	334	424	512	325	431	299
10						-	293	454	504	431	396	292
11						-	282	424	478	431	310	349
12						-	272	389	462	406	313	403
13						-	285	396	446	277	325	403
14						-	362	392	428	264	349	418
15						-	478	356	396	325	337	433
16						-	413	310	375	379	362	325
17						-	396	316	362	406	337	280
18						-	462	302	346	403	313	362
19						-	458	288	346	389	337	387
20						-	406	293	325	399	375	403
21						-	379	293	322	396	387	337
22						-	334	310	337	389	349	266
23						1,020	293	310	343	379	349	313
24						792	310	313	296	396	349	325
25						685	346	302	249	396	349	403
26						592	406	299	242	386	362	479
27						570	420	331	239	403	349	362
28						512	413	482	239	413	349	362
29						478	366	943	237	413	362	375
30						451	331	1,530	232	399	362	403
31						403	-	1,270	-	413	349	-.

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Discharge, in second-feet, of Thunder Bay River near Bolton, Mich., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	418	403	433	450	550	570	448	375	278	349	387	362
2	387	628	403	450	550	580	418	362	266	362	375	349
3	403	735	387	470	550	610	433	403	325	463	387	362
4	362	780	403	500	550	630	403	403	349	375	433	362
5	325	758	362	600	530	630	433	433	325	325	418	349
6	313	648	349	800	520	600	403	512	349	290	433	362
7	325	648	349	1,000	550	750	403	512	349	229	418	375
8	337	690	337	800	550	1,300	387	387	375	225	403	313
9	375	758	403	650	520	1,700	403	349	403	271	433	325
10	403	758	375	*600	500	1,600	448	337	375	403	463	325
11	362	735	362	550	500	1,500	433	349	362	418	463	362
12	349	848	400	500	500	*1,360	403	337	418	387	448	362
13	349	588	450	450	*500	1,790	418	337	433	362	433	313
14	349	628	480	420	500	2,810	387	337	463	362	403	251
15	325	648	500	450	450	3,600	362	337	448	337	375	227
15	313	530	480	500	500	3,330	403	325	418	375	313	222
17	287	495	500	550	560	2,720	349	313	448	403	325	210
18	271	479	540	500	560	2,150	337	296	628	433	337	235
19	260	479	*540	450	560	1,590	362	362	758	433	337	294
20	271	448	540	480	560	1,160	313	549	608	479	337	296
21	276	448	520	480	560	925	299	690	512	512	337	294
22	349	495	500	500	560	825	294	780	448	512	337	225
23	433	512	480	550	550	780	301	690	387	530	337	188
24	448	495	450	500	550	712	325	549	337	495	337	220
25	448	463	500	450	530	690	287	463	276	418	337	248
26	463	463	600	400	550	588	313	483	264	362	313	220
27	418	418	600	440	550	549	296	433	242	273	337	214
28	418	*433	600	480	570	549	337	362	225	349	387	222
29	387	479	500	520	-	568	337	337	204	418	387	266
30	375	463	470	520	-	512	375	313	214	433	362	235
31	375	-	450	520	-	479	-	301	-	433	375	-

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 12 to Mar. 11 (no gage-height record Dec. 31 to Jan. 7).

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March 23-31, 1945	5,483	1,020	403	609		
April	10,809	478	272	360		
May	13,083	1,530	266	422		
June	13,020	710	232	434		
July	11,339	431	246	366		
August	11,358	431	310	366		
September	10,982	479	266	366		
Water year	-	-	-	-		
October 1945	11,174	463	260	360		
November	17,153	780	403	572		
December	14,263	600	337	460		
Calendar year	-	-	-	-		
January 1946	16,530	1,000	400	533		
February	14,980	570	450	535		
March	38,157	3,600	479	1,231		
April	11,110	448	287	370		
May	12,996	780	296	419		
June	11,487	758	204	383		
July	12,016	530	225	388		
August	11,767	463	313	380		
September	8,588	375	188	286		
Water year 1945-46	180,221	3,600	188	494		

Time basis: Eastern standard time.

Upper South Branch Thunder Bay River near Lachine, Mich.

Location.- Water-stage recorder, lat. 45°03'30", long. 83°47'00", on line between secs. 23 and 26, T. 31 N., R. 5 E., just upstream from bridge on State Highway 32, 1 mile upstream from mouth, 3½ miles downstream from Fletcher Pond, and 3½ miles southwest of Lachine. Datum of gage is 711.80 feet above mean sea level, datum of 1929. Prior to June 24, 1945, staff gage at same site and datum.

Drainage area.- 171 square miles.

Records available.- March 1945 to September 1946.

Extremes (regulated).- 1945: Maximum daily discharge during period March to September, 303 second-feet July 28 to Aug. 9; maximum gage height, 3.38 feet Aug. 8; minimum daily discharge, 1.8 second-feet Apr. 12.

1945-46: Maximum daily discharge during water year, 450 second-feet Mar. 15; maximum gage height, 4.48 feet Mar. 15 (backwater from Thunder Bay River); minimum daily discharge, 1.0 second-foot Sept. 13.

Remarks.- Records good except those for periods of backwater or no gage-height record, which are fair. Flow regulated at Fletcher Pond. Gage read twice daily prior to June 24, 1945.

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	4.3	5.1	9.4	76	303	101
2						-	4.7	3.2	6.8	119	303	73
3						-	3.2	3.5	10	119	303	67
4						-	5.1	2.9	12	119	303	79
5						-	4.7	3.5	17	220	303	110
6						-	4.7	4.3	19	230	303	110
7						-	4.7	3.5	15	175	303	110
8						-	3.9	6.8	55	125	303	110
9						-	2.9	8.8	124	220	303	120
10						-	2.6	6.8	124	222	260	150
11						-	2.3	6.3	124	214	166	200
12						-	1.6	7.8	122	65	166	200
13						-	4.7	7.3	119	83	170	250
14						-	6.3	6.3	117	98	170	250
15						-	5.5	6.3	93	164	170	238
16						-	7.8	5.1	64	236	170	67
17						-	14	5.5	64	236	170	126
18						-	6.3	5.5	64	236	170	252
19						-	4.7	5.1	64	234	200	262
20						-	4.7	4.7	64	236	200	245
21						-	5.1	5.5	62	236	200	64
22						-	3.9	9.9	58	a236	200	69
23						-	5.1	7.8	58	236	200	70
24						11	5.5	5.9	52	232	200	78
25						9.8	7.8	6.8	51	230	200	39
26						8.3	6.3	6.8	45	230	200	34
27						8.3	6.3	8.3	42	a250	200	33
28						6.8	5.5	10	45	292	200	34
29						7.6	5.1	12	46	303	200	36
30						6.3	5.1	11	46	303	200	34
31						3.5	-	10	-	303	180	-

a No gage-height record; discharge computed on basis of weather records and record of gate operation at Fletcher Pond.

Note.- Discharge affected by backwater from Thunder Bay River Mar. 24, 25, May 26 to June 1, June 3, 4, Aug. 14-31, Sept. 5-14; discharge computed on basis of 2 discharge measurements, gage heights, weather records, record of gate operation at Fletcher Pond, and records for Thunder Bay River near Hillman and near Bolton.

Discharge, in second-feet, of Upper South Branch Thunder Bay River near Lachine, Mich., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	10	12	166	170	216	44	112	13	97	230	180
2	12	12	12	166	170	218	46	128	31	22	230	180
3	6.8	15	12	176	168	222	44	159	85	15	230	180
4	5.5	14	12	194	168	218	46	159	81	13	230	180
5	4.3	13	12	180	164	220	46	162	97	14	230	180
6	4.3	12	12	150	166	260	44	164	119	14	230	180
7	6.3	13	12	150	168	350	44	142	117	14	230	140
8	10	14	41	115	166	350	46	81	121	14	250	120
9	8.3	15	86	115	162	350	48	54	a120	77	280	98
10	6.3	15	85	115	161	350	48	52	a120	100	280	9.5
11	6.3	14	124	115	161	320	55	54	a150	100	280	3.2
12	8.3	13	176	115	159	320	62	52	a160	100	270	1.4
13	6.6	15	210	115	157	350	61	52	a180	100	220	1.0
14	6.3	21	262	115	159	400	58	49	a210	100	170	2.9
15	6.3	18	262	131	157	450	55	49	a210	110	150	7.5
16	5.5	12	192	146	155	400	54	48	a210	150	130	8.5
17	5.5	12	206	148	174	a350	54	48	206	180	130	14
18	5.5	13	272	133	192	300	54	77	159	180	130	83
19	5.5	14	272	115	190	170	44	100	105	220	130	133
20	5.1	14	262	114	190	120	12	70	19	270	130	131
21	26	14	262	128	188	108	11	20	17	270	130	94
22	115	21	262	146	186	105	11	20	14	270	130	31
23	115	12	262	144	182	100	12	20	14	250	130	31
24	115	13	262	131	184	102	12	15	15	170	130	31
25	115	18	184	114	182	112	11	12	14	130	130	32
26	84	18	172	114	186	49	16	12	12	120	130	31
27	13	18	170	114	218	47	77	12	12	60	150	30
28	9.9	20	170	112	216	46	78	12	12	150	180	41
29	8.6	14	166	122	-	44	86	12	12	230	180	43
30	8.3	13	166	142	-	43	112	12	37	230	180	7.0
31	9.3	-	168	155	-	43	-	13	-	230	180	-

a No gage-height record; discharge computed on basis of weather records and record of gate operation at Fletcher Pond.

Note.- Discharge affected by backwater from Thunder Bay River Oct. 22-25, Nov. 1-5, 7-11, Jan. 5-15, Mar. 6-20, May 20-26, July 11 to Sept. 8; discharge computed on basis of 4 discharge measurements, gage heights, weather records, record of gate operation at Fletcher Pond, and records for Thunder Bay River near Hillman and near Bolton.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March 24-31, 1945	61.8	11	3.5	7.72		
April	154.6	14	1.8	5.15		
May	204.3	12	2.9	6.59		
June	1,794.2	124	8.8	59.8		
July	6,298	303	76	203		
August	6,919	303	166	*223		
September	3,631	262	33	121		
Water year	-	-	-	-		
October 1945	776.2	115	4.3	25.0		
November	440	21	10	14.7		
December	4,798	282	12	155		
Calendar year	-	-	-	-		
January 1946	4,198	194	112	135		
February	4,699	218	155	175		
March	6,733	450	43	217		
April	1,391	112	11	46.4		
May	1,972	164	12	63.6		
June	2,672	210	12	89.1		
July	4,020	270	13	130		
August	5,810	280	130	187		
September	2,204.0	180	1.0	73.5		
Water year 1945-46	39,913.2	450	1.0	109		

Time basis: Eastern standard time.

North Branch Thunder Bay River near Bolton, Mich.

Location.- Water-stage recorder, lat. 45°08'55", long. 83°36'35", in sec. 29, T. 32 N., R. 7 E., 1½ miles upstream from mouth, 2½ miles south of Bolton, and 9 miles northwest of Alpena. Prior to Aug. 16, 1945, staff gage at site half a mile upstream at different datum.

Drainage area.- 184 square miles.

Records available.- March 1945 to September 1946.

Extremes.- 1945: Maximum discharge observed during period March to September, 570 second-feet Mar. 23 (gage height, 3.09 feet); minimum, 6.1 second-feet Aug. 29 (gage height, 2.67 feet).

1945-46: Maximum discharge during water year, 1,950 second-feet Mar. 15 (gage height, 6.79 feet); minimum, 10 second-feet Sept. 3 (gage height, 2.76 feet).

Remarks.- Records good except those for periods of ice effect, which are fair, and those for periods of no gage-height record, which are poor. Gage read twice daily prior to Aug. 16, 1945.

Rating tables, Mar. 23, 1945, to Sept. 30, 1946, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 19, 1945, Sept. 20-30, 1946)

Mar. 23 to Aug. 15, 1945				Aug. 16, 1945, to Sept. 30, 1946					
0.1	7	1.2	150	2.6	4	3.4	78	4.5	500
.3	22	2.0	322	2.8	12	3.6	117	5.0	790
.6	53	3.1	570	3.0	26	3.8	172	6.3	1,600
.9	96			3.2	48	4.0	245		

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	197	144	410	a38	8.4	25
2						-	166	130	311	a38	13	23
3						-	160	114	254	a37	15	14
4						-	156	91	216	a35	13	12
5						-	138	86	186	a35	13	15
6						-	116	88	154	a35	13	19
7						-	116	99	144	a35	13	21
8						-	128	112	134	a35	16	24
9						-	121	112	117	a35	16	17
10						-	116	121	91	a35	13	14
11						-	112	130	91	a34	11	13
12						-	101	142	91	33	10	15
13						-	110	146	82	30	9.1	15
14						-	116	136	86	29	8.4	15
15						-	123	134	86	28	9.8	18
16						-	134	126	101	27	10	20
17						-	160	112	98	26	12	15
18						-	164	104	91	26	17	12
19						-	170	96	90	26	17	12
20						-	170	94	90	26	14	16
21						-	166	88	88	25	12	16
22						-	154	83	86	25	17	17
23						570	130	90	80	24	16	18
24						487	126	104	63	24	16	24
25						410	134	93	44	26	13	20
26						344	138	99	a40	25	14	24
27						300	150	107	a40	23	10	32
28						267	168	192	a40	21	7.5	38
29						216	170	252	a40	20	6.7	41
30						203	160	377	a38	16	9.5	36
31						208	-	465	-	10	15	-

a No gage-height record; discharge computed on basis of weather records and records for Thunder Bay River near Bolton and near Hillman.

Discharge, in second-feet, of North Branch Thunder Bay River near Bolton, Mich., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	106	145	85	100	110	175	55	102	54	16	19
2	44	151	137	90	95	120	172	46	87	56	14	13
3	43	209	122	100	85	130	154	49	76	61	20	12
4	40	355	122	110	75	150	148	51	70	82	17	14
5	44	440	122	150	70	170	148	61	62	87	12	16
6	51	370	b100	350	80	200	140	55	59	72	14	20
7	55	300	b95	450	100	250	124	68	55	55	12	23
8	59	281	b90	350	110	350	111	83	59	52	16	17
9	72	315	b85	*b300	100	700	127	75	46	54	15	14
10	75	350	b80	b280	85	900	132	64	42	58	15	16
11	65	380	b75	b250	75	800	132	68	48	48	17	24
12	62	345	b70	b200	65	700	132	70	52	42	14	24
13	56	305	65	b230	*60	658	122	70	48	40	12	19
14	61	254	75	b280	60	*790	117	80	49	42	13	18
15	56	237	65	b300	60	1,440	102	80	48	38	16	18
16	55	221	60	280	65	1,800	100	67	47	34	21	16
17	52	202	55	200	75	1,400	96	75	46	33	17	14
18	49	179	50	150	80	1,180	91	62	73	31	16	20
19	48	169	*50	130	80	940	87	59	117	30	17	17
20	46	166	50	110	80	754	82	78	172	32	19	14
21	43	142	50	95	80	622	80	102	209	28	24	14
22	44	157	50	85	85	538	78	124	166	22	24	19
23	48	175	50	75	90	428	78	142	120	26	18	15
24	52	172	55	70	95	575	82	154	96	33	17	15
25	64	179	60	70	100	355	58	142	94	28	17	17
26	72	182	60	70	100	295	70	142	85	25	13	16
27	73	*160	60	70	100	281	52	166	75	23	16	15
28	85	163	70	70	100	250	62	188	70	23	19	18
29	98	169	90	70	-	229	62	182	59	18	20	21
30	113	151	100	75	-	221	70	137	55	14	18	14
31	100	-	90	90	-	202	-	109	-	14	19	-

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.- No gage-height record Dec. 13 to Jan. 8, Jan. 16 to Mar. 12; discharge computed on basis of 2 discharge measurements, weather records, and records for Thunder Bay River near Bolton and near Hillman.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 23-31, 1945	3,005	570	203	334	1.82	0.61
April	4,270	197	101	142	.772	.86
May	4,267	465	83	138	.750	.86
June	3,482	410	38	116	.630	.70
July	882	38	10	28.5	.155	.18
August	388.4	17	6.7	12.5	.068	.08
September	601	41	12	20.0	.109	.12
Water year	-	-	-	-	-	-
October 1945	1,860	115	35	60.0	.326	.38
November	6,985	440	106	233	1.27	1.42
December	2,448	145	50	79.0	.429	.49
Calendar year	-	-	-	-	-	-
January 1946	5,235	450	70	169	.918	1.06
February	2,350	110	60	83.9	.456	.47
March	17,118	1,600	110	552	3.00	3.46
April	3,184	175	52	106	.576	.64
May	2,904	188	46	93.7	.509	.59
June	2,387	209	42	79.6	.433	.48
July	1,255	87	14	40.5	.220	.25
August	518	24	12	16.7	.091	.10
September	510	24	12	17.0	.092	.10
Water year 1945-46	46,754	1,600	12	128	.696	9.44

Time basis: Eastern standard time.

Lower South Branch Thunder Bay River near Hubbard Lake, Mich.

Location.- Water-stage recorder, lat. 44°51'33", long. 83°35'40", in sec. 4, T. 28 N., R. 7 E., 50 feet downstream from Hubbard Lake and 1 mile south of town of Hubbard Lake.

Drainage area.- 146 square miles.

Records available.- August 1945 to September 1946.

Extremes (regulated).- 1945: Maximum daily discharge during period August to September, 177 second-feet Aug. 21-25; minimum daily, 0.6 second-foot Sept. 27, 28, 30.
1945-46: Maximum daily discharge during water year, 440 second-feet Mar. 19; minimum daily, 0.2 second-foot Nov. 24-26, Apr. 14, 15, 20.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow regulated by Hubbard Lake Dam.

Rating table, Aug. 14, 1945, to Sept. 30, 1946 (gage height, in feet, and discharge, in second-feet)

3.4	0.2	3.9	24	4.6	131
3.5	.7	4.0	33	4.8	186
3.6	2.8	4.1	43	5.0	255
3.7	8.5	4.2	56	5.5	477
3.8	16	4.4	88		

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											-	48
2											-	48
3											-	49
4											-	48
5											-	48
6											-	67
7											-	80
8											-	81
9											†199	102
10											-	134
11											-	147
12											-	144
13											-	144
14											100	144
15											33	84
16											30	48
17											28	108
18											29	144
19											106	122
20										†221	163	79
21											177	43
22											177	43
23						†9.0	†0.3				177	46
24											177	17
25											177	1.9
26								†0.5			174	1.6
27											172	.6
28									†182		157	.6
29											149	.7
30											141	.6
31											115	-

† Result of discharge measurement.

Discharge, in second-feet, of Lower South Branch Thunder Bay River near Hubbard Lake, Mich., 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.4	0.5	102	a180	186	18	152	28	68	212	52
2	.6	.3	.5	102	a180	186	8.5	180	29	35	212	52
3	.7	.3	.3	122	a180	186	4.5	180	70	36	208	91
4	.5	.3	.4	136	a175	186	3.2	183	117	33	212	120
5	.5	.4	.8	136	a175	186	2.5	208	117	34	229	117
6	.5	.7	55	115	177	186	2.2	202	120	31	251	115
7	.5	.9	108	102	177	208	2.2	172	120	31	248	113
8	.5	.8	108	104	180	236	2.8	154	73	32	248	113
9	.7	.5	110	106	189	240	2.8	157	31	105	244	53
10	.7	.5	108	106	189	240	6.4	126	86	152	233	4.0
11	.8	.4	135	106	189	236	a6.5	96	154	a153	233	2.5
12	.8	.4	166	108	189	263	a4.0	100	154	154	197	2.5
13	1.2	.4	183	108	183	323	a1.0	104	149	152	169	2.5
14	1.4	.3	180	126	186	354	a.2	102	149	152	124	2.8
15	1.2	.3	155	144	180	394	a.2	102	157	154	124	3.2
16	1.0	.3	113	144	183	408	a.5	102	172	166	126	29
17	1.4	.3	136	144	183	431	.8	102	123	174	124	51
18	1.4	.3	144	124	183	436	.4	102	34	177	126	51
19	1.4	.3	136	106	183	440	.4	102	26	192	126	49
20	1.6	.3	136	108	183	299	.2	68	26	205	126	49
21	38	.5	136	139	183	113	50	32	26	205	126	51
22	82	.4	136	183	183	23	85	32	26	191	126	51
23	127	.2	139	183	180	22	85	31	25	157	126	31
24	139	.2	120	186	180	21	41	28	24	157	126	37
25	70	.2	102	186	180	20	12	28	14	160	126	a3
26	16	.2	102	a185	186	18	48	29	27	163	126	a3
27	18	.3	104	a185	192	18	76	28	31	167	136	a3
28	.4	.3	102	a185	192	17	76	28	36	208	144	a20
29	.3	.3	102	a185	-	16	114	28	32	208	144	a40
30	.5	.4	102	a180	-	17	139	28	64	208	144	a20
31	.3	-	102	a180	-	18	-	28	-	208	88	-

a No gage-height record; discharge computed on basis of weather records and record of gate operation at Hubbard Lake Dam.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March	-	-	-	-		
April	-	-	-	-		
May	-	-	-	-		
June	-	-	-	-		
July	-	-	-	-		
August 14-31, 1945	2,282	177	28	127		
September	2,024.0	147	.6	67.5		
Water year	-	-	-	-		
October 1945	509.5	139	.3	16.4		
November	11.4	.9	.2	.380		
December	3,222.5	183	.3	104		
Calendar year	-	-	-	-		
January 1946	4,326	186	102	140		
February	5,120	192	175	183		
March	5,927	440	16	191		
April	793.3	139	.2	26.4		
May	3,014	208	28	97.2		
June	2,240	172	14	74.7		
July	4,268	208	31	138		
August	5,184	251	88	167		
September	1,351.5	120	2.5	45.0		
Water year 1945-46	35,967.2	440	.2	98.5		

Time basis: Eastern standard time.

Middle Branch Au Sable River at Grayling, Mich.

Location.- Water-stage recorder, lat. 44°39'35", long. 84°42'45", in sec. 7, T. 26 N., R. 3 W., just upstream from bridge on U. S. Highway 27 at Grayling and three-quarters of a mile upstream from East Branch. Datum of gage is 1,123.49 feet above mean sea level, datum of 1929.

Drainage area.- 110 square miles.

Records available.- November 1942 to September 1946.

Extremes.- Maximum discharge during year, 183 second-feet Mar. 16 (gage height, 2.34 feet); minimum, 28 second-feet (regulated) Apr. 21 (gage height, 0.80 foot).
1942-46: Maximum discharge, 274 second-feet June 2, 1943 (gage height, 3.00 feet); minimum, that of Apr. 21, 1946.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Diurnal fluctuation caused by power plant upstream.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in se[illegible]
(Shifting-control method us[illegible] 2-28)

0.8	28
1.1	46
1.4	74
2.0	141
2.3	177

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	96	a85	72	77	76	141	67	77	98	53	54
2	124	112	a85	74	75	84	130	71	78	121	50	54
3	125	120	a85	81	72	80	118	69	77	106	51	54
4	116	112	a80	80	76	84	114	70	71	83	52	52
5	106	a100	a75	95	76	82	112	77	72	86	51	51
6	a100	a100	a80	121	84	103	109	77	70	69	48	53
7	109	a110	86	135	86	133	107	76	69	71	50	66
8	116	a120	87	122	75	142	112	74	71	76	49	64
9	115	a125	87	118	74	134	108	72	67	73	51	73
10	107	a120	84	116	69	120	a105	68	67	71	58	75
11	100	a115	79	105	67	109	a105	77	68	69	59	79
12	102	a110	72	102	71	a115	a105	78	71	69	59	76
13	100	116	82	89	71	124	a105	75	67	63	54	71
14	94	108	84	78	69	153	a105	73	63	59	54	67
15	97	107	83	74	61	177	a105	71	62	58	54	65
18	96	99	77	90	67	177	a105	70	65	56	54	63
17	96	95	75	112	79	171	105	69	78	54	54	63
18	94	94	80	94	75	151	80	72	90	54	52	61
19	97	88	80	83	72	140	42	77	85	55	55	59
20	92	90	76	82	73	125	32	103	77	61	55	58
21	99	81	74	82	71	114	30	106	79	59	59	58
22	99	89	79	82	72	111	46	97	77	65	62	57
23	a100	85	74	81	72	109	67	83	72	62	60	62
24	a100	88	76	82	74	107	71	84	68	58	58	66
25	a100	83	76	80	74	100	72	92	67	57	54	61
26	a100	80	77	77	72	102	71	88	67	55	54	60
27	a100	78	79	72	72	102	70	82	65	54	56	60
28	102	80	79	74	71	104	70	77	63	55	57	59
29	95	a85	79	76	-	108	72	75	65	53	59	65
30	85	a85	83	76	-	118	71	73	65	54	58	67
31	92	-	79	77	-	143	-	73	-	54	51	-

Month	Second-feet-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,177	125	85	102	0.927	1.07
November	2,971	125	78	99.0	.900	1.00
December	2,477	87	72	79.9	.726	.84
Calendar year 1945	30,435	202	51	83.4	.758	10.29
January	2,782	135	72	89.7	.815	.94
February	2,047	86	61	73.1	.665	.69
March	3,698	177	76	119	1.08	1.24
April	2,685	141	30	89.5	.814	.91
May	2,414	106	67	77.9	.708	.82
June	2,133	90	62	71.1	.646	.72
July	2,078	121	53	67.0	.609	.70
August	1,691	62	48	54.5	.495	.57
September	1,873	79	51	62.4	.567	.63
Water year 1945-46	30,026	177	30	82.3	.748	10.13

a No gage-height record; discharge computed on basis of weather records and records for Manistee River near Grayling.

Rifle River at Michigan Highway 70, near Sterling, Mich.

Location.- Water-stage recorder, lat. 44°04', long. 84°02', in sec. 5, T. 19 N., R. 4 E., at bridge on State Highway 70, 3 miles north of Sterling.

Drainage area.- 320 square miles.

Records available.- January 1937 to September 1946.

Extremes.- Maximum discharge during year, 2,460 second-feet Mar. 15; maximum gage height, 11.57 feet Mar. 7 (backwater from ice); minimum discharge, 122 second-feet (regulated) Aug. 9 (gage height, 1.39 feet).

1937-46: Maximum discharge, 3,610 second-feet June 2, 1943; maximum gage height, 13.90 feet Mar. 25, 1943 (backwater from ice); minimum discharge, 105 second-feet (regulated) Aug. 12, 14, 22, 23, 1944 (gage height, 1.27 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation during low flow caused by power plant above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.4	123	3.5	570
1.5	138	4.5	865
2.0	224	6.0	1,410
2.5	327	8.2	2,360

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	263	228	316	220	270	270	338	211	384	639	138	138
2	338	310	294	200	270	280	327	207	316	622	136	132
3	259	372	274	210	260	300	316	194	257	372	134	130
4	241	274	250	220	250	300	327	213	243	274	136	136
5	211	257	240	250	270	350	327	284	241	235	130	134
6	207	261	*235	600	280	*800	305	294	214	214	128	130
7	274	263	235	800	*300	1,500	284	259	209	196	129	151
8	274	316	239	600	280	1,200	294	241	213	a210	126	159
9	274	305	241	500	280	1,000	327	232	194	a250	126	162
10	237	360	235	550	250	850	327	222	182	a230	135	175
11	220	274	213	450	250	750	274	218	184	a200	136	175
12	274	255	220	370	250	700	274	216	184	a180	132	165
13	259	327	220	300	250	1,200	274	213	175	170	134	156
14	237	408	220	250	250	1,800	263	205	168	165	134	149
15	220	305	220	270	240	2,360	261	203	168	167	129	146
16	222	274	220	*270	230	2,010	255	220	180	162	132	143
17	211	274	200	260	260	1,650	253	213	284	152	148	146
18	209	263	220	250	250	1,250	228	232	495	151	148	140
19	203	251	220	240	250	1,040	234	338	372	154	146	136
20	201	243	220	230	250	850	222	508	349	144	141	140
21	200	243	200	230	230	730	228	532	482	144	149	151
22	240	358	200	230	250	670	228	384	372	157	167	143
23	338	420	200	220	250	582	239	316	305	182	152	160
24	263	316	200	240	250	545	255	305	253	159	144	211
25	259	294	210	240	230	470	243	338	230	148	141	187
26	251	*284	230	230	250	482	230	316	211	143	132	173
27	243	284	230	220	250	445	222	263	201	138	132	165
28	226	349	220	240	260	420	214	241	187	136	164	159
29	213	396	230	250	-	408	214	222	179	136	162	168
30	216	349	250	260	-	384	207	203	220	146	149	168
31	220	-	250	270	-	349	-	237	-	148	141	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,503	338	200	242	0.756	0.87
November	9,113	420	228	304	.950	1.06
December	7,152	316	200	231	.722	.83
Calendar year 1945	108,682	3,360	132	298	.931	12.63
January	9,670	800	200	312	.975	1.12
February	7,160	300	230	256	.800	.83
March	25,945	2,360	270	837	2.62	3.02
April	7,990	338	207	266	.831	.93
May	8,280	532	194	267	.834	.96
June	7,652	495	168	255	.797	.89
July	6,524	639	136	210	.656	.76
August	4,331	167	126	140	.438	.50
September	4,628	211	130	154	.481	.54
Water year 1945-46	105,948	2,360	126	290	.906	12.31

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Middle Branch Au Sable River at Grayling.
Note.- Stage-discharge relation affected by ice Dec. 4-7, Dec. 12 to Mar. 14.

Shiawassee River at Owosso, Mich.

Location.- Water-stage recorder, lat. 43°00'54", long. 84°10'52", in SW¼ sec. 12, T. 7 N., R. 2 E., a quarter of a mile north of Owosso. Datum of gage is 707.25 feet above mean sea level, datum of 1929.

Drainage area.- 538 square miles.

Records available.- March 1931 to September 1946.

Average discharge.- 13 years (1931-33, 1935-46), 282 second-feet.

Extremes.- Maximum discharge during year, 3,070 second-feet Mar. 6 (gage height, 7.45 feet); minimum, 17 second-feet (regulated) Aug. 22; minimum gage height, 1.61 feet Sept. 29; minimum daily discharge, 27 second-feet (regulated) Sept. 29.

1931-46: Maximum discharge, 4,230 second-feet Mar. 17, 1942 (gage height, 8.74 feet); minimum, 0.2 second-foot (regulated) July 27, 1934 (gage height, 1.12 feet); minimum daily, 2.0 second-feet (regulated) July 28, 1934.

Maximum stage known, 726 feet above mean sea level, at site of former gage, during ice jam in 1918 (U. S. Weather Bureau records).

Remarks.- Records good except those for period of ice effect, which are fair. Flow regulated by power plant at Shiawasseetown.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,610	402	285	585	170	250	342	154	159	202	50	34
2	1,900	560	266	567	165	876	339	160	202	186	74	44
3	1,650	458	262	498	155	1,850	324	160	210	185	64	46
4	1,550	388	246	481	145	2,210	318	145	156	164	53	30
5	1,520	357	248	916	145	2,510	294	148	161	137	61	32
6	1,400	315	245	1,190	160	2,830	285	150	154	107	70	37
7	1,280	315	251	*1,230	220	2,440	273	135	133	110	48	45
8	1,110	315	220	1,000	220	1,990	276	138	129	112	56	45
9	975	315	221	1,190	200	1,920	267	128	106	94	71	53
10	875	288	*208	1,380	190	1,720	255	121	112	99	62	63
11	755	282	171	1,110	*180	1,520	249	126	93	99	53	49
12	710	279	165	1,030	165	1,370	249	118	102	91	63	61
13	642	273	165	875	160	1,250	243	123	119	87	68	48
14	540	288	160	661	150	1,190	225	122	166	75	32	59
15	465	285	150	580	150	*1,190	216	74	101	86	48	47
16	416	282	135	500	230	1,160	184	152	119	68	54	49
17	406	270	110	370	280	1,080	213	264	120	60	53	45
18	370	267	110	370	300	1,030	213	309	338	66	53	37
19	378	261	150	350	300	950	210	338	482	72	96	47
20	392	234	150	300	300	875	210	345	540	78	63	45
21	305	228	150	250	300	778	160	357	600	70	45	44
22	363	252	140	250	240	710	219	367	500	87	50	47
23	454	246	125	220	230	642	170	351	448	65	71	56
24	420	225	125	200	230	600	177	315	388	51	49	46
25	437	222	140	200	220	580	178	315	321	57	51	41
26	402	216	155	190	200	540	195	315	297	65	59	40
27	364	199	170	180	190	500	167	309	249	69	52	55
28	336	255	190	160	190	444	143	324	188	53	39	55
29	324	285	299	160	-	434	174	309	168	66	38	27
30	306	303	584	160	-	378	156	276	188	66	48	52
31	348	-	793	170	-	342	-	228	-	46	46	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	23,003	1,900	305	742	1.38	1.59
November	8,865	560	199	296	.550	.61
December	6,789	793	110	219	.407	.47
Calendar year 1945	131,784	3,490	65	361	.671	9.09
January	17,323	1,380	160	559	1.04	1.20
February	5,785	300	145	207	.385	.40
March	36,159	2,830	250	1,166	2.17	2.50
April	6,924	342	143	231	.429	.48
May	6,876	367	74	222	.413	.48
June	7,049	600	93	235	.437	.49
July	2,853	202	46	92.0	.171	.20
August	1,740	96	32	56.1	.104	.12
September	1,379	63	27	46.0	.086	.10
Water year 1945-46	124,745	2,830	27	342	.636	8.64

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 12-28, Jan. 15 to Mar. 1.

Shiawassee River near Fergus, Mich.

Location.- Wire-weight gage, lat. 43°15'17", long. 84°06'20", in sec. 22, T. 10 N., R. 3 E., at highway bridge, 1.2 miles east of Fergus and 1¾ miles upstream from Bear Creek. Datum of gage is 587.80 feet above mean sea level, datum of 1929.
Drainage area.- 637 square miles.
Records available.- January 1940 to September 1946.
Extremes.- Maximum daily discharge during year, 4,500 second-feet Mar. 6 (includes overflow bypassing gage); maximum gage height observed, 12.17 feet Mar. 4; minimum observed, 29 second-feet Aug. 31 (gage height, 3.10 feet).
1940-46: Maximum daily discharge, that of Mar. 6, 1946 (includes overflow bypassing gage); maximum gage height observed, 12.29 feet Mar. 16, 1943 (backwater from ice); minimum discharge observed, that of Aug. 31, 1946.
Remarks.- Records good except those for periods of ice effect or doubtful gage-height record, and those for overflow bypassing gage, which are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,600	482	334	938	220	240	375	168	246	215	65	52
2	2,510	534	315	680	220	680	375	143	202	288	47	49
3	2,110	635	274	650	210	1,960	375	143	214	196	47	41
4	1,750	521	267	620	200	3,990	354	148	220	190	59	46
5	1,640	444	267	1,320	200	e4,200	344	153	190	168	62	41
6	1,580	420	260	1,820	250	e4,500	315	148	190	134	56	35
7	1,550	386	253	2,110	280	3,550	306	153	180	101	56	34
8	1,340	375	253	1,890	280	*2,600	306	138	148	d120	58	47
9	1,120	397	232	1,960	260	2,430	306	134	119	d125	57	48
10	1,000	386	220	2,270	250	2,190	282	138	119	99	54	47
11	892	354	*200	1,610	*240	1,890	274	148	123	111	66	76
12	810	334	175	1,310	230	1,680	267	138	134	101	59	63
13	770	334	175	1,100	210	1,550	274	143	128	105	54	66
14	698	334	170	1,000	200	1,490	260	128	143	97	51	62
15	576	324	160	800	200	1,520	246	128	174	89	65	68
16	508	315	150	700	250	1,430	220	97	134	82	73	62
17	469	306	130	550	300	1,310	190	158	138	73	71	55
18	444	306	130	475	350	1,220	226	253	168	66	47	51
19	432	298	180	450	375	1,180	226	324	407	66	55	41
20	420	290	180	400	375	1,030	226	375	469	65	96	47
21	408	267	180	350	375	938	214	375	548	67	93	49
22	420	267	170	325	350	870	185	364	521	72	55	47
23	508	274	160	300	300	770	220	375	354	67	64	52
24	534	274	160	275	300	750	158	344	408	63	56	68
25	495	260	170	250	280	770	158	334	354	61	63	61
26	508	260	190	240	260	665	180	375	298	52	61	47
27	469	253	200	230	240	620	196	344	267	53	56	42
28	432	260	250	210	240	534	190	324	226	55	60	41
29	397	306	344	200	-	482	168	334	168	69	56	57
30	375	334	556	200	-	469	185	298	153	52	44	52
31	397	-	1,080	210	-	420	-	282	-	59	37	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	27,162	2,510	375	876	1.38	1.59
November	10,530	635	253	351	.551	.61
December	7,785	1,080	130	251	.394	.45
Calendar year 1945	154,966	4,200	80	425	.667	9.04
January	25,443	2,270	200	821	1.29	1.49
February	7,445	375	200	266	.418	.44
March	47,928	4,500	240	1,546	2.43	2.80
April	7,601	375	158	253	.397	.44
May	7,107	375	97	229	.359	.41
June	7,143	548	119	238	.374	.42
July	3,161	288	52	102	.160	.18
August	1,843	96	37	59.5	.093	.11
September	1,547	76	34	51.6	.081	.09
Water year 1945-46	154,695	4,500	34	424	.666	9.03

* Winter discharge measurement made on this day.
d Doubtful gage-height record; discharge computed on basis of weather records and records for station at Owosso.
e Overflow bypassing gage included in discharge; discharge computed on basis of 1 discharge measurement and records for station at Owosso.
Note.- Stage-discharge relation affected by ice Dec. 10-28, Jan. 13 to Mar. 1.

Saginaw River at Saginaw, Mich.

Location.- Staff gage, lat. 43°26'00", long. 83°56'30", in sec. 24, T. 12 N., R. 4 E., at Genesee Street Bridge in Saginaw, 3¾ miles downstream from Tittabawassee River and 18.1 miles upstream from mouth. Datum of gage is 566.85 feet above U. S. Lake Survey datum and not above mean sea level as published in previous reports (levels by U. S. Weather Bureau).
Drainage area.- 6,060 square miles.
Records available.- December 1942 to September 1946 (high-water records only). Gage-height records collected at same site since 1910 are contained in reports of U. S. Weather Bureau.
Extremes.- Maximum discharge during year, 45,700 second-feet Mar. 9, 10 (gage height, 20.82 feet).
Highest stage known, 24.9 feet Mar. 28, 1904, U. S. Weather Bureau records, being higher than the previous published high of 1916.
Remarks.- Records fair. Gage read every two hours. Discharge computed using level of Lake Huron as a factor except above a stage of 18 feet.

Discharge, in second-feet, of Saginaw River at Saginaw, Mich., water year October 1945 to September 1946

Day	Jan.	Mar.	Day	Jan.	Mar.	Day	Jan.	Mar.	Day	Jan.	Mar.	Day	Jan.	Mar.
1	-	-	7	16,400	31,000	13	18,100	33,400	19	-	27,100	25	-	13,400
2	-	-	8	19,500	39,500	14	19,100	31,300	20	-	24,200	26	-	13,200
3	-	-	9	19,800	44,900	15	18,400	30,900	21	-	22,000	27	-	-
4	-	12,700	10	20,400	44,900	16	14,600	30,300	22	-	19,500	28	-	-
5	-	17,400	11	22,200	41,800	17	-	29,600	23	-	18,000	29	-	-
6	-	23,500	12	20,600	37,200	18	-	28,600	24	-	15,700	30	-	19,400
												31	-	13,400

Flint River at Genessee, Mich.

Location.- Wire-weight gage, lat. 43°06'25", long. 83°37'00", in sec. 10, T. 8 N., R. 7 E., at highway bridge at Genesee, three-quarters of a mile downstream from Butternut Creek. Datum of gage is 695.27 feet above mean sea level, datum of 1929.

Drainage area.- 593 square miles.

Records available.- March 1931 to September 1946.

Average discharge.-15 years, 318 second-feet.

Extremes.- Maximum discharge observed during year, 4,880 second-feet Mar. 6 (gage height, 23.91 feet); minimum daily, 45 second-feet Sept. 22 (gage height, 13.07 feet).

1931-46: Maximum discharge observed, 5,660 second-feet (revised) Mar. 19, 1942 (gage height, 24.49 feet); minimum observed, about 10 second-feet Aug. 15, 1936.

Revisions.- The maximum discharge for the water year 1942 has been revised to 5,660 second-feet Mar. 19, 1942 (gage height, 24.49 feet), superseding figure published in Water-Supply Papers 954, 974, 1004, and 1034.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Revisions.- Revised figures of discharge, in second-feet, for the high-water period in the water year 1942, superseding those published in Water-Supply Paper 954, are given herewith:

Mar. 19 5,530

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1942.....	66,210	5,530	145	2,136	3.60	4.15
Water year 1941-42....	124,834	5,530	38	342	.577	7.82
Calendar year 1942....	134,334	5,530	53	368	.621	8.41

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,050	329	329	600	200	500	340	139	192	412	60	58
2	1,440	388	329	540	200	730	320	129	187	370	58	57
3	1,400	376	340	600	200	1,480	300	128	180	310	61	54
4	1,480	340	296	800	200	1,950	290	129	175	290	67	54
5	1,440	329	285	1,400	225	3,110	280	134	163	270	59	51
6	1,280	329	261	1,440	275	*4,370	270	131	152	214	58	56
7	1,130	307	241	1,400	320	4,040	270	129	136	192	59	55
8	1,050	307	239	*1,640	350	3,360	260	128	136	178	58	50
9	1,020	307	249	1,800	370	3,050	260	126	126	158	60	48
10	830	296	260	1,900	390	2,930	260	123	118	155	70	59
11	726	285	190	1,760	360	2,810	250	122	108	142	67	70
12	700	278	*155	1,520	340	2,300	240	118	110	129	64	65
13	652	283	140	1,220	*330	2,100	230	116	110	112	59	63
14	628	296	150	1,000	320	1,850	222	114	101	104	59	59
15	544	307	140	760	305	1,640	224	116	98	94	56	58
16	496	296	145	640	315	1,400	236	161	94	87	54	58
17	460	287	130	560	320	1,400	240	a250	241	89	55	54
18	412	278	125	600	320	1,320	220	a290	1,120	84	54	50
19	364	274	120	500	320	1,210	208	a320	1,000	84	55	52
20	340	268	115	400	320	1,120	197	a400	1,090	79	55	49
21	318	261	110	340	300	1,000	189	a450	1,060	73	56	46
22	364	285	105	300	270	850	175	410	1,000	83	58	46
23	436	278	100	280	240	705	170	370	760	79	59	54
24	412	276	100	260	240	655	175	340	618	73	59	79
25	388	278	110	250	240	618	177	350	442	69	55	73
26	376	270	135	250	250	580	172	320	350	63	54	70
27	388	268	160	235	260	542	166	290	330	57	51	70
28	364	285	185	220	330	505	160	280	340	54	52	67
29	340	307	220	210	-	468	150	244	280	58	56	64
30	318	329	600	200	-	410	145	205	340	61	56	63
31	307	-	600	200	-	370	-	180	-	61	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October.....	21,453	1,480	307	692	1.17	1.35
November.....	8,997	388	261	300	.506	.56
December.....	6,664	600	100	215	.363	.42
Calendar year 1945	149,269	3,110	50	409	.690	9.37
January.....	23,825	1,900	200	769	1.30	1.50
February.....	8,110	390	200	290	.489	.51
March.....	49,373	4,370	370	1,593	2.69	3.10
April.....	6,796	340	145	227	.383	.43
May.....	6,742	450	114	217	.366	.42
June.....	11,157	1,120	94	372	.627	.70
July.....	4,284	412	54	138	.233	.27
August.....	1,799	70	51	58.0	.098	.11
September.....	1,752	79	46	58.4	.098	.11
Water year 1945-46	150,952	4,370	46	414	.698	9.48

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations near Fosters and near Flint.

Note.- Stage-discharge relation affected by ice Dec. 10 to Jan. 4, Jan. 14 to Mar. 1.

Flint River near Flint, Mich.

Location.- Water-stage recorder, lat. 43°02'20", long. 83°46'10", in SW¼ sec. 4, T. 7 N., R. 6 E., at sewage-treatment plant 2 miles downstream from Flint and 5 miles downstream from Swartz Creek. Datum of gage is 678.80 feet above mean sea level (levels by U. S. Weather Bureau and city of Flint).

Drainage area.- 927 square miles.

Records available.- August 1932 to September 1946.

Average discharge.- 14 years, 479 second-feet.

Extremes.- Maximum discharge during year, 6,940 second-feet Mar. 7 (gage height, 11.36 feet); minimum, 39 second-feet Aug. 1 (gage height, 2.11 feet).
1932-46: Maximum discharge, 8,810 second-feet June 2, 1943 (gage height, 12.95 feet); minimum, 9.0 second-feet Aug. 7, 1934.

Remarks.- Records good. Some regulation by reservoirs above station. City of Flint diverts water above station for municipal and industrial use, but sewage from city is included in flow at station.

Rating tables, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 26 to Sept. 30)

Oct. 1 to Mar. 7

2.8	113	5.5	1,380
3.0	161	6.5	2,170
3.4	290	8.5	4,040
3.8	450	11.4	6,940
4.5	785		

Mar. 8 to Sept. 30

2.1	40	3.0	190
2.3	58	3.4	314
2.5	84	3.8	455
2.7	118		

Note.- Same as preceding table above 3.9 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,060	585	508	922	316	420	572	202	311	381	46	70
2	3,740	710	500	812	305	1,390	479	193	301	467	54	66
3	2,620	635	495	735	305	3,160	417	169	301	444	64	65
4	2,350	580	482	735	294	4,240	463	176	288	395	62	63
5	2,350	554	459	1,870	280	4,440	475	168	260	321	68	60
6	2,080	540	450	2,440	442	5,940	403	171	322	288	65	59
7	1,950	518	441	2,350	544	6,640	399	166	131	238	64	62
8	1,750	504	382	2,220	540	5,740	406	158	187	256	64	62
9	1,790	508	323	2,890	522	5,440	406	156	179	214	103	65
10	1,520	486	366	3,070	554	4,540	388	151	168	309	83	98
11	1,340	472	290	2,420	554	3,540	330	156	163	256	71	78
12	1,190	477	245	2,040	554	2,890	330	151	158	214	73	74
13	1,100	495	229	1,630	526	2,800	324	144	156	163	74	73
14	922	500	240	1,220	477	2,170	317	144	144	146	68	73
15	895	490	220	997	477	2,080	334	144	135	133	63	74
16	840	486	225	843	464	1,870	324	366	144	122	63	74
17	735	500	175	760	446	1,910	327	425	330	116	65	70
18	685	500	127	812	450	1,990	321	463	1,380	113	79	68
19	585	464	190	714	464	1,910	311	487	2,400	109	101	69
20	540	446	a180	433	482	1,630	304	660	1,950	100	74	66
21	531	437	a170	468	459	1,260	279	785	1,590	97	84	65
22	710	437	161	436	428	1,250	232	735	1,310	107	76	63
23	760	428	158	423	358	1,130	253	605	1,250	107	76	98
24	735	437	158	399	262	950	256	504	895	102	74	84
25	685	437	a180	403	323	868	253	471	685	98	66	76
26	615	437	a250	374	331	868	244	436	425	95	70	92
27	600	459	276	343	358	812	232	425	381	90	64	97
28	562	513	283	343	358	760	229	381	285	84	63	94
29	544	508	316	327	-	685	229	337	314	90	65	98
30	513	508	852	305	-	635	214	308	317	100	64	87
31	580	-	1,160	323	-	600	-	308	-	77	60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	38,877	3,740	513	1,254	1.35	1.56
November	15,051	710	428	502	.542	.60
December	10,491	1,160	127	338	.365	.42
Calendar year 1945	242,390	5,740	82	664	.716	9.72
January	34,057	3,070	305	1,099	1.19	1.37
February	11,873	554	262	424	.457	.48
March	74,558	6,640	420	2,405	2.59	2.99
April	10,051	572	214	335	.361	.40
May	10,145	785	144	327	.353	.41
June	16,860	2,400	131	562	.606	.68
July	5,832	467	77	188	.203	.23
August	2,166	103	46	69.9	.075	.09
September	2,243	98	59	74.8	.061	.09
Water year 1945-46	232,204	6,640	46	636	.686	9.32

a No gage-height record; discharge computed on basis of weather records and records for stations at Genesee and near Fosters.
Note.- Stage-discharge relation affected by ice Dec. 14-17.

Flint River near Fosters, Mich.

Location.- Wire-weight gage, lat. 43°17'56", long. 83°55'58", in sec. 6, T. 10 N., R. 5 E., at bridge on Sheridan Road, 1 mile west of Fosters and 4 miles downstream from Silver Creek. Datum of gage is 582.22 feet above mean sea level (levels by U. S. Weather Bureau).

Drainage area.- 1,120 square miles.

Records available.- January 1940 to September 1946.

Extremes.- Maximum daily discharge during year, 8,000 second-feet Mar. 7 (including flow bypassing gage); maximum gage height observed, 16.96 feet Mar. 6; minimum discharge observed, 63 second-feet Aug. 3 (gage height, 3.98 feet).

1940-46: Maximum daily discharge, 11,000 second-feet Mar. 17, 1942 (including flow bypassing gage); maximum gage height observed, 17.80 feet Mar. 16, 1943; minimum discharge observed, 27 second-feet Aug. 6, 1941 (gage height, 3.67 feet).

Maximum stage known, about 18.4 feet (from U. S. Weather Bureau data) in March 1904.

Remarks.- Records good except those for period of ice effect and those for period when some flow bypassed station, which are fair. During high stages, some flow bypassed station through breaks in dikes. This flow is included in figures of daily discharge. Gage read twice daily.

Rating tables, water year 1945-46, except periods of ice effect and period of overflow
(gage height, in feet, discharge, in second feet)
(Shifting-control method used Mar. 15 to May 16)

Oct. 1-2		Oct. 3 to Sept. 30					
10.0	1,460	4.0	65	5.0	206	10.0	1,522
14.0	3,070	4.2	88	5.5	311	12.0	2,170
16.4	4,720	4.4	113	6.0	436	17.0	5,280
		4.7	156	8.0	975		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,630	813	664	1,100	430	500	732	211	372	497	93	80
2	4,720	894	664	1,100	430	1,280	678	208	372	705	82	83
3	4,370	948	638	1,000	430	3,400	584	203	347	556	67	87
4	3,120	840	624	1,000	430	e5,000	570	186	335	489	82	82
5	2,680	759	597	1,890	460	e6,500	584	186	323	397	80	78
6	2,500	705	584	3,960	500	e7,500	570	177	410	335	78	78
7	2,320	664	556	*3,780	560	e8,000	584	177	489	289	82	78
8	2,170	638	543	2,970	620	*e7,500	516	166	166	237	80	84
9	1,890	678	543	3,070	660	e6,500	516	158	247	254	80	87
10	1,890	664	530	4,210	660	e5,000	489	159	199	222	106	88
11	1,700	651	*350	3,640	640	4,060	436	156	198	500	101	92
12	1,550	638	320	2,720	600	3,640	384	156	184	308	86	99
13	1,410	624	300	2,140	580	3,170	372	148	187	219	82	94
14	1,300	651	320	1,700	560	2,770	347	147	179	180	81	87
15	1,080	610	300	1,380	520	2,770	359	148	164	158	80	87
16	1,060	597	300	1,140	500	2,540	384	186	159	144	78	84
17	975	570	260	1,050	500	2,360	359	543	180	138	78	83
18	867	530	200	960	500	2,640	335	530	774	133	78	82
19	786	610	200	900	500	2,360	347	610	1,670	126	84	78
20	678	570	200	800	500	2,140	347	759	1,460	121	106	77
21	705	556	210	700	500	1,730	323	867	1,860	130	90	78
22	840	556	210	640	500	1,460	294	921	1,580	109	84	75
23	1,080	543	210	600	470	1,410	264	813	1,410	108	88	75
24	1,080	530	200	600	430	1,240	271	705	1,190	105	86	78
25	894	516	200	600	380	1,110	264	624	894	103	81	78
26	840	516	250	600	400	1,060	256	651	678	96	83	88
27	759	516	300	560	420	1,030	249	570	476	99	80	89
28	705	651	340	520	450	948	249	516	397	95	80	88
29	678	678	400	480	-	867	230	462	323	93	78	95
30	664	664	460	440	-	813	228	384	359	94	78	99
31	786	-	600	430	-	786	-	347	-	109	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,727	4,720	664	1,572	1.40	1.61
November	19,380	948	516	646	.577	.64
December	12,075	664	200	389	.347	.40
Calendar year 1945	298,154	7,300	100	817	.729	9.89
January	46,680	4,210	430	1,506	1.34	1.54
February	14,130	660	380	505	.451	.47
March	92,084	8,000	500	2,970	2.65	3.06
April	12,121	732	228	404	.361	.40
May	12,074	921	147	389	.347	.40
June	17,582	1,860	159	586	.523	.58
July	7,149	705	93	231	.206	.24
August	2,593	106	67	83.6	.075	.09
September	2,531	99	75	84.4	.075	.08
Water year 1945-46	287,124	8,000	67	787	.703	9.51

* Winter discharge measurement made on this day.

e Some flow bypassing station; discharge computed on basis of weather records and records for stations near Flint and at Genesee.

Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 4, Jan. 17 to Mar. 1.

Farmers Creek near Lapeer, Mich.

Location.- Staff gage and concrete control, lat. 43°02', long. 83°20', at sewage-treatment plant at Michigan Home and Training School, 2 miles west of Lapeer, Lapeer County. Datum of gage is 806.48 feet above mean sea level.

Drainage area.- 57 square miles.

Records available.- March 1933 to September 1946.

Average discharge.- 13 years, 24.9 second-feet.

Extremes.- Maximum discharge observed during year, 417 second-feet Mar. 4 (gage height, 18.00 feet); minimum observed, 1.0 second-feet Aug. 8, 9 (gage height, 14.96 feet).
1933-46: Maximum discharge observed, 793 second-feet June 3, 1943 (gage height, 19.74 feet); minimum not determined.

Remarks.- Records good except those below 10 second-feet and those for periods of ice effect, which are fair. Gage read twice daily. Occasional regulation by dam above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

15.0	1.6	15.4	16	16.0	76
15.1	3.5	15.5	22	16.5	149
15.2	6.4	15.6	30	17.0	231
15.3	10	15.8	50	17.3	285

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	24	27	27	14	22	30	11	14	25	1.6	2.0
2	114	27	27	27	14	65	28	10	16	26	1.6	2.0
3	142	28	25	35	15	227	25	10	15	22	1.6	2.2
4	142	30	24	50	15	377	24	9.5	14	19	1.5	2.4
5	106	29	23	63	13	276	22	9.1	11	16	1.4	2.0
6	76	28	21	118	21	249	22	8.7	10	13	1.4	2.0
7	72	27	21	157	22	258	21	8.7	9.9	9.9	1.4	1.6
8	66	26	18	143	25	240	21	8.7	9.1	9.5	1.0	1.6
9	60	25	17	*126	32	199	21	8.7	8.3	8.3	1.0	1.6
10	56	24	16	110	32	149	21	8.7	6.4	7.5	1.8	2.7
11	54	22	16	120	30	124	21	8.7	6.0	6.7	2.6	3.5
12	49	22	*14	108	28	122	19	8.7	7.9	6.0	2.6	3.5
13	44	24	14	76	28	108	18	8.7	7.9	4.8	2.4	3.5
14	41	24	12	75	27	100	18	7.9	7.9	4.5	2.0	3.4
15	38	24	11	60	28	101	19	8.3	7.5	3.7	1.8	3.1
16	35	25	11	66	28	101	19	14	8.3	3.5	1.6	2.7
17	33	25	10	50	26	101	20	19	12	3.4	2.0	2.6
18	29	25	10	34	26	98	20	23	32	3.1	1.6	2.4
19	26	25	7.9	30	26	101	19	25	87	2.7	2.4	2.4
20	24	25	7.5	28	26	93	17	34	181	2.6	3.1	2.4
21	22	25	7.1	26	24	82	17	38	155	2.2	3.1	2.0
22	24	25	7.1	24	22	70	17	39	119	2.2	2.9	2.0
23	24	24	7.1	19	20	62	17	34	91	2.2	2.7	3.4
24	25	25	7.5	16	19	55	17	28	65	2.2	2.6	4.8
25	25	24	8.7	16	19	52	17	24	47	2.0	2.4	6.7
26	26	23	10	16	18	50	16	23	34	2.0	2.2	7.1
27	28	24	10	16	17	48	14	21	25	2.2	2.0	6.4
28	28	24	11	16	19	44	13	21	20	1.6	2.0	4.8
29	24	24	12	14	-	40	12	17	18	1.8	2.0	3.5
30	25	25	16	14	-	37	12	14	19	1.6	2.0	3.5
31	24	-	28	14	-	33	-	13	-	1.6	2.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,595	142	22	51.5	0.904	1.04
November	752	30	22	25.1	.440	.49
December	456.9	28	7.1	14.7	.258	.30
Calendar year 1945	11,403.8	285	3.1	31.2	.547	7.43
January	1,694	157	14	54.6	.958	1.10
February	634	32	13	22.6	.396	.41
March	3,684	377	22	119	2.09	2.41
April	577	30	12	19.2	.337	.38
May	522.4	39	7.9	16.9	.296	.34
June	1,064.2	181	6.0	35.5	.623	.70
July	218.8	26	1.6	7.06	.124	.14
August	62.3	3.1	1.0	2.01	.035	.04
September	93.8	7.1	1.6	3.13	.055	.06
Water year 1945-46	11,354.4	377	1.0	31.1	.546	7.41

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 9-14, Dec. 29 to Jan. 3, Feb. 8-11, 17-28.

Cass River at Frankenmuth, Mich.

Location.- water-stage recorder, lat. 43°19'42", long. 83°45'28", on line between secs. 27 and 28, T. 11 N., R. 6 E., at highway bridge, 1 mile west of Frankenmuth and 2.6 miles upstream from Dead Creek.

Drainage area.- 848 square miles.

Records available.- February 1908 to March 1909, July 1935 to September 1936, June 1939 to September 1946.

Extremes.- Maximum discharge during year, 11,800 second-feet Mar. 8 (gage height, 19.08 feet); minimum, 23 second-feet (regulated) Sept. 25 (gage height, 2.16 feet); minimum daily, 24 second-feet (regulated) Sept. 22, 29; minimum gage height, 2.08 feet July 4. 1908-9, 1935-36, 1939-46: Maximum discharge, 17,700 second-feet Mar. 18, 1942; maximum gage height, 20.91 feet Mar. 10, 1942 (backwater from ice); minimum daily discharge, about 1.5 second-feet (regulated) Aug. 6, 1944.

Remarks.- Records good except those for periods of ice effect or no gage-height record and those below 50 second-feet, which are fair. Flow regulated by mill above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a2,800	395	428	1,200	175	280	319	90	572	86	39	30
2	a3,400	406	406	900	180	600	298	88	182	85	39	30
3	a2,400	384	384	750	180	1,000	278	88	169	75	39	30
4	a2,200	340	351	600	190	2,000	268	87	231	34	33	28
5	2,030	319	330	900	200	4,000	278	91	219	67	33	28
6	1,360	298	288	2,700	300	7,000	268	133	187	66	32	27
7	1,260	308	268	*3,500	450	9,650	250	130	165	62	32	27
8	1,160	319	288	2,600	450	*10,400	250	100	162	68	35	32
9	1,070	330	278	2,400	430	7,260	268	87	140	62	35	31
10	920	319	*250	3,580	450	5,670	a260	50	124	59	33	34
11	730	278	190	2,880	a450	3,580	a250	85	111	74	34	32
12	607	268	177	2,110	450	2,820	a220	94	106	71	34	31
13	584	278	170	a1,500	450	2,320	a210	91	102	61	33	30
14	505	308	170	a1,100	450	2,190	a210	105	101	54	32	31
15	439	288	170	a900	410	2,550	a190	120	97	50	32	30
16	384	268	170	a700	390	2,280	a175	122	95	48	32	29
17	362	250	150	a600	380	2,110	165	230	110	44	31	27
18	330	240	110	a650	380	1,710	157	461	248	41	31	30
19	308	236	150	a500	380	1,310	151	450	326	43	32	27
20	288	235	145	a360	410	860	146	704	351	46	36	25
21	268	227	140	a380	370	860	142	1,320	340	49	34	25
22	397	250	140	a340	300	755	135	1,030	351	47	32	24
23	516	351	140	a340	260	680	135	607	288	43	34	25
24	680	395	140	a320	220	446	137	439	215	48	33	26
25	572	373	135	260	210	584	134	384	178	54	31	26
26	538	351	180	230	250	631	131	439	165	53	30	35
27	494	319	230	230	280	584	125	384	135	50	29	66
28	428	319	260	230	280	516	133	298	111	46	31	46
29	384	406	275	220	-	461	256	235	98	40	32	24
30	340	428	350	200	-	406	106	193	91	40	32	26
31	340	-	1,000	170	-	351	-	172	-	39	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	28,094	3,400	268	906	1.07	1.23
November	9,486	428	227	316	.373	.42
December	7,863	1,000	110	254	.300	.35
Calendar year 1945	182,726	7,100	31	501	.591	8.04
January	33,350	3,580	170	1,076	1.27	1.46
February	9,325	450	175	333	.393	.41
March	75,864	10,400	280	2,447	2.89	3.33
April	6,045	319	106	202	.238	.27
May	8,907	1,320	50	287	.338	.39
June	5,770	572	91	192	.226	.25
July	1,705	86	34	55.0	.065	.07
August	1,026	39	29	33.1	.039	.04
September	912	66	24	30.4	.036	.04
Water year 1945-46	188,347	10,400	24	516	.608	8.26

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Flint River near Flint.
Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 9, Jan. 25 to Mar. 6.

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Tittabawassee River at Midland, Mich.

Location.- Water-stage recorder, lat. 43°36' (corrected), long. 84°15', in NE¼ sec. 28, T. 14 N., R. 2 E., 0.5 mile south of Midland and 1 mile downstream from Chippewa River. Datum of gage is 590.28 feet above mean sea level, datum of 1929.

Drainage area.- 2,400 square miles.

Records available.- March 1936 to September 1946.

Average discharge.- 10 years, 1,366 second-feet (unadjusted).

Extremes.- 1944-45: Maximum discharge during year, 28,000 second-feet June 3 (gage height, height, 18.01 feet); minimum, 104 second-feet (regulated) Jan. 8 (gage height, -0.43 foot).

1945-46: Maximum discharge during year, 31,200 second-feet Mar. 8 (gage height, 18.75 feet); minimum, 57 second-feet (regulated) May 10 (gage height, -0.44 foot).

1936-46: Maximum discharge, that of Mar. 8, 1946; minimum, 39 second-feet (regulated) Oct. 12, 1942; minimum gage height, that of May 10, 1946.

Remarks.- Records good. Water is diverted from river a short distance above station for industrial use; small part returned to river a quarter of a mile below station; remainder returned 1 mile below and below control. Records of daily discharge not adjusted for diversion. Low flow regulated by power plants above station.

Cooperation.- Gage-height record and records of diversion furnished by Dow Chemical Co.

Revisions.- Revised figures of discharge for August and September in the water year 1945, superseding those published in Water-Supply Paper 1034, are given herein.

Discharge, in second-feet, 1944-46

1944-45

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	509	263	424	256	652	1,550	334	1,290	3,760	2,020	330	1,200
2	348	351	516	368	739	1,610	1,360	1,200	15,400	1,300	302	1,690
3	537	342	534	414	560	1,830	1,750	1,250	26,900	1,080	374	1,460
4	404	322	474	576	260	1,810	1,780	1,490	23,600	652	462	940
5	527	212	748	456	252	2,670	1,480	1,090	14,500	856	357	1,050
6	455	270	664	268	332	3,010	1,260	755	8,520	759	222	988
7	242	430	580	248	392	3,270	812	1,490	6,550	500	330	489
8	390	779	673	256	427	2,900	452	2,600	4,500	359	260	460
9	307	1,120	497	332	489	2,460	745	3,390	3,660	538	520	602
10	421	879	508	384	384	2,130	744	2,440	3,390	368	840	691
11	782	382	534	480	268	925	698	2,080	2,930	290	297	447
12	421	370	763	542	424	1,430	608	1,730	2,510	732	225	516
13	420	352	376	505	554	1,770	682	1,940	2,980	492	750	480
14	328	312	472	240	580	1,960	690	2,630	2,320	801	583	632
15	260	724	384	220	814	1,830	470	2,500	2,250	311	278	436
16	202	1,210	658	308	552	2,480	1,160	2,530	3,810	590	213	472
17	342	1,030	380	340	608	2,800	1,530	2,380	6,000	393	278	474
18	280	496	280	520	228	1,920	1,180	2,550	3,660	451	430	755
19	288	392	474	502	260	2,090	736	1,860	2,490	509	174	676
20	272	997	864	377	438	2,490	831	1,330	2,490	367	189	572
21	202	1,140	754	352	556	1,940	524	1,400	2,210	598	204	282
22	210	1,210	536	318	844	1,410	416	1,470	1,740	369	201	338
23	268	762	308	521	728	1,470	818	1,440	1,010	338	195	1,450
24	298	354	260	420	454	732	861	1,290	710	485	256	1,780
25	598	724	220	610	472	674	1,060	1,360	1,010	548	253	2,280
26	664	360	196	444	1,440	1,140	1,440	1,300	1,010	260	165	1,420
27	444	558	256	300	1,910	1,080	1,480	1,630	1,070	207	192	1,180
28	280	555	292	272	1,590	1,040	1,080	3,080	2,150	314	618	3,100
29	433	490	508	240	-	986	788	7,390	2,490	302	317	5,710
30	378	375	482	504	-	729	1,310	6,260	2,490	268	306	5,620
31	280	-	260	456	-	637	-	3,210	-	545	538	-

Discharge, in second-feet, of Tittabawassee River at Midland, Mich., 1944-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,230	1,420	2,350	694	698	1,440	1,670	653	2,210	777	228	140
2	8,050	1,260	1,750	1,200	599	2,530	1,740	698	620	794	329	148
3	7,180	1,040	1,940	1,070	600	1,850	1,860	541	1,160	1,690	238	150
4	5,080	1,150	2,310	818	700	2,340	1,840	488	1,090	544	290	192
5	3,820	1,150	1,380	1,300	1,080	2,950	1,430	426	910	574	156	398
6	2,870	1,310	1,320	5,000	1,700	5,570	1,230	991	860	1,030	174	218
7	2,240	1,350	1,210	8,740	1,990	21,800	984	1,090	994	570	193	208
8	2,130	1,390	1,020	6,580	2,020	29,200	1,400	1,060	357	523	250	150
9	2,480	1,870	1,080	6,380	1,160	23,200	1,730	568	364	928	324	312
10	1,850	2,310	1,210	8,620	649	13,600	1,980	531	886	1,200	200	1,020
11	1,680	1,540	1,260	7,500	680	10,000	1,640	378	504	554	156	460
12	1,810	1,860	748	5,620	720	8,270	1,560	554	564	461	211	206
13	1,610	2,240	646	4,450	1,330	9,890	1,160	821	334	426	246	158
14	1,270	2,440	586	3,730	1,040	13,400	864	712	518	378	361	139
15	1,100	2,450	438	2,510	1,340	14,400	1,130	577	338	670	646	217
16	1,540	2,100	362	1,840	782	13,800	1,180	723	754	498	266	160
17	1,520	2,000	338	1,760	528	12,000	1,080	657	1,260	592	235	136
18	1,320	1,800	517	1,620	902	9,890	1,070	654	970	413	180	280
19	1,440	1,700	669	1,150	988	8,160	1,120	873	338	208	206	352
20	862	1,700	718	599	582	6,780	655	1,540	1,350	188	238	638
21	716	1,700	718		856	5,530	745	2,850	1,820	223	240	201
22	1,070	1,900	429		1,120	4,990	705	1,470	1,570	688	253	169
23	1,800	1,900	477		633	4,630	1,050	1,680	878	361	214	676
24	1,780	1,800	612		470	4,270	1,100	1,470	866	300	265	258
25	1,670	1,700	665	600	773	4,090	968	1,130	914	344	200	288
26	1,410	1,700	886		700	3,730	963	1,650	892	196	238	310
27	1,000	1,600	1,140		920	3,180	624	1,370	660	130	300	229
28	924	1,900	590	700	710	2,920	424	1,120	575	127	562	163
29	1,150	2,300	629	752	-	2,830	723	813	559	127	707	408
30	1,210	2,000	765	856	-	2,360	751	490	928	232	314	328
31	1,300	-	975	894	-	1,530	-	1,100	-	190	156	-

Note.- No gage-height record Nov. 16-30, Jan. 21-28, Feb. 3, 4, 11; discharge computed on basis of weather records and records for Chippewa River near Mount Pleasant.

Monthly discharge, in second-feet, 1944-46

Month	Observed				Mean diversion (second-feet)†	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1944	11,790	782	202	380	105	485	0.202	0.23
November	17,761	1,210	212	592	96	688	.287	.32
December	14,875	864	196	480	97	577	.240	.28
Calendar year 1944	332,772	5,240	123	909	92	1,001	.417	5.67
January 1945	12,029	610	220	388	101	489	.204	.24
February	17,207	1,910	228	615	99	714	.298	.31
March	54,773	3,270	637	1,767	94	1,861	.775	.89
April	29,079	1,780	334	969	91	1,060	.442	.49
May	68,355	7,390	755	2,205	90	2,295	.956	1.10
June	158,110	26,900	710	5,270	94	5,364	2.24	2.50
July	17,802	2,020	207	568	107	675	.281	.32
August	10,839	840	165	343	109	452	.188	.22
September	38,170	5,710	282	1,272	100	1,372	.572	.64
Water year 1944-45	450,390	26,900	165	1,234	99	1,333	.555	7.54
October 1945	69,112	8,050	716	2,229	108	2,337	.974	1.12
November	52,580	2,450	1,040	1,753	95	1,848	.770	.86
December	29,738	2,350	338	959	85	1,044	.435	.50
Calendar year 1945	557,394	26,900	165	1,527	98	1,625	.677	9.19
January 1946	78,223	8,740	599	2,523	80	2,603	1.08	1.25
February	26,270	2,020	470	938	81	1,019	.425	.44
March	251,130	29,200	1,440	8,101	86	8,187	3.41	3.93
April	35,376	1,980	424	1,179	96	1,275	.531	.59
May	29,678	2,850	378	957	99	1,056	.440	.51
June	26,043	2,210	334	868	105	973	.405	.45
July	15,936	1,690	127	514	110	624	.260	.30
August	8,576	707	156	277	114	391	.163	.19
September	8,712	1,020	136	290	116	406	.169	.19
Water year 1945-46	631,374	29,200	127	1,730	98	1,828	.762	10.33

† Diversion by Dow Chemical Co. for industrial use.

Time basis: Eastern war time prior to 12 p.m. Mar. 17, 1945; eastern standard time thereafter. To convert war time to standard time, subtract 1 hour.

Salt River near North Bradley, Mich.

Location.- Wire-weight gage, lat. 43°42', long. 84°28', on bridge on U. S. Highway 10, 1½ miles southeast of North Bradley.

Drainage area.- 138 square miles.

Records available.- June 1934 to September 1946.

Average discharge.- 12 years, 67.2 second-feet.

Extremes.- Maximum discharge observed during year, 7,970 second-feet Mar. 7 (gage height, 14.92 feet), from rating curve extended above 4,500 second-feet; minimum discharge observed, 3.1 second-feet Aug. 3 (gage height, 0.45 foot).
1934-46: Maximum discharge observed, that of Mar. 7, 1946; minimum discharge observed, 1.1 second-feet Aug. 14, 1944 (gage height, 0.21 foot).

Remarks.- Records good except those below 10 second-feet and those for period of ice effect, which are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	511	35	112	48	45	50	45	18	23	25	4.8	5.2
2	900	42	88	44	45	65	46	17	21	26	4.1	5.1
3	442	51	75	41	43	90	40	16	17	18	3.3	5.2
4	228	44	70	38	40	110	44	17	16	13	4.7	5.2
5	162	39	60	125	47	200	44	19	14	11	4.4	6.1
6	126	38	*55	500	60	1,540	38	20	14	10	4.6	5.7
7	124	42	55	300	130	5,360	34	18	14	9.1	a5	5.0
8	116	58	50	352	80	*2,950	38	17	13	8.2	4.7	8.2
9	106	94	45	547	75	*1,040	52	16	11	7.3	5.4	8.3
10	86	104	43	1,310	60	469	43	15	11	9.4	4.5	9.1
11	71	68	45	450	42	459	36	15	13	12	4.5	7.8
12	84	62	38	250	38	390	32	15	14	12	4.6	6.5
13	82	110	33	178	*34	1,370	30	14	12	7.7	4.6	5.4
14	a65	141	30	140	36	1,220	29	13	11	6.8	4.4	6.1
15	57	95	28	100	36	840	26	14	9.5	6.4	4.3	6.2
16	54	71	29	75	36	622	26	15	10	5.8	4.6	6.0
17	49	63	30	*60	43	464	24	17	11	5.4	4.6	7.6
18	48	58	31	55	45	464	23	19	18	5.3	4.3	6.5
19	44	54	33	50	43	418	22	24	20	5.6	4.6	6.2
20	40	57	35	45	41	264	22	45	19	5.5	4.1	7.0
21	38	63	35	40	40	219	21	62	35	5.8	4.6	6.3
22	52	131	35	40	40	193	20	42	25	5.4	5.0	5.5
23	82	131	35	40	38	157	20	29	18	8.2	4.9	8.1
24	68	100	35	40	37	133	22	26	14	5.8	4.9	9.1
25	58	79	36	40	38	125	22	24	12	5.6	4.7	12
26	56	67	37	40	42	113	20	24	11	5.2	3.9	9.1
27	54	72	37	40	42	100	19	21	10	5.2	4.4	8.3
28	46	278	35	40	43	85	19	18	10	5.6	4.7	6.4
29	45	262	37	40	-	75	18	16	9.4	5.5	6.4	8.1
30	41	162	40	40	-	65	19	16	14	4.0	5.5	7.2
31	34	-	48	42	-	52	-	16	-	5.8	4.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,969	900	34	128	0.928	1.07
November	2,671	278	35	89.0	.645	.72
December	1,395	112	28	45.0	.326	.38
Calendar year 1945	25,072.7	2,240	6.4	68.7	.498	6.75
January	5,150	1,310	38	166	1.20	1.38
February	1,339	130	34	47.8	.346	.36
March	19,702	5,360	50	636	4.61	5.32
April	894	52	18	29.8	.216	.24
May	658	62	13	21.2	.154	.18
June	449.9	35	9.4	15.0	.109	.12
July	271.6	26	4.0	8.76	.063	.07
August	144.0	6.4	3.3	4.65	.034	.04
September	208.5	12	5.0	6.95	.050	.06
Water year 1945-46	36,852.0	5,360	3.3	101	.732	9.94

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Chippewa River near Mt. Pleasant and Pine River at Alma.
Note.- Stage-discharge relation affected by ice Dec. 3 to Jan. 7, Jan. 14 to Mar. 5, Mar. 8-10.

Chippewa River near Mount Pleasant, Mich.

Location.- Water-stage recorder, lat. 43°37'35", long. 84°42'30", on line between secs. 7 and 8, T. 14 N., R. 3 W., 4 miles northeast of Mount Pleasant.

Drainage area.- 416 square miles.

Records available.- October 1930 to July 1931, October 1932 to September 1946.

Average discharge.- 14 years (1932-46), 282 second-feet.

Extremes.- Maximum discharge during year, 4,960 second-feet Mar. 8 (gage height, 12.78 feet); minimum, 21 second-feet (regulated) July 29; minimum daily, 52 second-feet (regulated) Aug. 2, 4; minimum gage height, 3.09 feet June 15.

1930-31, 1932-46: Maximum discharge observed, that of Mar. 8, 1946; minimum, 12 second-feet (regulated) Aug. 18, 1945; minimum daily (observed), 19 second-feet (regulated) Aug. 16, 1936; minimum gage height, 2.82 feet Dec. 21, 1944.

Remarks.- Records good except those for period of ice effect, which are fair. Diurnal fluctuation during low flow caused by power plant above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,260	270	380	310	250	240	410	223	228	156	80	153
2	1,290	276	353	275	250	290	410	228	220	172	52	142
3	1,260	299	326	250	250	380	410	240	223	200	86	136
4	1,040	305	326	350	225	540	395	240	214	186	52	111
5	818	296	311	500	215	740	395	226	192	172	69	158
6	678	299	*293	900	270	1,340	380	256	192	147	91	112
7	625	284	284	870	350	4,070	353	245	198	116	72	161
8	560	290	279	820	320	*4,560	352	240	186	128	77	142
9	530	314	273	888	305	3,320	362	240	167	108	66	192
10	470	338	254	1,120	285	2,050	359	237	178	100	66	125
11	440	362	254	800	260	1,500	359	223	175	119	69	175
12	440	341	237	782	255	1,320	335	220	184	94	74	128
13	410	356	290	590	230	1,680	314	234	184	116	80	150
14	410	395	256	485	*210	1,840	305	217	172	80	86	114
15	371	395	200	450	200	1,840	314	214	167	86	102	136
16	341	368	210	410	220	1,680	302	228	161	91	100	130
17	341	350	225	*380	240	1,570	299	226	164	74	97	119
18	332	329	235	360	250	1,460	290	223	178	58	94	97
19	317	323	235	340	240	1,360	279	234	161	58	114	88
20	302	323	230	310	230	1,180	276	329	195	83	88	105
21	290	317	220	270	220	1,040	254	326	240	58	86	94
22	314	359	220	230	210	940	259	314	242	72	108	100
23	326	356	220	230	200	835	273	287	214	72	119	114
24	335	335	230	230	190	748	268	265	189	72	86	136
25	323	332	210	230	185	678	268	259	164	72	114	125
26	311	320	215	230	175	642	262	262	158	80	94	122
27	311	308	225	230	170	590	254	254	147	74	116	122
28	296	395	210	230	200	545	248	226	147	80	122	128
29	302	440	235	225	-	515	259	234	240	55	125	114
30	282	395	270	235	-	485	251	214	170	80	147	114
31	273	-	310	250	-	455	-	220	-	55	153	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,598	1,290	273	503	1.21	1.40
November	10,070	440	270	336	.808	.90
December	8,016	380	200	259	.623	.72
Calendar year 1945	112,983	2,300	92	310	.745	10.12
January	13,780	1,120	225	445	1.07	1.23
February	6,605	350	170	236	.567	.59
March	40,433	4,560	240	1,304	3.13	3.61
April	9,505	410	248	317	.762	.85
May	7,584	329	214	245	.589	.68
June	5,650	242	147	188	.452	.50
July	3,114	200	55	100	.240	.28
August	2,885	153	52	93.1	.224	.26
September	3,843	192	88	128	.308	.34
Water year 1945-46	127,083	4,560	52	348	.837	11.36

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 15 to Jan. 8, Jan. 15 to Mar. 5 (no gage-height record Jan. 16, 17, 31, Feb. 1-5, 7, 8, 10-12, Mar. 10, 11; discharge computed on basis of weather records, gage heights, discharge measurements, and records for Pine River at Alma.

Pine River at Alma, Mich.

Location.- Water-stage recorder, lat. 43°23', long. 84°39', in sec. 34, T. 12 N., R. 3 W., at Alma, 270 feet downstream from highway bridge. Datum of gage is 718.37 feet above mean sea level, datum of 1929.

Drainage area.- 288 square miles.

Records available.- October 1930 to September 1946.

Average discharge.- 16 years, 173 second-feet.

Extremes.- Maximum discharge during year, 3,650 second-feet Mar. 8 (gage height, 10.02 feet); minimum daily, 27 second-feet July 24.

1930-46: Maximum discharge observed, 4,070 second-feet Feb. 6, 1938 (gage height, 10.43 feet); minimum daily, 2 second-feet (regulated) July 23, 1938.

Correction.- The maximum discharge in the water year 1945, 1,840 second-feet, occurred on June 4, 1945, and not on Feb. 26 as erroneously published in Water-Supply Paper 1034.

Remarks.- Records good except those for period of ice effect or no gage-height record, and those below 100 second-feet, which are fair. Occasional regulation by dam above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	882	140	309	195	156	140	269	114	114	188	50	47
2	1,540	156	269	162	156	150	238	110	109	124	49	46
3	810	182	238	145	145	180	224	104	109	102	44	59
4	705	182	216	136	131	330	238	111	105	88	57	52
5	615	168	202	458	125	878	216	123	95	76	50	51
6	515	156	188	590	220	1,890	216	129	92	70	60	51
7	402	150	168	525	195	2,890	202	142	97	61	58	47
8	309	162	162	665	195	*3,290	231	135	89	67	46	51
9	277	209	156	875	190	2,840	224	122	82	68	49	49
10	277	231	263	928	170	1,720	209	110	82	56	50	62
11	261	238	116	720	150	1,300	209	105	93	68	51	61
12	224	216	82	690	140	1,100	195	105	84	65	52	78
13	216	216	99	a520	140	1,060	182	112	94	54	54	93
14	209	224	60	a410	*150	1,000	175	109	102	47	50	69
15	202	254	40	a330	120	1,020	175	107	264	46	46	63
16	175	238	84	a260	126	1,400	156	106	63	42	45	63
17	168	209	97	a200	148	1,220	150	112	31	35	45	64
18	156	188	117	238	162	1,060	139	131	53	36	50	61
19	156	175	123	231	156	928	132	146	86	38	58	65
20	150	182	114	168	148	825	136	188	103	35	59	65
21	142	188	113	142	143	705	139	224	108	43	54	59
22	175	209	117	136	128	602	138	231	124	40	50	57
23	224	216	119	140	120	525	137	195	113	31	48	72
24	231	231	128	148	120	515	137	162	92	27	46	97
25	216	216	119	145	120	515	135	156	86	28	46	105
26	202	195	124	150	150	485	130	162	80	29	43	89
27	188	188	134	150	130	476	124	175	77	30	45	89
28	182	269	130	130	120	429	115	145	79	36	44	72
29	168	301	123	134	-	376	119	120	110	38	46	73
30	162	317	158	140	-	325	116	104	209	46	47	68
31	145	-	188	145	-	293	-	99	-	50	47	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,284	1,540	142	332	1.15	1.33
November	6,206	317	140	207	.719	.80
December	4,556	309	40	147	.510	.59
Calendar year 1945	69,161	1,740	40	189	.656	8.94
January	10,006	928	130	323	1.12	1.29
February	4,154	220	120	148	.514	.54
March	30,467	3,290	140	983	3.41	3.93
April	5,206	269	115	174	.604	.67
May	4,194	231	99	135	.469	.54
June	3,025	264	31	101	.351	.39
July	1,764	188	27	56.9	.198	.23
August	1,539	60	43	49.6	.172	.20
September	1,978	105	46	65.9	.229	.26
Water year 1945-46	83,379	3,290	27	228	.792	10.77

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for Cedar River at East Lansing and Chippewa River near Mt. Pleasant.

Note.- Stage-discharge relation affected by ice Feb. 6-15, Feb. 23 to Mar. 4.

Sebewaing River (State drain) near Sebewaing, Mich.

Location.- Water-stage recorder, lat. 43°43', long. 83°26', on line between secs. 16 and 21, T. 15 N., R. 9 E., at highway bridge on Rescue Road, 1½ miles upstream from East Fork and 1½ miles southeast of Sebewaing. Datum of gage is 590.0 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 62 square miles.

Records available.- January 1940 to September 1946.

Extremes.- Maximum discharge during year, 2,860 second-feet Mar. 6 (gage height, 11.05 feet); from rating curve extended above 1,000 second-feet; no flow for some periods.
1940-46: Maximum discharge, that of Mar. 6, 1946; maximum gage height, 12.81 feet Mar. 9, 1942 (ice jam); no flow for long periods.

Remarks.- Records good above 10 second-feet and fair below except those for periods of ice effect or partially obstructed intake and those below 1 second-foot, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,230	18	22	150	8	15	4.8	1.2	5	18	0.3	
2	856	17	19	100	9	25	5.0	1.0	7.5	5.4	.3	
3	253	14	19	80	10	90	4.3	.9	6.2	4.1	.2	
4	117	12	17	60	13	500	5.0	.9	5	3	.2	
5	79	11	15	300	15	1,800	4.8	1.0	4	2.5	.1	
6	67	11	15	383	20	2,210	4.2	1.3	3	1.8	.1	
7	161	11	14	231	70	1,150	3.8	1.0	2.5	1.5	.1	
8	83	14	14	*112	50	*378	3.7	1.0	2.3	1.5	.1	
9	80	15	13	475	35	357	4.3	.8	2.1	1.4	.1	
10	58	13	10	380	30	148	3.8	.8	1.8	1.3	.1	
11	41	11	*8	121	20	94	3.6	.7	1.5	1.5	0	
12	56	11	7	75	*16	106	3.2	.7	1.5	1.5	0	
13	42	27	6	50	12	211	3.2	.7	1.4	1.4	0	
14	27	24	6	30	15	229	3.2	.6	1.2	1.3	0	
15	22	15	8	25	25	211	3.1	.5	1.1	1.2	0	
16	21	12	9	20	20	121	2.8	.8	2	1.0	0	
17	18	12	7	15	15	88	2.5	1.6	3.8	.9	0	
18	16	11	6	12	12	74	2.4	2.5	46	.8	0	
19	15	11	6	10	10	56	2.2	5.0	21	.7	0	
20	14	12	5	9	7	37	2.0	187	10	.7	0	
21	12	12	5	8	7	28	2.0	88	24	.7	0	
22	45	31	5	8	7	21	1.9	34	16	.6	0	
23	75	22	5	8	6	15	1.8	13	9.5	.5	0	
24	44	16	5	8	6	18	1.9	9.1	6.4	.5	0	
25	14	14	6	8	6	36	1.8	9.3	4.6	.5	0	
26	28	11	7	8	6	21	1.6	8.7	3.5	.4	0	
27	20	12	10	7	8	15	1.4	7.0	3	.4	0	
28	16	33	25	7	9	11	1.3	5.5	2.5	.4	0	
29	15	37	20	7	-	8.6	1.3	4.5	2	.4	0	
30	13	31	40	7	-	6.8	1.3	4.0	1.5	.4	0	
31	20	-	175	8	-	5.2	-	3.5	-	.4	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,558	1,230	12	115	1.85	2.13
November	501	37	11	16.7	.269	.30
December	529	175	5	17.1	.276	.32
Calendar year 1945	14,582.0	1,560	0	40.0	.645	8.74
January	2,722	475	7	87.8	1.42	1.64
February	467	70	6	16.7	.269	.28
March	8,085.6	2,210	5.2	261	4.21	4.85
April	88.2	5.0	1.3	2.94	.047	.05
May	396.6	187	.5	12.8	.206	.24
June	201.9	46	1.1	6.73	.109	.12
July	56.7	18	.4	1.83	.030	.03
August	1.6	.3	0	.052	.00084	.001
September	0	0	0	0	0	0
Water year 1945-46	16,607.6	2,210	0	45.5	.734	9.96

Peak discharge.- Oct. 1 (2 to 3 p.m.) 1,520 sec.-ft.; Jan. 6 (8:30 p.m.) 439 sec.-ft.; Jan. 9 (7 p.m.) 1,110 sec.-ft.; Mar. 6 (12 m.) 2,860 sec.-ft.; May 20 (12:30 p.m.) 291 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 10-30, Jan. 1-5, Jan. 12 to Mar. 5. Intake partially obstructed May 28 to June 1, June 4-16, 26-30, July 4 to Aug. 14; discharge computed on basis of 6 discharge measurements, weather records, and records for East Fork Sebewaing River near Sebewaing.

East Fork Sebewaing River (Columbia drain) near Sebewaing, Mich.

Location.- Water-stage recorder, lat. 43°44', long. 83°24', on line between secs. 10 and 11, T. 15 N., R. 9 E., at highway bridge on Gettel Road, 2¼ miles upstream from mouth and 2½ miles southeast of Sebewaing. Datum of gage is 607.00 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 38 square miles.

Records available.- January 1940 to September 1946.

Extremes.- Maximum discharge during year, 708 second-feet Mar. 7 (gage height, 4.66 feet); no flow for some periods.
1940-46: Maximum discharge, 1,050 second-feet Mar. 17, 1942; maximum gage height, 9.70 feet Mar. 15, 1943 (ice jam); no flow for long periods.

Remarks.- Records good above 10 second-feet and fair below except those for periods of ice effect and those below 1 second-foot, which are poor.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 26 to May 20)

1.0	0	2.0	25	3.7	366
1.1	.1	2.2	40	4.2	525
1.2	.4	2.4	67	4.6	685
1.4	1.7	2.7	121		
1.6	6.0	3.1	207		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	297	12	18	70	0.9	5	3.1	0.6	2.1	6.4		
2	425	10	16	50	.9	7	3.1	.6	4.8	3.8		
3	366	10	13	25	.9	10	3.0	.6	3.3	1.5		
4	247	6.8	16	15	1	50	3.0	.5	2.6	.9		
5	76	5.2	10	150	1.2	450	3.8	.6	1.7	.6		
6	27	5.0	8.0	200	10	600	3.3	.4	1.5	.5		
7	91	6.0	7.2	137	40	*685	2.8	.6	1.3	.4		
8	40	11	8.0	50	35	525	2.6	.6	1.2	.3		
9	30	11	8.0	*168	25	282	3.0	.5	1.1	.2		
10	23	11	7	286	20	30	3.1	.5	.8	.2		
11	14	6.8	*4	50	13	42	2.4	.5	.8	.2		
12	20	5.5	2	20	*9	50	2.1	.4	.6	.2		
13	20	18	1.5	15	5	129	1.7	.4	.6	0		
14	12	20	1.3	12	10	158	1.7	.4	.5	0		
15	11	11	1.3	9	15	145	1.6	.3	.4	0		
16	11	8.0	1.1	7	10	77	1.4	.4	.6	0		
17	9.6	6.8	.9	6	7	48	1.2	.4	.8	0		
18	7.6	6.4	.7	5	5	44	1.1	1.0	28	0		
19	6.0	5.8	.6	4	4	30	1.0	2.2	16	0		
20	5.5	7.2	.5	3	3	21	.8	67	6.0	0		
21	5.8	8.8	.4	2	2	18	.8	48	8.8	0		
22	24	28	.4	1.5	1.5	15	.8	16	8.0	0		
23	60	18	.4	1.5	1.5	12	.8	8.8	4.0	0		
24	21	9.6	.4	1.5	1.5	16	.8	5.2	2.6	0		
25	14	7.6	.6	1.5	1.5	40	.8	6.0	1.5	0		
26	14	6.8	1.2	1.4	1.7	21	.8	6.0	1.2	0		
27	13	6.8	11	1.3	2	14	.7	5.0	.9	0		
28	9.2	20	10	1.1	3	9.6	.7	3.1	.8	0		
29	8.0	26	7	.9	-	7.2	.6	2.4	.6	0		
30	6.8	24	60	.9	-	5.5	.6	1.7	.4	0		
31	8.0	-	100	.9	-	4.0	-	1.5	-	0		

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,922.5	425	5.5	62.0	1.63	1.88
November	339.1	28	5.0	11.3	.297	.33
December	316.5	100	.4	10.2	.268	.31
Calendar year 1945	7,370.9	525	0	20.2	.532	7.20
January	1,297.5	286	.9	41.9	1.10	1.27
February	230.6	40	.9	8.24	.217	.23
March	3,550.3	685	4.0	115	3.03	3.49
April	53.2	3.8	.6	1.77	.047	.05
May	182.2	67	.3	5.88	.155	.18
June	103.5	28	.4	3.45	.091	.10
July	15.2	6.4	0	.490	.013	.01
August	0	0	0	0	0	0
September	0	0	0	0	0	0
Water year 1945-46	8,010.6	685	0	21.9	.576	7.85

Peak discharge.- Oct. 1 (6 to 10 p.m.) 440 sec.-ft.; Oct. 2 (7 to 11 a.m.) 440 sec.-ft.; Jan. 9 (9 to 11 p.m.) 440 sec.-ft.; Mar. 7 (2:30 p.m.) 708 sec.-ft.; Mar. 14 (2 to 3 a.m.) 191 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 10 to Jan. 6, Jan. 11 to Mar. 6 (no gage-height record Jan. 13, Feb. 23 to Mar. 4); discharge computed on basis of weather records, 4 discharge measurements, and records for Sebewaing River near Sebewaing.

Black River near Fargo, Mich.

Location.- Wire-weight gage, lat. 43°06', long. 82°37', in sec. 32, T. 8 N., R. 16 E., at highway bridge on Norman Road, 2½ miles southeast of Fargo, 4½ miles upstream from Mill Creek, and 12 miles northwest of Port Huron.

Drainage area.- 492 square miles.

Records available.- February 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 8,480 second-feet Mar. 5 (gage height, 12.38 feet); minimum discharge observed, 1.8 second-feet Sept. 18, 19.
1944-46: Maximum discharge observed, that of Mar. 5, 1946; minimum observed, that of Sept. 18, 19, 1946.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 30 to May 16, Sept. 8-30)

1.5	2.4	2.2	56.0	5.2	1,150
1.6	6.3	2.5	100	6.4	1,970
1.7	11.2	2.8	156	8.8	3,960
1.8	17.1	3.1	228	10.8	6,210
1.9	23.4	3.6	386	12.4	8,480
2.0	30.9	4.2	630		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,640	70	178	600	140	220	97	25	60	31	13	8.3
2	2,690	71	152	500	110	350	84	26	70	39	12	9.7
3	1,970	77	132	400	125	1,500	81	25	74	35	13	10
4	1,440	71	122	300	130	5,000	76	23	74	31	14	9.2
5	930	70	107	750	130	8,330	76	26	71	19	11	11
6	680	67	95	1,600	160	6,480	73	26	59	20	8.8	14
7	780	64	87	1,600	240	*5,700	73	24	52	25	14	13
8	805	63	81	1,500	240	5,340	67	24	45	25	16	7.8
9	780	66	86	*1,640	220	3,960	66	23	39	26	14	5.9
10	532	63	81	2,610	200	3,010	63	23	35	23	12	5.1
11	352	63	77	1,890	180	1,680	64	23	29	19	6.3	4.7
12	268	62	65	1,060	155	1,060	62	22	18	16	5.1	4.4
13	218	63	*50	630	165	980	60	22	22	11	5.5	3.6
14	212	74	35	530	*180	1,210	56	22	27	12	5.9	3.2
15	174	*80	35	450	160	1,880	53	79	25	16	5.5	2.8
16	144	77	35	400	170	1,680	49	445	45	14	5.1	2.4
17	132	77	35	350	210	1,270	49	680	48	11	12	2.1
18	125	74	33	380	210	1,030	48	262	158	11	10	2.8
19	109	74	33	300	190	755	45	144	242	20	14	2.1
20	92	76	32	250	180	528	42	352	178	20	11	3.6
21	92	80	31	200	170	362	38	585	160	13	7.3	5.1
22	81	105	30	180	160	277	35	433	136	15	8.8	5.1
23	95	292	30	170	155	259	35	202	97	21	13	5.1
24	156	250	30	150	145	512	41	118	80	34	9.7	4.7
25	167	190	40	135	130	383	39	104	59	43	9.7	4.7
26	123	138	50	135	135	248	34	100	50	31	14	5.5
27	107	109	60	135	145	220	34	113	40	26	7.8	4.7
28	98	113	70	135	170	185	32	98	33	23	7.3	4.4
29	94	158	85	135	-	156	30	83	27	19	8.3	4.4
30	80	178	150	130	-	131	25	70	27	19	8.8	7.3
31	74	-	700	140	-	107	-	60	-	14	4.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,240	2,690	74	492	1.00	1.15
November	3,015	292	62	100	.203	.23
December	2,827	700	30	91.2	.185	.21
Calendar year 1945	107,920.5	5,340	7	296	.602	8.15
January	19,405	2,610	130	626	1.27	1.46
February	4,705	240	110	168	.341	.36
March	54,603	8,330	107	1,761	3.58	4.13
April	1,627	97	25	54.2	.110	.12
May	4,262	680	22	137	.278	.32
June	2,080	242	18	69.3	.141	.16
July	682	43	11	220	.045	.05
August	307.3	16	4.4	9.91	.020	.02
September	176.7	14	2.1	5.89	.012	.01
Water year 1945-46	108,930.0	8,330	2.1	298	.606	8.22

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 12 to Jan. 8, Jan. 14 to Mar. 4.

Clinton River at Mount Clemens, Mich.

Location.- Water-stage recorder, lat. 42°35'45", long. 82°54'35", 20 feet downstream from Moravian Drive highway bridge, a quarter of a mile downstream from confluence of North and South Branches, and half a mile west of Mount Clemens. Auxiliary wire-weight gage 8,500 feet downstream on Gratiot Avenue Bridge. Datum of gages is 570.43 feet above mean sea level, datum of 1929.

Drainage area.- 733 square miles.

Records available.- May 1934 to September 1946.

Average discharge.- 12 years, 431 second-feet.

Extremes.- Maximum discharge during year, 9,250 second-feet June 18 (gage height, 19.43 feet); minimum daily, 50 second-feet Sept. 20; minimum gage height, 4.41 feet Sept. 30. 1934-46: Maximum discharge, 14,600 second-feet May 12, 1943 (gage height, 21.89 feet, from high-water mark); minimum gage height, 2.90 feet Oct. 15, 1934.

Remarks.- Records fair except those for periods of ice effect or those below 150 second-feet, which are poor. Discharge computed as determined by twice-daily readings of auxiliary gage using fall as a factor for part of year.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	916	307	320	1,100	200	500	403	106	310	347	161	153
2	2,830	298	306	900	200	2,530	432	132	407	245	136	98
3	1,360	372	258	700	200	3,370	315	160	296	233	91	e90
4	798	274	213	500	200	*3,010	404	260	211	204	e100	76
5	510	327	310	1,000	250	2,290	304	218	186	259	e120	85
6	433	244	216	2,000	400	2,710	327	e135	253	217	131	84
7	634	262	263	1,850	500	2,710	314	e120	177	206	87	83
8	449	211	246	1,800	500	3,010	340	e115	120	347	100	58
9	365	208	307	2,200	450	3,310	301	104	151	218	87	54
10	420	225	197	*2,650	400	3,070	301	131	197	191	153	55
11	367	275	180	1,800	350	1,600	300	152	139	e170	e130	e80
12	441	240	160	974	350	692	226	178	231	e160	e110	99
13	405	297	*180	764	400	676	244	130	384	199	e100	e80
14	372	301	180	572	700	688	214	92	251	167	e100	e70
15	331	228	165	540	2,000	783	310	148	198	278	129	67
16	306	172	120	520	1,500	1,550	204	106	473	230	e110	e60
17	324	236	90	520	1,100	f1,700	182	461	1,550	168	136	75
18	303	232	100	480	820	1,850	235	326	7,970	186	146	75
19	313	317	120	425	550	1,650	231	f261	7,650	226	395	75
20	300	195	110	380	350	1,260	e190	f770	3,850	271	113	50
21	312	365	110	320	350	678	221	f1,220	1,310	243	e110	e70
22	362	319	110	300	270	602	156	636	1,030	167	131	91
23	544	419	110	270	200	552	156	379	693	152	e120	128
24	445	233	110	270	210	522	186	299	534	128	129	89
25	330	208	120	260	230	675	222	279	457	180	e105	e80
26	286	269	135	240	250	628	213	542	360	145	e90	74
27	327	238	170	240	250	561	e140	436	319	141	100	65
28	302	492	190	230	290	502	e140	275	285	e130	64	73
29	305	405	220	210	-	463	134	227	475	e120	79	e90
30	276	338	600	210	-	414	133	170	373	e120	104	131
31	e250	-	1,200	210	-	343	-	212	-	e150	63	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,916	2,830	250	513	0.700	0.81
November	8,507	492	172	284	.387	.43
December	7,116	1,200	90	230	.314	.36
Calendar year 1945	165,800	8,850	50	454	.619	8.41
January	24,435	2,650	210	788	1.08	1.24
February	13,470	2,000	200	481	.656	.68
March	44,899	3,370	343	1,448	1.98	2.28
April	7,478	432	133	249	.340	.38
May	8,782	1,220	92	283	.386	.44
June	30,840	7,970	120	1,028	1.40	1.56
July	6,198	347	120	200	.273	.31
August	3,758	395	63	121	.165	.19
September	2,458	153	50	81.9	.112	.12
Water year 1945-46	173,857	7,970	50	476	.649	8.80

* Winter discharge measurement made on this day.
e Auxiliary gage reading not representative of mean for day; discharge computed on basis of weather records and records for River Rouge at Detroit and Flint River at Genesee.
f Computed on basis of partly estimated gage-height record.
Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 10, Jan. 15 to Mar. 1.

River Rouge at Detroit, Mich.

Location.- Wire-weight gage, lat. 42°21'40", long. 83°15'15", on line between secs. 33 and 34, T. 1 S., R. 10 E., at Detroit and 3 miles upstream from Middle River Rouge. Datum of gage is 579.90 feet above mean sea level.

Drainage area.- 194 square miles.

Records available.- November 1930 to September 1946.

Average discharge.- 16 years, 90.8 second-feet.

Extremes.- Maximum discharge during year, 1,090 second-feet June 18; maximum gage height, 11.94 feet Feb. 14 (ice jam); minimum discharge observed, 5.1 second-feet Sept. 5 (gage height, 4.28 feet).

1930-46: Maximum discharge, 6,140 second-feet (revised) Feb. 20, 1939; maximum gage height, from graph based on gage readings, 19.3 feet (revised) Feb. 20, 1939; minimum discharge observed, 2.7 second-feet Aug. 11, 1934 (gage height, 3.50 feet).

Revisions.- The figures of maximum discharge and gage height for some water years have been revised, as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Discharge (second-feet)	Date	Gage height (feet)†
854.....	1937-38	Feb. 14	2,680	Feb. 13	16.4
874, 1034...	1938-39	Feb. 20	6,140	Feb. 20	19.3
1034.....	1944-45	May 18	4,000	May 18	17.65

† From graph based on gage readings.

Remarks.- Records fair except those for period of ice effect, which are poor. Gage read twice daily.

Revisions.- Revised figures of discharge for high-water periods in the water years 1937 to 1939, and 1943 are given herewith. They supersede those published in Water-Supply Papers 824, 854, 874, 974, and 1034.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1936-37		1938-39	
Apr. 22.....	1,180	Apr. 10.....	463
1937-38		11.....	859
Mar. 24.....	1,180	17.....	672
25.....	545	18.....	1,000
1938-39		1942-43	
Feb. 20.....	4,760	Dec. 28.....	2,130
21.....	2,930	May 11.....	2,130
22.....	1,470	12.....	3,210
		13.....	986

Month	Second-foot days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
April 1937.....	10,043	1,180	68	335	1.73	1.93
March 1938.....	9,393	1,180	136	303	1.56	1.80
Water year 1937-38.....	45,107	2,070	12	123	.634	8.64
Calendar year 1938.....	44,116	2,070	12	121	.624	8.47
February 1939.....	14,367	4,760	43	513	2.64	2.75
April 1939.....	11,283	1,000	110	376	1.94	2.16
Water year 1938-39.....	45,186.0	4,760	6.0	124	.639	8.65
Calendar year 1939.....	44,178.2	4,760	6.0	121	.624	8.46
December 1942.....	8,141	2,130	53	263	1.36	1.57
Calendar year 1942.....	39,638	2,130	15	109	.562	7.61
May 1943.....	21,184	3,210	183	683	3.52	4.06
Water year 1942-43.....	73,965	3,210	19	203	1.05	14.18
Calendar year 1943.....	63,535	3,210	17	174	.897	12.17

Discharge. in second-feet, of River Rouge at Detroit, Mich., water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	71	92	a185	a40	130	146	36	177	41	14	a9
2	268	71	a80	a160	38	a250	136	32	a100	38	12	a9
3	164	64	72	140	37	a230	119	31	55	30	a13	11
4	95	a60	65	160	37	*329	98	a35	75	27	a15	6.0
5	68	50	53	340	a80	422	82	38	62	24	21	5.2
6	57	50	48	a340	150	684	75	36	53	a25	19	5.4
7	72	45	55	320	120	684	a75	35	49	a30	17	10
8	77	44	51	310	80	630	72	33	50	40	16	a10
9	65	57	a50	320	a60	a500	71	30	33	30	15	9.8
10	a60	72	44	*410	70	a350	70	a35	28	26	16	12
11	55	a65	37	288	a60	280	66	38	40	26	a15	18
12	53	a55	31	203	38	234	a60	a35	35	22	13	12
13	61	53	31	170	70	214	a60	a35	43	21	12	11
14	a55	71	*37	145	300	208	60	30	40	a20	12	9.2
15	46	57	a37	120	270	273	62	31	34	16	12	a9
16	40	48	35	100	230	315	62	53	a100	17	12	8.8
17	40	44	29	100	a200	a350	55	104	382	16	a12	8.6
18	37	a40	25	85	180	378	55	77	927	16	a15	7.8
19	a35	40	31	70	160	364	a55	77	751	18	22	7.4
20	37	43	30	a58	150	301	50	294	343	a20	18	a10
21	a40	48	29	58	150	220	a50	234	253	a20	17	11
22	48	a70	29	50	130	183	46	a125	a200	24	16	a11
23	97	92	29	50	110	159	45	85	a150	22	15	11
24	68	68	29	50	a105	183	46	68	119	18	a15	12
25	59	a60	32	50	100	201	45	159	68	14	a13	11
26	59	55	37	45	90	189	41	240	53	16	10	9.8
27	55	68	50	a43	90	159	a40	153	51	a15	10	a9
28	a50	164	60	43	100	133	38	102	71	a15	9.8	8.4
29	46	132	100	40	-	114	41	68	a60	13	11	a9
30	46	102	a150	40	-	108	41	53	43	13	9.8	10
31	53	-	220	40	-	a130	-	a100	-	13	8.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,123	268	35	68.5	0.353	0.41
November	1,959	164	40	65.3	.337	.38
December	1,698	220	25	54.8	.282	.33
Calendar year 1945	37,521	3,240	10	103	.531	7.18
January	4,533	410	40	146	.753	.87
February	3,245	300	37	116	.598	.62
March	8,905	684	108	287	1.48	1.71
April	1,962	146	38	65.4	.337	.38
May	2,502	294	30	80.7	.416	.48
June	4,445	927	28	148	.763	.85
July	686	41	13	22.1	.114	.13
August	436.2	22	8.6	14.1	.073	.08
September	291.4	18	5.2	9.71	.050	.06
Water year 1945-46	32,785.6	927	5.2	89.8	.463	6.30

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Raisin River at Monroe and Grand River at Jackson.

Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 8, Jan. 13 to Mar. 3.

Huron River at Commerce, Mich.

Location.- Staff gage, lat. 42°35'25", long. 83°29'05", on line between NE¼ and SE¼ sec. 10, T. 2 N., R. 8 E., at first bridge on Commerce road east of Commerce, at mouth of Hayes Creek.

Drainage area.- 51 square miles, including that of Hayes Creek.

Records available.- March 1946 to September 1946 (includes flow of Hayes Creek).

Extremes.- 1946: Maximum discharge observed during period March to September, 96 second-feet Mar. 7, 9 (gage height, 2.10 feet); minimum discharge observed, 7.2 second-feet Aug. 18, Sept. 28 (gage height, 0.84 feet).

Remarks.- Records good. Gage read twice daily.

Rating table, water year 1946 (gage height, in feet, and discharge, in second-feet)

0.9	9.0	1.5	40
1.1	17	1.8	65
1.3	27	2.1	96

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						40	49	24	34	29	9.8	9.0
2						50	50	23	32	28	9.4	9.0
3						56	50	22	31	26	8.7	9.0
4						60	46	22	29	23	8.7	9.0
5						71	46	22	28	22	9.4	9.0
6						82	45	22	26	21	8.7	9.0
7						94	44	21	26	19	8.4	9.4
8						95	47	21	26	19	8.4	9.4
9						95	46	20	24	22	8.7	9.8
10						92	44	19	22	20	8.7	11
11						89	42	20	21	18	8.1	11
12						87	40	20	20	18	7.5	10
13						84	39	18	22	17	7.5	9.0
14						84	36	18	22	16	7.5	9.0
15						85	40	18	22	15	7.8	9.0
16						87	38	24	21	14	8.1	8.7
17						87	34	27	28	13	7.8	8.4
18						89	34	28	45	12	7.5	8.4
19						88	32	30	50	13	11	8.4
20						85	32	32	50	13	16	8.4
21						85	31	32	50	13	11	8.4
22						83	30	31	48	13	11	8.7
23						79	31	29	46	12	10	8.7
24						75	30	28	42	12	9.0	8.4
25						70	29	32	39	11	9.0	8.4
26						68	29	38	36	11	9.0	8.1
27						63	28	36	35	11	9.0	7.5
28						58	27	34	33	11	9.0	7.5
29						54	26	31	32	10	9.4	8.4
30						50	24	30	30	10	9.4	9.0
31						48	-	28	-	11	9.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year	-------	-------	------	-------	-------	-------
January	-------	-------	------	-------	-------	-------
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	2,333	95	40	75.2	1.47	1.70
May	1,119	50	24	37.3	.731	.82
June	800	38	18	25.8	.506	.58
July	970	50	20	32.3	.633	.71
August	503	29	10	16.2	.318	.37
September	282.5	16	7.5	9.11	.179	.21
	267.0	11	7.5	8.90	.175	.20
Water year	-	-	-	-	-	-

Huron River near Dexter, Mich.

Location.- Wire-weight gage, lat. 42°23'10", long. 83°54'40", in S½ sec. 13, T. 1 S., R. 4 E., at highway bridge on North Territorial Road, half a mile east of Hudson Mills, about 4 miles north of Dexter, and about 12 miles northwest of Ann Arbor. Datum of gage is 837.11 feet above mean sea level (levels by Michigan Department of Conservation).

Drainage area.- 506 square miles.

Records available.- March to September 1946.

Extremes.- Maximum discharge observed during period, 1,140 second-feet Mar. 12 (gage height, 5.19 feet); minimum observed, 56 second-feet Sept. 6, 9, 10; minimum gage height, 2.97 feet Aug. 9, 14, 15.

Remarks.- Records fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	475	172	415	250	75	58
2						-	460	169	430	228	77	60
3						-	465	163	425	225	74	60
4						-	450	160	362	200	74	58
5						665	420	163	316	190	74	a58
6						802	344	155	276	187	72	57
7						860	308	155	264	175	72	a57
8						960	316	150	246	160	70	a57
9						995	328	150	238	148	69	57
10						1,060	312	148	214	142	70	56
11						1,060	304	a142	218	140	77	63
12						1,060	312	a142	194	127	75	64
13						1,030	292	142	187	113	69	64
14						995	292	142	175	107	64	64
15						995	292	140	166	99	64	83
16						925	276	a150	160	97	74	66
17						a900	260	194	181	97	75	66
18						860	250	a250	228	93	75	66
19						788	253	256	332	91	74	63
20						756	250	264	362	a91	a72	63
21						730	242	272	376	91	70	63
22						704	228	264	a400	91	66	64
23						691	225	268	a440	87	72	69
24						672	225	222	425	74	68	75
25						647	225	228	395	79	66	75
26						623	208	253	349	79	68	75
27						605	204	268	332	a79	66	74
28						575	197	292	312	74	64	75
29						569	184	312	300	74	64	75
30						557	178	312	284	75	63	74
31						a500	-	328	-	77	a60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 5-31	21,584	1,060	500	799	1.58	1.59
April	8,775	475	178	292	.577	.64
May	6,426	328	140	207	.409	.47
June	9,000	440	160	300	.593	.66
July	3,840	250	74	124	.245	.28
August	2,173	77	60	70.1	.139	.16
September	1,939	75	56	64.6	.128	.14
Water year	-	-	-	-	-	-

a No gage-height record; discharge computed on basis of weather records and records for Raisin River at Monroe and Portage Creek near Pinckney.

Hayes Creek at Commerce, Mich.

Location.- Staff gage, lat. 42°35'25", long. 83°28'45", on line between NW¼ and SW¼ sec. 11, T. 2 N., R. 8 E., at bridge, 600 feet upstream from mouth and half a mile east of Commerce.

Drainage area.- 6.1 square miles.

Records available.- March 1946 to September 1946.

Extremes.- 1946: Maximum daily discharge during period March to September, 20 second-feet Mar. 7, 9; maximum gage height observed, 2.40 feet Mar. 9; minimum discharge observed, 1.4 second-feet Sept. 28 (gage height, 1.62 feet).

Remarks.- Records good except those for Aug. 30 to Sept. 30, which are fair. Gage read twice daily.

Rating table, water year 1946 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 30 to Sept. 30)

1.5	1.7
1.6	3.0
1.8	7.0
2.1	13.3
2.4	20

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						11	13	8.0	11	9.5	4.2	4.0
2						13	14	7.8	11	9.1	4.0	4.0
3						14	14	7.4	10	8.7	4.2	3.8
4						14	13	7.2	10	7.8	4.4	3.8
5						15	13	7.4	9.7	7.4	5.0	3.6
6						18	12	7.2	9.5	6.8	4.8	3.6
7						20	13	7.0	9.3	6.6	4.6	4.2
8						19	17	7.0	8.9	7.0	4.4	3.8
9						20	17	7.0	8.3	8.0	4.6	3.6
10						19	16	6.6	7.8	7.8	4.6	3.8
11						18	15	6.8	7.6	7.6	4.4	4.6
12						17	14	6.4	7.4	7.2	4.2	4.0
13						17	13	6.0	8.0	6.6	4.2	3.6
14						17	13	5.6	7.2	6.0	4.2	3.4
15						17	13	5.8	7.0	5.6	4.2	3.0
16						18	13	7.0	6.8	5.2	4.2	2.8
17						19	12	7.6	12	5.0	4.2	2.7
18						19	11	7.4	16	5.0	4.0	2.7
19						19	10	7.4	16	5.0	5.2	2.6
20						18	10	7.8	14	5.2	5.0	2.6
21						18	10	7.8	13	5.0	5.2	2.4
22						17	9.9	7.4	13	5.0	5.2	2.6
23						17	9.5	6.8	12	5.0	5.0	2.6
24						17	9.5	7.0	11	4.6	4.6	2.4
25						17	9.3	8.5	10	4.6	4.4	2.2
26						16	9.1	11	8.7	4.4	4.6	1.9
27						15	9.1	11	8.7	4.0	4.2	1.6
28						14	8.5	9.5	9.3	4.0	4.4	1.6
29						13	8.0	8.7	9.1	4.0	4.6	2.0
30						13	8.0	8.3	9.1	4.4	4.2	1.9
31						12	-	8.5	-	4.4	4.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year	-------	------	-----	------	------	------
	-------	------	-----	------	------	------
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	511	20	11	16.5	2.70	3.11
April	356.9	17	8.0	11.9	1.95	2.18
May	234.9	11	5.6	7.58	1.24	1.43
June	301.4	16	6.8	10.0	1.64	1.84
July	186.5	9.5	4.0	6.02	.987	1.14
August	139.0	5.2	4.0	4.48	.734	.85
September	91.4	4.6	1.6	3.05	.500	.56
Water year	-	-	-	-	-	-

Portage Creek near Pinckney, Mich.

Location.- Staff gage, lat. 42°25'40", long. 83°57'35", in sec. 34, T. 1 N., R. 4 E., at highway bridge, 2 miles upstream from Little Portage Lake and 2½ miles southwest of Pinckney. Datum of gage is 860.38 feet above mean sea level, datum of 1929 (levels by Michigan Department of Conservation, adjusted August 1946).

Drainage area.- 79 square miles.

Records available.- November 1944 to September 1946.

Extremes.- Maximum discharge observed during year, 176 second-feet Mar. 11 (gage height, 3.85 feet); minimum observed, 0.8 second-foot Sept. 16, 17 (gage height, 0.58 foot).
1944-46: Maximum discharge observed, 215 second-feet May 23, 1945 (gage height, 4.18 feet); minimum discharge observed, that of Sept. 16, 17, 1946.

Remarks.- Records good except those below 3 second-feet and those for periods of ice effect, which are fair. Gage read once daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	38	35	34	44	54	81	18	55	35	2.4	2.0
2	58	38	36	34	42	60	77	15	57	33	2.3	1.8
3	58	37	37	36	40	61	71	16	54	30	2.3	1.5
4	60	37	38	38	35	67	68	16	52	21	2.3	1.0
5	64	37	38	45	37	83	64	16	50	20	2.8	1.1
6	69	35	38	51	38	119	60	16	48	20	2.4	1.5
7	70	35	*38	53	*40	*128	59	16	45	20	2.0	1.6
8	68	35	36	58	40	131	53	15	43	19	1.8	1.8
9	80	36	36	71	35	149	49	15	39	17	2.0	1.9
10	79	35	35	83	37	160	51	14	36	15	2.6	1.8
11	76	35	34	88	32	176	44	14	34	14	2.0	1.5
12	75	34	34	106	31	166	30	14	29	13	2.0	1.1
13	73	35	34	105	30	166	33	13	22	12	1.5	1.0
14	71	35	33	112	35	186	45	12	20	11	1.5	.9
15	69	35	32	108	47	166	42	9.1	20	10	1.6	.9
16	67	34	32	129	49	166	39	14	19	9.5	2.2	.9
17	64	34	32	118	52	160	35	17	23	8.9	2.3	1.0
18	62	35	31	104	55	184	26	18	41	5.2	3.4	.9
19	60	35	31	98	58	154	28	22	48	7.5	3.2	1.0
20	58	34	31	90	60	149	31	27	43	7.1	2.0	1.0
21	55	35	30	84	62	144	28	29	43	6.9	1.9	1.0
22	54	35	29	80	62	138	26	32	44	7.1	2.0	.9
23	53	35	28	*78	58	138	23	37	45	6.6	1.9	1.0
24	51	34	28	72	60	132	23	38	44	6.2	1.9	1.0
25	50	33	27	60	58	126	23	41	43	5.9	1.8	.9
26	48	32	26	56	56	119	23	54	37	5.3	1.9	1.0
27	47	32	26	54	54	114	22	56	31	5.0	3.0	.9
28	44	35	26	52	54	107	21	53	33	4.8	2.8	1.1
29	44	35	29	50	-	103	21	52	31	4.5	2.4	1.3
30	36	35	33	47	-	94	22	53	31	3.6	2.2	1.1
31	38	-	34	46	-	87	-	51	-	2.9	2.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,850	80	36	59.7	0.756	0.87
November	1,050	38	32	35.0	.443	.49
December	1,007	38	26	32.5	.411	.47
Calendar year 1945	18,657.3	210	8.0	51.1	.647	8.77
January	2,240	129	34	72.3	.915	1.05
February	1,305	62	30	46.6	.590	.61
March	3,935	176	54	127	1.61	1.86
April	1,218	81	21	40.6	.514	.57
May	813.1	56	9.1	26.2	.332	.38
June	1,158	57	19	38.6	.489	.55
July	390.0	35	2.9	12.6	.159	.18
August	68.6	3.4	1.5	2.21	.028	.03
September	36.4	2.0	.9	1.21	.015	.02
Water year 1945-46	15,071.1	176	.9	41.3	.523	7.08

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 11-28, Jan. 22-23, 26-29, Feb. 1-4, 7-8, 13-15, 21, 25.

Raisin River at Monroe, Mich.

Location.- Water-stage recorder and concrete dam, lat. 41°54'50", long. 83°23'15", at municipal water-supply plant in Monroe, 4 miles upstream from mouth. Datum of gage is 570.00 feet above mean sea level (city of Monroe bench mark).

Drainage area.- 1,020 square miles.

Records available.- September 1937 to September 1946.

Extremes.- Maximum discharge observed during year, 3,510 second-feet Mar. 7 (gage height, 7.79 feet); minimum, 9 second-feet (regulated) Sept. 1, 2 (gage height, 5.54 feet); minimum gage height observed, 3.07 feet Sept. 29 (gates in dam open).
1937-46: Maximum discharge observed, 12,900 second-feet May 19, 1945; minimum, about 2 second-feet Sept. 19, 20, 1941; minimum gage height observed, that of Sept. 29, 1946 (gates in dam open).

Remarks.- Records good except those below 50 second-feet, those for periods when gates in control dam were open, and those for periods of no gage-height record, which are fair. Slight regulation from power plants upstream.

Cooperation.- Water-stage recorder inspected by employees of city of Monroe.

Rating table, water year 1945-46, except periods when gates are open (gage height, in feet, and discharge, in second-feet)

5.6	32	6.2	550
5.7	87	6.5	970
5.8	156	6.9	1,630
5.9	237	7.4	2,610
6.0	328	8.0	4,000

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	701	e300	310	2,300	282	708	538	180	406	382	47	23
2	1,830	e310	319	2,280	292	1,030	504	188	492	301	52	23
3	1,670	e320	339	1,830	301	1,450	446	180	527	213	58	37
4	1,560	e320	310	1,220	301	1,400	424	172	481	196	52	81
5	1,430	e260	310	925	273	1,610	392	172	371	122	75	42
6	1,040	e220	292	1,370	246	2,300	371	188	319	142	115	15
7	850	e210	301	1,630	310	3,040	371	188	273	135	75	37
8	736	e200	255	1,850	319	3,160	360	156	237	128	52	32
9	628	e200	237	1,790	360	3,040	360	188	205	156	81	12
10	589	213	273	2,100	360	2,630	382	149	188	118	69	85
11	563	205	221	1,940	360	2,100	349	188	180	137	42	42
12	492	221	172	1,770	306	1,650	349	180	180	164	32	47
13	403	246	172	1,430	292	1,280	319	196	310	158	70	101
14	349	255	172	985	1,080	1,120	301	180	349	58	42	81
15	349	264	142	806	1,470	1,180	282	142	339	94	47	47
16	319	273	170	578	1,830	1,400	282	172	273	112	58	58
17	301	264	273	576	2,100	1,420	264	246	890	63	58	91
18	301	273	319	602	1,980	1,980	264	282	1,230	58	42	52
19	264	264	264	481	1,580	2,240	264	310	1,000	81	58	42
20	282	246	188	371	1,220	2,280	246	525	820	75	108	47
21	282	237	180	349	835	2,060	255	589	615	37	87	52
22	328	246	180	310	764	1,560	264	435	458	37	58	28
23	319	237	142	435	654	1,140	255	392	371	90	63	a45
24	292	213	172	516	628	1,020	196	339	319	52	52	a65
25	292	221	205	470	563	1,040	237	319	246	42	32	e100
26	360	229	391	446	680	1,060	255	282	205	47	23	e50
27	301	221	527	470	538	985	221	282	156	81	88	e110
28	273	229	563	470	576	880	213	246	172	37	47	e120
29	e260	264	708	446	-	792	213	221	196	47	28	e45
30	e260	301	866	319	-	667	205	229	246	102	19	e90
31	e280	-	1,880	301	-	576	-	221	-	37	54	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	17,904	1,830	260	578	0.567	0.85
November	7,462	320	200	249	.244	.27
December	10,853	1,880	142	350	.343	.40
Calendar year 1945	251,445	12,600	59	689	.675	9.17
January	31,366	2,300	301	1,012	.992	1.14
February	20,500	2,100	246	732	.718	.75
March	48,798	3,160	576	1,574	1.54	1.78
April	9,382	538	196	313	.307	.34
May	7,737	589	142	250	.245	.28
June	12,054	1,230	156	402	.394	.44
July	3,500	382	37	113	.111	.13
August	1,784	115	19	57.5	.056	.06
September	1,700	120	12	56.7	.056	.06
Water year 1945-46	173,040	3,160	12	474	.465	6.30

a No gage-height record; discharge computed on basis of weather records and records for Cedar River at East Lansing.
e Gates in control dam open; discharge computed on basis of 2 discharge measurements, gage heights, weather records, and records for Cedar River at East Lansing.

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Tenmile Creek at Toledo, Ohio

Location.- Water-stage recorder, lat. 41°39'29", long. 83°37'19", on line between secs. 31 and 32, T. 9 S., R. 7 E., at Secor Road Bridge at Toledo, ¼ mile upstream from Toledo University and 4½ miles west of Lucas County Courthouse. Datum of gage is 580.00 feet above mean sea level, datum of 1929. Prior to Apr. 20, 1945, wire weight gage at same site and datum.

Drainage area.- 139 square miles.

Records available.- March 1945 to September 1946.

Extremes.- 1945: Maximum discharge during period March to September, 1,930 second-feet May 18 (gage height, 9.85 feet); no flow at times during August and September.
1945-46: Maximum discharge during year, 1,050 second-feet Mar. 8 (gage height, 8.25 feet); no flow at times during July, August, and September.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	884	39	30	6.3	2.7	0
2						-	763	32	39	3.2	3.2	0
3						-	914	39	139	2.3	2.0	0
4						-	571	90	104	.7	1.4	0
5						-	537	128	59	.1	1.7	0
6						-	333	136	39	2.0	13	0
7						-	212	143	32	.1	6.9	0
8						-	157	f182	27	a1	5.1	0
9						-	119	f146	22	h11	4.1	0
10						-	90	146	24	a8	f3.2	0
11						-	66	168	73	h6.3	f1.7	0
12						-	49	136	299	a5	f2.7	0
13						-	43	175	190	a4.5	a2.5	0
14						-	35	190	114	a30	a2	0
15						-	28	436	77	119	2.0	0
16						39	24	1,170	83	f21	2.0	0
17						34	42	1,650	108	e14	1.7	0
18						31	32	1,930	205	11	1.7	0
19						162	26	1,410	243	8.7	1.4	0
20						342	22	830	157	6.3	1.1	.1
21						410	19	571	101	5.7	1.1	.2
22						299	17	392	71	14	.8	a.4
23						170	16	283	45	8.7	.2	a1
24						107	18	190	33	8.1	0	a4
25						d80	20	131	25	f5.7	0	12
26						56	66	97	21	3.2	0	8.9
27						44	172	77	15	3.6	0	3.2
28						35	115	62	14	3.6	0	5.9
29						30	71	51	11	4.1	0	20
30						31	50	35	8.7	3.2	0	8.7
31						251	-	29	-	2.7	0	-

a No gage-height record; discharge computed on basis of weather records and records for Bean Creek at Powers and Swan Creek at Toledo.
d Doubtful gage-height record; discharge interpolated.
e Gage reading not representative of average for day; discharge computed on basis of 1 discharge measurement.
f Computed on basis of partly estimated gage-height record.
h Computed from wire-weight gage readings.

Discharge, in second-feet, of Tenmile Creek at Toledo, Ohio, 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	162	15	31	401	21	132	46	8.1	35	107	1.7	0
2	656	17	26	198	b17	a250	43	7.5	42	56	1.4	0
3	556	16	24	131	b15	a300	38	6.9	41	33	1.1	a0
4	267	16	a22	104	b13	a250	32	12	27	21	.8	a0
5	164	15	a21	160	15	486	29	14	19	14	.8	a0
6	125	14	20	308	24	856	26	12	14	.5	.8	a0
7	136	14	20	283	25	914	23	11	a12	0	.7	a0
8	139	a15	20	198	25	856	26	11	a10	0	.4	a0
9	98	17	19	235	24	571	26	8.7	a8	a0	.4	a0
10	a80	18	18	452	20	418	24	9.9	a7	a0	.1	a1
11	59	18	15	275	20	a300	21	22	a6	a0	.1	.7
12	43	18	14	186	19	a250	20	20	a10	a0	0	.5
13	33	20	12	125	40	a200	19	16	182	a0	0	.1
14	25	22	b10	96	343	a200	18	23	205	a0	a0	.1
15	22	23	b8	93	347	259	19	25	186	a.5	0	.1
16	20	20	b7	57	164	426	19	39	96	a1	a.5	0
17	18	19	b6	57	143	333	15	50	a200	4.5	a5	0
18	a20	18	*b5	50	110	726	18	48	571	a7	a3.5	0
19	a26	18	b4	39	73	690	17	46	503	a15	2.3	a0
20	a25	17	b4	37	a70	426	16	45	418	12	1.4	a0
21	a24	16	b3.5	35	a60	a300	14	40	291	8.7	1.4	a0
22	a90	16	b3.5	26	a70	a250	13	33	212	6.9	1.4	0
23	59	15	b4	28	77	a200	12	a30	168	6.3	.5	a.5
24	45	a14	6.3	28	80	a250	11	a28	136	6.9	.4	a.3
25	38	a13	98	29	51	198	12	a32	112	4.5	.1	a.2
26	31	a13	367	26	67	169	14	a35	96	4.1	.1	a.1
27	25	*14	350	22	*135	135	12	24	71	2.3	.1	.1
28	22	16	212	a18	105	104	a11	23	102	1.7	.1	.1
29	20	21	205	*15	-	87	a10	20	267	1.7	.1	.1
30	18	28	367	20	-	76	8.7	18	251	1.7	.1	.1
31	16	-	656	24	-	62	-	18	-	1.7	.1	-

Peak discharge.- Oct. 2 (10 p.m.) 763 sec.-ft.; Dec. 31 (4 p.m.) 726 sec.-ft.; Feb. 15 (3 a.m.) 520 sec.-ft.; Mar. 6 (10 a.m.) 980 sec.-ft.; Mar. 8 (1 a.m.) 1,050 sec.-ft.; Mar. 18 (7 p.m.) 980 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Bean Creek at Powers and Swan Creek at Toledo.

b Stage-discharge relation affected by ice.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 16-31, 1945	2,121	410	30	133	0.957	0.57
April	5,511	914	16	184	1.32	1.47
May	11,094	1,930	29	358	2.58	2.97
June	2,408.7	299	8.7	80.3	.578	.64
July	323.1	119	.1	10.4	.075	.09
August	84.2	13	0	2.07	.015	.02
September	64.4	20	0	2.15	.015	.02
Water year	-	-	-	-	-	-
October 1945	3,062	656	16	98.8	.711	.82
November	516	28	13	17.2	.124	.14
December	2,578.3	658	3.5	83.2	.599	.69
Calendar year	-	-	-	-	-	-
January 1946	3,756	452	15	121	.871	1.00
February	2,173	347	13	77.6	.558	.58
March	10,674	914	62	344	2.47	2.85
April	610.7	46	8.7	20.4	.147	.16
May	736.1	50	6.9	23.7	.171	.20
June	4,298	571	6	143	1.03	1.15
July	318.0	107	0	10.3	.074	.09
August	25.4	5	0	.82	.0059	.007
September	4.0	1	0	.13	.00094	.001
Water year 1945-46	28,751.5	914	0	78.8	.567	7.69

Time basis: Eastern war time up to 2 a.m. Sept. 30, 1945; eastern standard time thereafter. To convert war time to standard time, subtract 1 hour.

St. Joseph River near Fort Wayne, Ind.

Location.- Water-stage recorder, lat. 41°10', long. 85°04', in SW¼NW¼SE¼ sec. 4, T. 31 N., R. 13 E., at Ely Bridge on Mayhew Road, 3½ miles downstream from Cedar Creek and 8 miles northeast of Fort Wayne. Auxiliary water-stage recorder at St. Joe Dam, 5½ miles downstream.

Drainage area.- 1,060 square miles.

Records available.- August 1941 to September 1946.

Extremes.- Maximum discharge during year, 6,070 second-feet June 14 (gage height, 12.05 feet); minimum daily, 55 second-feet Sept. 29, 30; minimum gage height, 1.68 feet (regulated) Sept. 12.

1941-46: Maximum discharge, 10,600 second-feet May 18, 1943 (gage height, 16.70 feet); minimum daily, 27 second-feet Aug. 21, 1941; minimum gage height, 1.40 feet Sept. 20, 29, 1941.

Remarks.- Records good except those for periods of ice effect, which are fair. Discharge below 790 second-feet computed by using fall as determined from auxiliary recorder as a factor. Flow affected at low stage by pumping plant 5½ miles below station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,470	196	423	2,800	*400	945	534	195	220	985	86	73
2	4,210	207	392	2,000	400	965	486	181	206	720	88	69
3	3,410	208	352	1,900	360	1,040	440	174	199	502	88	67
4	2,480	198	327	1,600	350	1,090	409	171	200	353	91	66
5	2,030	198	303	1,800	400	1,160	365	190	196	304	90	68
6	1,790	185	290	2,000	800	1,820	362	184	183	267	78	68
7	1,420	186	277	2,210	800	2,330	357	183	174	247	78	64
8	1,060	183	263	*1,970	700	2,270	340	185	164	220	80	80
9	860	187	254	2,450	700	2,450	341	183	147	215	95	107
10	738	188	241	2,850	560	2,210	327	183	143	202	99	117
11	609	180	230	2,270	450	1,920	326	203	164	190	88	95
12	514	184	200	1,970	450	1,670	319	206	609	174	83	85
13	447	206	200	1,620	700	1,340	302	199	5,620	168	76	82
14	391	243	190	1,090	3,970	1,090	292	201	5,710	155	77	81
15	351	243	180	1,000	4,370	1,340	309	208	3,340	144	77	80
16	320	251	160	800	3,890	1,520	286	591	1,870	137	80	76
17	293	260	150	700	2,990	1,820	283	1,090	1,340	129	107	70
18	273	248	150	650	2,270	1,970	284	1,290	1,130	130	92	64
19	254	230	160	610	2,150	1,820	266	1,340	1,870	168	84	65
20	247	215	150	540	2,030	1,620	254	1,100	2,090	309	79	61
21	232	212	150	500	1,520	1,470	242	905	1,470	277	89	60
22	229	223	150	430	1,160	1,290	231	698	1,000	255	133	60
23	239	224	150	380	1,000	1,020	229	554	756	188	128	63
24	235	214	180	420	825	945	235	452	592	162	104	68
25	231	202	290	450	668	945	217	390	477	143	102	60
26	235	202	580	420	650	965	207	349	399	128	88	56
27	226	217	540	390	905	945	211	353	370	114	82	60
28	218	254	500	360	*985	845	211	339	320	106	78	58
29	214	303	580	350	-	755	198	290	456	101	79	55
30	204	*386	1,800	350	-	668	199	257	808	98	77	55
31	195	-	3,200	430	-	583	-	237	-	90	76	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	26,625	4,210	195	859	0.810	0.93
November	6,633	386	180	221	.208	.23
December	13,012	3,200	150	420	.396	.46
Calendar year 1945	319,172	9,730	75	874	.825	11.19
January	37,310	2,850	350	1,204	1.14	1.31
February	36,453	4,370	350	1,302	1.23	1.28
March	42,821	2,450	583	1,381	1.30	1.50
April	9,062	534	198	302	.285	.32
May	13,081	1,340	171	422	.398	.46
June	32,223	5,710	143	1,074	1.01	1.13
July	7,381	985	90	238	.225	.26
August	2,752	133	76	88.8	.084	.10
September	2,133	117	55	71.1	.067	.07
Water year 1945-46	229,486	5,710	55	629	.593	8.05

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 6, Jan. 15 to Feb. 13.

Maumee River at Antwerp, Ohio

Location.- Water-stage recorder, lat. 41°11'56", long. 84°44'40", in sec. 22, T. 3 N., R. 1 E., just downstream from highway bridge, 1 mile north of Antwerp, 7 miles downstream from Indiana State line, and 10 miles upstream from Marie DeLarme Creek. Datum Datum of gage is 695.49 feet above mean sea level, adjustment of 1912.

Drainage area.- 2,049 square miles.

Records available.- September 1921 to December 1935, April 1939 to September 1946.

Average discharge.- 21 years, 1,534 second-feet.

Extremes.- Maximum discharge during year, 8,840 second-feet June 14; maximum gage height, 13.71 feet Dec. 31 (ice jam); minimum, 92 second-feet Sept. 30 (gage height, 0.75 foot).

1921-35, 1939-46: Maximum discharge, 26,200 second-feet May 20, 1943 (gage height, 20.29 feet); minimum, 24 second-feet Oct. 17, 1930, June 21, 22, 1933 (gage height, 0.32 foot).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Low flow slightly regulated by power plant at Fort Wayne, Ind.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 10 to Sept. 30)

0.7	88	2.0	446	5.0	2,100
.8	106	2.5	645	6.0	2,850
1.0	148	3.0	879	8.0	4,450
1.3	223	3.5	1,140	10.0	6,400
1.6	312	4.0	1,450	12.1	8,720

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,980	338	735	8,500	750	2,100	879	309	a900	3,250	158	120
2	7,500	344	782	7,500	800	2,100	830	309	a1,800	3,490	162	108
3	7,940	351	735	7,000	700	2,450	758	290	a2,500	3,010	251	102
4	5,380	377	667	6,000	700	2,690	735	275	a1,800	2,100	210	101
5	3,850	401	824	5,000	758	2,610	782	281	a1,200	1,550	174	102
6	3,090	380	580	4,500	879	2,610	520	287	954	879	167	104
7	2,770	364	520	5,180	1,350	4,210	453	281	689	624	148	104
8	2,380	351	520	4,370	1,380	4,370	560	287	482	482	141	104
9	1,900	338	464	4,130	1,140	4,130	560	290	394	639	155	104
10	1,480	354	446	5,080	1,140	3,730	520	290	331	929	180	99
11	1,140	338	439	*4,630	929	3,330	501	344	303	602	172	110
12	904	442	418	3,650	782	2,930	482	418	533	482	158	128
13	735	520	384	3,410	735	2,530	478	560	6,310	422	148	120
14	645	501	360	3,010	4,980	2,040	428	560	8,720	347	133	128
15	560	501	340	2,240	7,720	2,610	436	446	8,160	300	141	120
16	501	520	320	1,970	a6,500	4,130	401	939	5,080	248	148	116
17	457	520	300	1,880	4,810	4,540	404	3,330	3,250	223	182	106
18	414	520	300	1,380	4,370	5,080	408	3,010	2,690	220	300	114
19	411	482	320	1,320	3,810	5,180	394	3,170	3,490	281	194	112
20	380	602	300	1,200	3,250	3,970	380	2,770	3,970	464	153	112
21	347	758	300	980	2,770	3,010	354	2,310	3,410	624	153	116
22	351	879	300	850	2,100	2,530	351	1,970	2,310	560	146	108
23	357	830	300	800	1,840	2,100	338	1,710	1,710	540	146	110
24	360	806	300	850	1,680	1,740	341	1,320	1,380	357	155	108
25	394	689	350	900	1,450	1,710	325	1,010	1,140	296	165	108
26	448	602	900	650	1,260	1,740	328	904	879	254	170	106
27	475	540	2,200	750	1,290	1,710	266	1,140	712	218	135	102
28	468	540	3,000	700	1,840	1,580	296	1,140	879	187	122	101
29	446	*540	2,600	700	-	1,380	296	2,100	1,140	177	120	99
30	401	689	4,000	700	-	1,200	296	a1,500	2,170	187	120	95
31	387	-	7,500	750	-	1,060	-	a1,200	-	155	120	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,649	7,940	347	1,569	0.766	0.88
November	15,417	879	338	514	.251	.28
December	31,284	7,500	300	1,009	.492	.57
Calendar year 1945	643,087	15,000	126	1,762	.860	11.67
January	90,580	8,500	700	2,922	1.43	1.65
February	61,713	7,720	700	2,204	1.08	1.12
March	87,100	5,180	1,060	2,810	1.37	1.58
April	14,100	879	266	470	.229	.28
May	34,750	3,330	275	1,121	.547	.63
June	69,286	8,720	303	2,310	1.13	1.26
July	23,877	3,490	155	770	.376	.43
August	5,027	300	120	162	.079	.09
September	3,267	128	95	109	.053	.06
Water year 1945-46	485,050	8,720	95	1,329	.649	8.81

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Maumee River near Defiance, Ohio, and St. Joseph and St. Marys Rivers near Fort Wayne, Ind.
Note.- Stage-discharge relation affected by ice Dec. 14 to Jan. 6, Jan. 22 to Feb. 4.

Maumee River near Defiance, Ohio

Location.- Water-stage recorder above concrete dam, lat. 41°17'30", long. 84°16'50", in NW¼ sec. 22, T. 4 N., R. 5 E., 40 feet upstream from Independence Dam, 275 feet downstream from point of diversion to Miami & Erie Canal, 4 miles downstream from Auglaize River, and 4½ miles east of Defiance. Datum of gage is 659.12 feet above mean sea level.

Drainage area.- 5,530 square miles.

Records available.- October 1924 to December 1935, March 1939 to September 1946.

Average discharge.- 18 years, 3,551 second-feet (not including flow in Miami & Erie Canal).

Extremes.- Maximum discharge during year, 30,100 second-feet June 14 (gage height, 6.60 feet); minimum, 120 second-feet Sept. 4, 7, 30 (gage height, 1.48 feet).
1924-35, 1939-46: Maximum discharge, 80,800 second-feet May 19, 1943 (gage height, 13.1 feet); minimum, 18 second-feet Aug. 2, 1934 (gage height, 1.24 feet).

Remarks.- Records good except those below 500 second-feet and those for period of no gage-height record, which are fair. Flow affected by regulation of Auglaize River at hydroelectric plant of Toledo Edison Co., 3 miles south of Defiance. Diversion into Miami & Erie Canal above station not included in records; for miscellaneous measurements of this canal, see p. 283.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 6-18, Oct. 22 to Nov. 2, Nov. 5 to Dec. 11, Dec. 25 to Jan. 15, Mar. 27 to May 17)

1.45	.90	2.0	1,060	3.5	6,850
1.5	140	2.2	1,560	4.0	9,720
1.6	270	2.5	2,460	4.5	12,800
1.7	430	2.8	3,540	5.0	16,200
1.8	625	3.0	4,360	6.4	28,200

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,100	840	1,480	21,500	1,020	7,410	1,780	606	3,050	8,550	231	166
2	12,800	646	1,280	19,000	1,200	7,410	1,510	606	4,150	6,000	231	153
3	17,000	606	1,300	12,800	1,130	7,700	1,300	625	4,230	4,190	231	140
4	14,800	606	1,230	10,300	1,040	8,260	1,430	668	3,540	3,350	270	130
5	10,300	668	1,160	a9,000	972	7,700	1,130	566	1,840	2,330	286	140
6	6,850	732	1,040	a13,000	1,300	8,260	1,160	586	1,700	1,930	302	140
7	4,720	732	1,040	a12,000	1,460	10,900	906	606	1,300	1,040	244	179
8	3,700	732	840	a11,000	1,700	12,100	884	606	1,060	840	231	166
9	3,050	668	906	a9,500	1,760	12,400	950	606	754	797	231	153
10	2,360	646	884	a11,000	1,430	10,600	928	606	690	950	218	378
11	1,900	711	668	9,720	1,560	8,840	862	1,310	636	1,330	205	192
12	1,510	884	625	8,550	1,230	6,580	797	586	2,310	994	244	140
13	1,180	972	606	7,410	2,300	4,950	668	928	20,200	1,030	218	186
14	906	1,060	547	7,130	9,130	4,320	797	1,380	28,200	668	205	179
15	906	1,080	488	5,590	16,200	6,530	840	1,110	25,500	508	205	192
16	797	994	586	3,160	14,800	8,260	547	4,370	17,000	469	257	179
17	711	754	586	2,020	11,500	9,720	586	7,410	10,600	414	231	179
18	668	732	528	2,400	10,000	10,000	668	7,700	8,260	382	231	179
19	586	711	586	2,300	7,980	11,200	625	6,850	13,800	566	366	166
20	528	690	528	1,480	6,050	10,300	508	5,690	20,200	1,860	302	179
21	586	797	469	1,760	4,630	8,260	586	4,070	17,800	2,400	244	179
22	646	928	469	1,330	4,110	6,310	586	3,270	12,800	1,350	218	179
23	690	1,460	430	1,060	3,450	4,450	566	2,800	8,840	994	205	179
24	994	1,510	488	1,110	3,620	4,150	547	2,300	8,000	884	192	153
25	1,110	1,510	1,890	1,300	2,940	3,700	606	2,830	3,240	528	192	153
26	972	1,160	3,430	1,280	2,940	3,740	606	4,680	2,080	414	231	179
27	950	1,160	6,000	1,330	4,320	3,120	625	4,020	1,840	350	231	179
28	972	1,160	10,000	1,080	5,690	3,090	547	2,300	5,190	334	205	179
29	862	1,110	10,000	972	-	2,360	606	1,780	11,800	350	179	153
30	797	1,250	12,400	1,060	-	2,330	606	2,770	9,720	456	166	140
31	732	-	17,000	1,080	-	2,110	-	1,990	-	270	166	-

Month	Second-feet-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	99,683	17,000	528	3,216		
November	27,509	1,510	606	917		
December	79,484	17,000	430	2,564		
Calendar year 1945	1,567,138	45,000	140	4,294		
January	192,222	21,500	972	6,201		
February	125,442	16,200	972	4,480		
March	217,060	12,400	2,110	7,002		
April	24,757	1,780	508	825		
May	76,225	7,700	566	2,459		
June	248,330	28,200	636	8,278		
July	46,528	8,550	270	1,501		
August	7,168	366	166	231		
September	5,169	378	130	172		
Water year 1945-46	1,149,577	28,200	130	3,150		

a No gage-height record; discharge computed on basis of weather records and records for stations at Antwerp and at Waterville.

Maumee River at Waterville, Ohio

Location.- Water-stage recorder, lat. 41°30'00", long. 83°42'46", at highway bridge in Waterville, Lucas County, 3 miles downstream from Tontogany Creek. Datum of gage is 596.33 feet above mean sea level, adjustment of 1912.

Drainage area.- 6,314 square miles.

Records available.- November 1898 to December 1901, August 1921 to December 1935, March 1939 to September 1946.

Average discharge.- 21 years (1921-35, 1939-46), 4,224 second-feet (does not include flow in Miami & Erie Canal; canal was abandoned in 1929 and was filled in prior to March 1939).

Extremes.- Maximum discharge during year, 37,400 second-feet June 14 (gage height, 9.43 feet); minimum, 143 second-feet Sept. 4, 5, 12, 13 (gage height, 1.57 feet).
1921-35, 1939-46: Maximum discharge, 78,000 second-feet May 20, 1943 (gage height, 13.9 feet); minimum, 32 second-feet Sept. 29, 1941.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Low flow slightly regulated by power plants above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 28 to June 13)

1.5	118	2.2	890	3.8	4,670	6.0	14,300
1.6	154	2.4	1,240	4.2	6,100	7.0	20,200
1.7	205	2.7	1,810	4.6	7,650	8.0	26,900
1.8	285	3.0	2,500	5.0	9,350	9.4	37,400
1.9	410	3.5	3,800	5.5	11,700		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,680	794	1,570	24,800	1,200	6,860	2,260	522	2,650	9,350	410	185
2	14,100	992	1,710	24,800	1,300	8,480	1,810	650	4,520	7,450	348	164
3	19,000	874	1,570	a17,000	1,400	8,700	1,380	490	4,220	5,000	277	164
4	17,800	506	1,500	a14,000	1,300	8,910	1,990	779	4,080	4,080	285	150
5	13,200	682	1,400	11,200	1,100	8,910	1,040	1,310	2,330	3,130	298	147
6	8,480	746	1,370	14,900	1,000	9,580	1,110	618	1,810	2,330	285	159
7	5,910	842	1,280	15,500	1,650	12,900	1,100	778	1,420	1,850	335	169
8	4,520	794	1,220	13,200	1,810	14,900	1,060	975	1,260	1,100	310	190
9	3,690	890	1,170	11,200	1,850	14,900	1,010	874	778	924	285	205
10	3,100	586	1,040	11,700	2,140	12,200	941	746	698	975	397	284
11	2,520	666	958	11,200	1,710	9,810	854	1,370	698	1,370	231	274
12	2,030	924	762	10,000	1,520	8,270	1,100	1,880	2,320	1,200	169	164
13	1,550	1,170	650	8,480	1,370	5,540	858	858	20,900	1,060	205	147
14	1,330	1,100	550	7,650	5,580	4,670	810	1,590	37,400	1,110	195	164
15	1,200	1,310	500	6,860	12,400	5,910	958	2,100	31,300	802	195	174
16	1,130	1,220	550	4,520	19,000	8,480	618	3,320	22,100	522	245	180
17	874	1,080	600	a2,500	14,300	10,000	618	9,130	16,000	506	253	169
18	826	842	500	a2,700	10,700	11,200	794	9,810	12,900	458	229	169
19	810	778	*550	2,800	8,700	11,900	538	8,480	15,700	458	499	169
20	858	730	500	2,310	6,860	11,700	666	6,860	24,800	1,230	398	164
21	634	698	480	1,590	6,480	9,350	586	5,000	22,100	3,690	335	159
22	924	1,260	460	1,500	5,540	7,450	650	3,800	16,600	2,170	221	169
23	941	794	450	1,300	3,940	5,000	666	3,130	11,200	1,380	205	185
24	1,500	1,590	500	1,200	3,640	5,000	554	2,650	7,650	1,110	200	213
25	1,670	1,650	2,000	1,300	3,080	4,370	618	2,520	5,000	810	180	169
26	1,610	1,500	5,000	1,400	3,210	4,220	538	5,000	2,750	650	195	159
27	1,110	1,200	8,060	1,500	*3,940	3,800	666	5,000	2,240	490	221	169
28	1,290	1,460	12,200	1,400	5,540	3,310	554	3,160	3,740	458	237	169
29	1,240	1,380	12,400	a1,200	-	2,850	490	1,790	12,500	442	221	180
30	1,010	1,400	15,500	*a1,300	-	2,550	586	2,400	11,700	442	174	180
31	992	-	21,400	1,200	-	2,430	-	2,240	-	522	180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	119,529	19,000	634	3,856	0.611	0.70
November	30,458	1,650	506	1,015	.161	.18
December	98,400	21,400	450	3,174	.503	.58
Calendar year 1945	1,763,898	51,600	147	4,833	.765	10.41
January	232,210	24,800	1,200	7,491	1.19	1.37
February	132,260	19,000	1,000	4,724	.748	.78
March	244,150	14,900	2,430	7,876	1.25	1.44
April	27,423	2,260	490	914	.145	.16
May	89,830	9,810	490	2,898	.459	.53
June	303,364	37,400	698	10,110	1.60	1.78
July	56,869	9,350	442	1,834	.290	.33
August	8,218	410	169	265	.042	.05
September	5,343	284	147	178	.028	.03
Water year 1945-46	1,348,054	37,400	147	3,693	.585	7.93

* Winter discharge measurement made on this day
a No gage-height record; discharge computed on basis of weather records and records for station near Defiance.
Note.- Stage-discharge relation affected by ice Dec. 13-26, Jan. 22-28, Jan. 31 to Feb. 6.

Cedar Creek at Auburn, Ind.

Location.- Wire-weight gage, lat. 41°21', long. 85°03', in SW¼ sec. 29, T. 34 N., R. 13 E., at Ninth Street Bridge in Auburn, 2 miles upstream from Peckhart ditch. Prior to Aug. 28, 1946, staff gage at same site and datum.

Drainage area.- 93 square miles.

Records available.- July 1943 to September 1946.

Extremes.- Maximum discharge during year, 916 second-feet June 13 (gage height, 8.58 feet); minimum, 2.1 second-feet Sept. 18; minimum gage height, 0.91 foot Sept. 25.
1943-46: Maximum discharge, 1,010 second-feet Apr. 12, 1944 (gage height, 9.30 feet, from graph based on gage readings); minimum, that of Sept. 18, 1946; minimum gage height, that of Sept. 25, 1946.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	269	15	20	a135	38	54	39	14	13	42	7.8	4.8
2	378	14	a20	101	42	68	32	12	a13	35	6.9	4.8
3	227	14	20	76	a39	a69	30	11	11	32	6.9	4.4
4	130	a14	18	64	23	70	30	11	9.6	a28	a6.4	4.8
5	83	15	16	126	23	137	27	a12	9.2	23	6.4	4.4
6	65	14	16	a135	100	178	26	12	9.2	22	6.4	5.2
7	a56	15	15	178	69	188	a26	12	9.2	a20	6.0	7.3
8	54	15	15	131	38	126	27	12	9.2	19	6.0	45
9	41	15	a13	260	38	a150	25	11	a9.0	17	8.7	20
10	34	15	12	249	a32	a120	23	12	8.7	16	6.9	20
11	30	a15	12	152	24	91	23	17	9.6	15	a6.4	12
12	27	a16	10	119	a24	80	23	a15	67	14	5.6	6.9
13	24	23	10	a95	109	67	21	13	778	12	6.0	4.4
14	a22	23	9.6	78	665	63	a22	12	611	a11	6.0	4.0
15	21	22	9.6	67	416	152	23	12	354	10	5.6	4.0
16	17	18	a9.0	54	266	142	20	42	232	10	6.0	3.2
17	15	18	b8.5	49	a200	a145	18	49	162	9.6	6.9	2.8
18	15	a18	b9.0	46	147	142	18	57	142	13	a6.0	2.8
19	15	16	a9.5	42	108	114	18	a60	276	12	5.6	2.8
20	15	15	a9.0	a37	81	90	18	53	244	16	5.6	2.8
21	a15	13	a8.5	a32	68	76	a16	45	167	a12	5.6	2.8
22	15	a18	a8.5	a25	a60	65	15	32	118	11	5.2	2.8
23	16	17	a8.5	a27	64	55	15	27	a92	11	4.8	4.4
24	16	16	a8.5	a30	a54	a50	15	24	72	9.2	4.0	6.4
25	16	a16	a30	a28	45	a50	15	23	57	9.2	a3.6	3.2
26	15	15	73	a26	53	a55	15	a23	50	8.7	3.2	4.0
27	15	16	65	a23	87	a50	13	20	47	8.7	3.2	5.2
28	a15	*29	47	a22	55	47	a13	17	83	a8.7	3.2	7.8
29	16	28	30	22	-	a42	12	14	82	8.7	3.2	10
30	15	25	a170	26	-	a42	11	a13	a60	8.7	3.2	9.2
31	15	-	*271	65	-	a40	-	12	-	8.7	3.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,707	378	15	55.1	0.592	0.68
November	523	29	13	17.4	.187	.21
December	981.2	271	8.5	31.7	.341	.39
Calendar year 1945	24,813.3	968	5.5	68.0	.731	9.94
January	2,520	260	22	81.3	.874	1.01
February	2,968	665	23	106	1.14	1.19
March	2,818	188	40	90.9	.977	1.13
April	629	39	11	21.0	.226	.25
May	699	60	11	22.5	.242	.28
June	3,804.7	778	8.7	127	1.37	1.52
July	481.2	42	8.7	15.5	.167	.19
August	170.5	8.7	3.2	5.50	.059	.07
September	222.2	45	2.8	7.41	.080	.09
Water year 1945-46	17,523.8	778	2.8	48.0	.516	7.01

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of 2 discharge measurements, weather records, and records for St. Joseph River near Ft. Wayne.
b Stage-discharge relation affected by ice.

St. Marys River near Fort Wayne, Ind.

Location.- Water-stage recorder, lat. 41°00', long. 85°08', in sec. 35, T. 30 N., R. 12 E., 130 feet downstream from highway bridge, 4 miles south of Fort Wayne, and 12 miles upstream from mouth.

Drainage area.- 753 square miles.

Records available.- November 1930 to September 1946 in reports of Geological Survey. October 1924 to October 1925 and July to September 1927 in reports of Indiana Department of Conservation.

Average discharge.- 14 years (1931-33, 1934-46), 498 second-feet.

Extremes.- Maximum discharge during year, 3,500 second-feet Jan. 1 (gage height, 11.92 feet, ice jam); minimum, 14 second-feet Sept. 30 (gage height, 0.66 foot).
1930-46: Maximum discharge, 13,400 second-feet May 19, 1943 (gage height, 18.79 feet); minimum observed, 3.4 second-feet Oct. 19, 1934 (gage height, 0.28 foot).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Flow affected by regulation of Lake St. Marys and diversion from or into Wabash River Basin and into Miami and Erie Canal.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,530	103	313	3,400	*220	a700	181	48	789	2,450	150	23
2	2,500	119	280	3,300	210	a700	174	47	1,620	2,300	136	22
3	1,450	150	250	2,500	200	a1,000	161	47	1,460	1,620	89	23
4	900	163	230	2,000	210	a1,200	160	47	870	960	69	20
5	810	138	207	1,700	240	a1,300	140	46	690	510	60	17
6	810	122	191	2,000	370	a1,300	126	47	430	291	58	22
7	810	111	181	2,000	380	a1,350	115	48	250	204	59	25
8	690	100	173	1,500	350	1,280	112	52	176	433	53	27
9	455	94	158	1,460	350	995	112	56	136	643	53	32
10	270	155	150	1,500	280	900	107	56	110	302	55	33
11	183	260	135	1,200	260	840	97	118	91	270	61	34
12	138	234	120	1,200	270	750	90	324	86	215	64	35
13	110	219	120	1,420	500	570	85	215	1,220	152	58	31
14	92	222	110	900	2,940	430	76	129	2,150	111	56	26
15	78	242	100	700	2,500	1,870	68	108	1,620	91	56	25
16	71	220	92	600	1,340	2,200	68	902	1,240	78	56	24
17	67	193	84	560	1,170	1,960	68	1,140	1,170	71	60	24
18	63	176	90	540	1,100	2,560	66	1,030	960	65	55	23
19	61	393	88	500	930	1,870	63	1,060	900	62	54	22
20	58	540	86	350	690	1,200	66	960	960	63	48	24
21	55	630	84	300	442	840	67	930	780	153	39	24
22	56	615	82	250	358	630	64	840	600	171	37	20
23	88	555	86	250	393	455	60	645	555	116	38	20
24	155	442	90	260	418	430	58	393	468	91	39	22
25	190	346	200	260	370	540	56	381	313	74	37	22
26	198	291	1,200	230	324	540	54	690	219	67	35	23
27	200	244	1,500	200	615	468	54	645	268	61	32	21
28	174	244	1,400	190	*810	381	53	1,620	540	56	28	17
29	136	346	1,100	190	-	313	52	1,240	1,500	53	26	16
30	110	*335	2,200	210	-	280	49	705	2,200	55	24	15
31	96	-	*3,300	250	-	213	-	442	-	52	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	12,604	2,500	55	407		
November	8,002	630	94	267		
December	14,400	3,300	82	465		
Calendar year 1945	225,392	4,920	15	618		
January	31,920	3,400	190	1,030		
February	18,240	2,940	200	651		
March	30,045	2,560	213	969		
April	2,722	181	49	90.7		
May	15,011	1,620	46	484		
June	24,371	2,200	86	812		
July	11,842	2,450	52	382		
August	1,709	150	24	55.1		
September	712	35	15	23.7		
Water year 1945-46	171,578	3,400	15	470		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for St. Joseph River near Fort Wayne.
Note.- Stage-discharge relation affected by ice Dec. 12 to Jan. 6, Jan. 14 to Feb. 12.

Bean Creek at Powers, Ohio

Location.- Water-stage recorder, lat. 41°40'40", long. 84°13'50", in NE¼ sec. 24, T. 9 S., R. 1 E., at bridge on U. S. Highway 20, 1 mile east of Powers and 2½ miles upstream from Iron Creek. Datum of gage is 722.6 feet above mean sea level, adjustment of 1912.

Drainage area.- 238 square miles.

Records available.- October 1940 to September 1946.

Extremes.- Maximum discharge during year, 1,390 second-feet Feb. 14 (gage height, 9.04 feet); minimum, 8.0 second-feet Sept. 4 (gage height, 0.57 foot)
1940-46: Maximum discharge, 3,650 second-feet May 18, 1945 (gage height, 12.66 feet); minimum, 6.4 second-feet Sept. 17, 1941.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 8 to July 3)

0.5	6.1	1.2	35	4.0	385
.6	8.8	1.5	54	6.0	740
.7	12	1.8	78	8.2	1,210
.8	16	2.3	128		
1.0	24	3.0	220		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	254	44	70	704	90	178	129	50	77	82	10	8.8
2	722	44	64	614	80	220	125	48	96	50	10	8.5
3	453	43	62	506	70	220	111	46	80	37	10	8.3
4	267	42	58	419	60	192	104	47	68	29	10	8.3
5	185	42	58	385	55	534	97	51	61	27	9.7	8.3
6	153	40	54	470	120	632	92	52	57	23	9.7	8.3
7	144	41	51	488	185	614	89	50	50	23	9.7	9.1
8	136	41	51	317	144	470	89	48	48	35	9.4	11
9	115	43	50	351	117	453	93	44	46	58	9.7	10
10	100	42	48	453	100	368	93	42	43	36	10	12
11	86	44	35	326	90	292	87	48	39	28	10	14
12	77	46	30	235	63	259	81	52	44	23	9.4	12
13	71	49	31	192	99	235	78	52	51	21	9.1	11
14	67	60	28	155	1,020	213	76	48	54	20	9.1	11
15	63	60	25	148	a1,200	243	75	46	50	18	9.1	11
16	58	54	24	116	840	308	69	64	43	17	12	10
17	55	52	23	114	686	292	70	112	43	16	15	10
18	54	52	23	109	428	638	67	113	42	17	14	10
19	50	52	23	90	292	542	66	115	46	15	12	9.7
20	48	48	*a23	80	235	402	64	118	47	15	11	9.7
21	50	49	a23	80	265	317	62	116	48	14	11	9.7
22	48	48	a23	70	172	267	58	99	43	13	11	10
23	51	48	a24	60	129	235	54	83	39	13	11	12
24	54	45	a25	70	114	267	57	75	34	12	10	17
25	51	45	a30	80	104	334	57	72	29	12	10	13
26	48	42	a100	70	103	283	57	74	26	12	9.7	12
27	46	47	a300	60	206	235	56	74	23	11	9.4	11
28	45	*58	261	60	*166	213	54	64	46	11	9.4	11
29	45	80	235	60	-	192	53	58	74	11	9.4	11
30	44	77	541	*65	-	160	50	52	111	11	9.1	10
31	46	-	900	100	-	146	-	50	-	11	9.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,686	722	44	119	0.500	0.58
November	1,478	80	40	49.3	.207	.23
December	3,293	900	23	106	.445	.51
Calendar year 1945	57,186	3,470	17	157	.660	8.93
January	7,047	704	60	227	.954	1.10
February	7,233	1,200	55	258	1.08	1.12
March	9,954	638	146	321	1.35	1.56
April	2,313	129	50	77.1	.324	.36
May	2,063	118	42	66.5	.279	.32
June	1,558	111	23	51.9	.218	.24
July	721	82	11	23.3	.098	.11
August	318.0	15	9.1	10.3	.043	.05
September	317.7	17	8.3	10.6	.045	.05
Water year 1945-46	39,981.7	1,200	8.3	110	.462	6.23

Peak discharge.- Oct. 2 (6 a.m.) 760 sec.-ft.; Dec. 31 (8 a.m.) 984 sec.-ft.; Feb. 14 (12 p.m.) 1,390 sec.-ft.; Mar. 5 (7 p.m.) 740 sec.-ft.; Mar. 18 (2 p.m.) 722 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Tiffin River at Stryker.

Note.- Stage-discharge relation affected by ice Nov. 23-25, Dec. 11-19, Jan. 19 to Feb. 6.

Tiffin River at Stryker, Ohio

Location.- Water-stage recorder, lat. 41°30'05", long. 84°25'50", in SW¼ sec. 5, T. 6 N., R. 4 E., at electric railroad bridge at west edge of Stryker. Datum of gage is 685.5 feet above mean sea level, adjustment of 1912.

Drainage area.- 444 square miles.

Records available.- October 1940 to September 1946. September 1921 to September 1928 at site about 3 miles downstream, published at Tiffin River near Stryker.

Average discharge.- 13 years, 285 second-feet.

Extremes.- Maximum discharge during year, 1,450 second-feet Feb. 17; maximum gage height, 10.66 feet Mar. 8; minimum, 10 second-feet Aug. 14; minimum gage height, 1.18 feet Sept. 6.

1921-28, 1940-46: Maximum discharge, 5,690 second-feet May 18, 1945 (gage height, 14.80 feet); minimum, 5.0 second-feet Sept. 20, 1941.

Remarks.- Records fair except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	351	75	131	1,030	180	355	199	68	71	318	13	13
2	938	74	110	1,050	150	392	186	65	100	164	13	12
3	1,010	72	99	902	100	405	166	62	108	106	13	12
4	1,050	71	91	580	75	368	146	61	94	84	14	11
5	796	70	86	518	70	505	138	69	84	71	14	11
6	430	70	71	715	150	830	121	75	76	64	11	11
7	330	68	79	848	286	1,160	115	74	71	55	11	15
8	330	69	75	884	261	1,320	116	70	68	52	11	18
9	274	71	74	813	199	1,260	122	69	66	137	12	19
10	211	75	69	848	166	1,070	125	64	64	145	14	15
11	168	74	52	866	139	813	115	70	64	72	12	18
12	141	75	48	715	128	555	106	80	89	51	12	23
13	122	82	45	480	190	430	101	80	180	38	11	20
14	110	95	40	400	1,030	368	99	75	211	34	11	17
15	104	96	38	375	1,210	418	100	71	126	32	11	15
16	100	90	35	300	1,350	580	99	89	91	27	11	14
17	94	85	35	225	1,450	580	94	205	78	25	15	14
18	88	81	35	225	1,210	644	91	230	76	24	20	14
19	80	81	36	200	830	902	88	211	105	24	23	14
20	76	79	*36	125	480	1,010	86	199	120	42	20	14
21	75	75	36	120	299	884	84	174	99	40	17	15
22	78	78	36	100	236	580	80	186	85	27	16	17
23	79	72	36	80	242	430	78	121	72	23	17	20
24	81	68	40	100	236	392	78	106	64	20	16	29
25	82	79	109	120	161	518	79	101	58	15	15	36
26	81	79	368	110	174	542	78	101	51	14	15	22
27	80	78	342	85	380	455	72	104	48	14	14	15
28	75	*100	442	70	*380	368	71	98	56	14	12	14
29	74	128	380	75	-	318	72	85	693	13	12	14
30	75	149	664	*85	-	274	70	76	616	13	12	13
31	74	-	992	150	-	230	-	71	-	13	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,657	1,050	74	247	0.556	0.64
November	2,459	149	68	82.0	.185	.21
December	4,740	992	35	153	.345	.40
Calendar year 1945	106,040	5,580	19	291	.655	8.88
January	13,194	1,050	70	426	.959	1.11
February	11,762	1,450	70	420	.946	.99
March	18,956	1,320	230	611	1.38	1.59
April	3,175	199	70	106	.239	.27
May	3,210	230	61	104	.234	.27
June	3,784	693	48	126	.284	.32
July	1,771	318	13	57.1	.129	.15
August	431	23	11	13.9	.031	.04
September	495	36	11	16.5	.037	.04
Water year 1945-46	71,634	1,450	11	196	.441	6.03

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 13-18, 21-24, Jan. 14 to Feb. 6.

Auglaize River near Fort Jennings, Ohio

Location.- Water-stage recorder, lat. 40°56'55", long. 84°15'58", in SE¼ sec. 15, T. 1 S., R. 5 E., at highway bridge 3½ miles northeast of Fort Jennings and 6 miles upstream from Ottawa River. Datum of gage is 713.9 feet above mean sea level, adjustment of 1912.

Drainage area.- 333 square miles.

Records available.- August 1921 to December 1935, October 1940 to September 1946.

Average discharge.- 20 years, 277 second-feet.

Extremes.- Maximum discharge during year, 3,840 second-feet June 28 (gage height, 13.12 feet); minimum, 9.4 second-feet Sept. 6, 7 (gage height, 1.43 feet).
1921-35, 1940-46: Maximum discharge, 8,200 second-feet Jan. 15, 1930 (gage height, 16.6 feet); minimum, 5.0 second-feet Aug. 28, 1932 (gage height, 0.75 foot).

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Some diversion from Lake St. Marys by Miami & Erie Canal into Jennings Creek tributary to Auglaize River above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	352	57	153	a1,500	75	896	136	49	374	271	33	18
2	1,020	58	136	a700	80	604	108	49	420	177	31	16
3	1,700	75	126	a450	75	820	107	47	204	121	31	13
4	1,040	83	116	a400	70	650	105	49	107	104	29	11
5	410	62	112	721	60	420	94	47	68	80	26	10
6	271	57	110	1,110	70	324	89	54	52	65	25	9.7
7	211	52	108	870	80	592	86	58	42	58	24	10
8	170	47	102	548	110	1,290	89	57	37	57	24	12
9	a140	54	97	420	110	870	91	58	33	48	29	14
10	a110	118	91	410	75	697	89	58	28	53	30	19
11	a90	133	60	333	70	390	81	96	26	58	27	22
12	a75	100	67	673	70	306	73	102	33	48	22	21
13	a65	94	62	745	90	262	70	84	1,020	43	22	24
14	a55	107	54	380	800	236	70	89	2,190	38	20	27
15	52	107	50	250	a2,000	656	70	72	1,060	37	22	28
16	50	88	45	170	a800	1,060	64	83	371	37	26	30
17	47	83	40	180	a450	604	65	526	245	36	27	33
18	46	252	37	160	a300	697	72	974	795	35	30	33
19	44	420	35	120	*a250	721	67	526	845	39	28	30
20	43	342	37	130	236	515	61	342	922	42	27	28
21	44	262	*40	110	211	371	58	236	515	45	25	25
22	50	220	40	80	196	297	57	158	271	43	28	23
23	68	220	40	85	196	245	56	120	168	37	28	23
24	113	220	40	90	209	245	57	97	110	38	25	22
25	146	167	200	90	194	288	59	133	78	37	22	19
26	152	145	1,000	80	191	245	56	189	59	38	19	19
27	120	128	1,500	70	733	208	54	128	482	37	16	19
28	94	128	2,000	65	1,810	179	53	96	2,980	37	16	18
29	76	148	a1,250	60	-	157	54	76	1,730	36	16	19
30	68	*168	a1,000	60	-	143	52	62	504	32	16	18
31	62	-	a2,500	*70	-	129	-	56	-	37	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,984	1,700	43	225		
November	4,195	420	47	140		
December	11,248	2,500	35	363		
Calendar year 1945	135,463	6,450	18	371		
January	11,130	1,500	60	359		
February	9,611	2,000	60	343		
March	15,117	1,290	129	488		
April	2,243	136	52	74.8		
May	4,771	974	47	154		
June	15,769	2,980	26	526		
July	1,864	271	32	60.1		
August	760	33	16	24.5		
September	613.7	33	9.7	20.5		
Water year 1945-46	84,305.7	2,980	9.7	231		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Blanchard River near Findlay and Ottawa River at Allentown.
Note.- Stage-discharge relation affected by ice Dec. 14-28, Jan. 15 to Feb. 14.

Auglaize River near Defiance, Ohio

Location.- Water-stage recorder, lat. 41°14'15", long. 84°24'02", in NE¼ sec. 9, T. 3 N., R. 4 E., 125 feet downstream from dam and power plant of Toledo Edison Co., a quarter of a mile upstream from Jackson ditch, and 3 miles south of Defiance. Datum of gage is 660.00 feet above mean sea level, adjustment of 1912.

Drainage area.- 2,329 square miles.

Records available.- April 1915 to December 1935, October 1940 to September 1946. May to August 1903 at site at highway bridge 1¾ miles downstream.

Average discharge.- 26 years (1915-35, 1940-46), 1,580 second-feet.

Extremes.- Maximum discharge during year, 15,100 second-feet June 14 (gage height, 14.85 feet); minimum daily, 17 second-feet Nov. 17.

1915-35, 1940-46: Maximum discharge, 48,000 second-feet May 19, 1943 (gage height, 25.5 feet, from floodmark), from rating curve extended above 22,000 second-feet on basis of flood-routing studies; minimum daily, 6 second-feet Oct. 17, 1923.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by power plant above station. Some diversion by Miami & Erie Canal from Lake St. Marys into Jennings Creek, tributary to Auglaize River above station.

Rating tables, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 2-23)

Oct. 1 to June 20

4.2	16	5.5	495	9.0	4,080
4.3	27	6.0	810	10.0	5,630
4.4	41	6.5	1,200	12.0	9,240
4.5	64	7.0	1,650	14.2	13,800
4.8	169	7.5	2,150		
5.1	294	8.0	2,730		

June 21 to Sept. 30

4.4	20	5.5	460
4.5	35	6.0	765
4.6	64	6.5	1,170
4.7	99	7.1	1,740
4.9	181		

Note.- Same as preceding table above 7.1 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,140	440	622	13,000	170	4,380	504	183	2,260	4,230	47	32
2	4,530	222	350	11,000	350	3,930	416	182	3,300	1,790	47	28
3	6,140	217	484	7,000	150	3,930	222	187	2,670	757	47	29
4	5,970	230	397	5,000	200	4,080	530	202	1,360	558	41	30
5	3,650	277	364	3,500	180	3,370	320	111	333	407	41	29
6	1,990	300	352	5,000	372	3,180	304	205	501	580	109	29
7	1,160	308	374	6,000	384	3,370	263	207	288	44	44	28
8	754	281	180	5,000	334	4,380	339	215	302	137	44	26
9	610	222	270	3,800	424	5,310	340	222	300	228	41	28
10	491	222	220	3,500	256	4,080	290	358	250	156	38	262
11	364	340	100	*3,300	410	3,180	292	910	605	212	38	28
12	357	495	170	3,110	230	1,800	224	108	766	185	41	30
13	267	468	180	3,240	1,540	1,340	226	715	9,100	391	41	32
14	163	440	140	3,240	3,370	1,530	226	728	13,800	41	41	34
15	240	440	140	2,420	5,500	2,980	259	408	13,800	38	38	34
16	179	272	50	636	5,000	3,240	59	2,880	8,600	35	111	35
17	160	17	250	274	4,000	3,650	228	3,240	5,470	47	30	35
18	126	19	130	721	3,000	3,650	244	3,370	5,310	66	32	35
19	114	26	120	699	2,000	4,230	230	2,360	9,810	260	101	35
20	85	30	130	345	1,300	3,790	162	1,800	13,800	461	29	35
21	150	31	130	679	894	3,180	155	968	12,000	50	35	34
22	178	46	130	450	1,090	1,910	158	750	8,910	119	35	34
23	383	634	60	400	978	1,360	157	628	5,970	160	35	32
24	654	734	170	350	1,020	1,420	149	518	3,790	159	35	32
25	722	668	1,500	320	1,030	1,240	152	1,660	1,520	47	35	35
26	541	305	3,000	350	1,400	1,140	162	3,300	980	50	71	47
27	594	596	5,500	300	2,420	650	154	2,420	1,170	52	32	41
28	556	358	8,000	230	*3,370	480	145	664	5,310	112	35	32
29	413	395	7,000	250	-	494	172	474	10,300	108	30	32
30	336	592	9,000	250	-	727	180	678	6,870	244	30	41
31	358	-	11,000	210	-	616	-	695	-	50	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	34,375	6,140	85	1,109		
November	9,625	734	17	321		
December	50,513	11,000	50	1,629		
Calendar year 1945	678,695	17,700	15	1,859		
January	84,574	13,000	210	2,728		
February	41,372	5,500	150	1,478		
March	82,617	5,310	480	2,665		
April	7,260	530	59	242		
May	31,356	3,370	108	1,011		
June	149,745	13,800	250	4,992		
July	11,774	4,230	35	380		
August	1,406	111	29	45.4		
September	1,214	262	26	40.5		
Water year 1945-46	505,831	13,800	17	1,386		

* Winter discharge measurement made on this day.

Note.- No gage-height record Dec. 8 to Jan. 11, Feb. 15-20; discharge computed on basis of weather and power-plant records and records for station near Fort Jennings. Stage-discharge relation affected by ice Jan. 22 to Feb. 5.

Ottawa River at Allentown, Ohio

Location.- Water-stage recorder and concrete control, lat. 40°45'18", long. 84°11'41", in NW¼ sec. 29, T. 3 S., R. 6 E., at highway bridge at Allentown, Allen County, 0.3 mile downstream from Kessler Run. Datum of gage is 789.67 feet above mean sea level, adjustment of 1912.

Drainage area.- 168 square miles.

Records available.- October 1923 to December 1935, August 1943 to September 1946.

Average discharge.- 15 years, 116 second-feet.

Extremes.- Maximum discharge during year, 3,140 second-feet June 27 (gage height, 8.42 feet); minimum, 11 second-feet Sept. 16, but may have been less during period of ice effect.

1923-35, 1943-46: Maximum discharge, 3,880 second-feet Apr. 11, 1944 (gage height, 9.00 feet); minimum, 1.4 second-feet June 28, 29, 1933.

Flood of Mar. 15, 1939, reached a stage of 10.1 feet and flood of May 1943 a stage of about 10 feet, discharge not determined.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation and some regulation due to operation of water-supply and sewage-treatment plants of city of Lima above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 20 to May 16, June 13, 17, 27, 28)

2.3	10.3	3.1	62	3.7	232
2.4	13.1	3.2	79	3.8	282
2.5	17	3.3	100	4.0	402
2.7	27	3.4	125	4.8	915
2.9	40	3.5	155	5.8	1,480
3.0	49	3.6	190	6.4	1,870

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	136	18	49	582	25	340	39	19	a200	115	20	27
2	415	33	40	294	25	340	33	19	a100	85	18	30
3	155	20	44	162	20	472	34	18	a50	61	17	27
4	65	17	36	122	20	267	27	22	a35	49	16	29
5	29	15	31	365	21	176	28	20	a28	40	15	30
6	23	18	31	460	35	137	28	19	a23	27	18	30
7	24	18	28	272	40	477	30	32	a20	23	18	31
8	18	18	28	158	37	428	34	19	17	22	18	33
9	20	52	24	125	39	340	26	18	15	26	34	28
10	20	28	24	*125	31	186	24	19	14	24	22	34
11	19	22	20	120	30	125	23	39	17	22	17	24
12	18	20	18	311	24	100	23	26	65	22	16	18
13	18	27	16	242	143	a90	22	18	1,290	20	17	53
14	16	24	16	108	790	a80	21	18	788	19	18	22
15	15	20	15	80	359	a150	26	20	421	22	18	16
16	17	20	14	50	169	a180	25	36	190	22	20	14
17	17	61	13	45	155	a150	22	115	1,000	20	30	15
18	17	247	12	45	118	a200	21	134	758	20	19	16
19	18	155	12	40	*100	237	20	85	1,080	20	16	18
20	22	85	13	35	90	162	20	77	970	35	18	17
21	16	54	13	35	65	115	18	57	660	25	23	16
22	29	100	13	25	62	92	17	42	550	20	28	15
23	41	87	12	25	79	79	19	35	466	20	24	13
24	28	61	15	27	83	81	19	29	340	18	24	15
25	35	46	600	27	69	74	20	30	228	20	22	16
26	24	48	995	27	84	57	21	29	149	20	21	17
27	18	39	582	20	790	48	19	26	1,830	18	24	17
28	17	46	428	20	543	42	17	a26	951	16	26	17
29	15	72	277	21	-	37	18	a25	294	15	29	16
30	18	*64	1,240	23	-	38	18	a25	162	19	29	15
31	18	-	1,210	30	-	38	-	a25	-	19	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,341	415	15	43.3	0.258	0.30
November	1,535	247	15	51.2	.305	.34
December	5,869	1,240	12	189	1.12	1.29
Calendar year 1945	54,221.8	2,290	9	149	.887	12.02
January	4,021	582	20	130	.774	.89
February	4,046	790	20	144	.857	.89
March	5,338	477	37	172	1.02	1.18
April	712	39	17	23.7	.141	.16
May	1,122	134	18	36.2	.215	.25
June	12,711	1,830	14	424	2.52	2.81
July	904	115	15	29.2	.174	.20
August	664	34	15	21.4	.127	.15
September	667	53	13	22.2	.132	.15
Water year 1945-46	38,930	1,830	12	107	.637	8.61

Peak discharge.- Dec. 26 (12:30 a.m.) 1,300 sec.-ft.; Dec. 30 (10 p.m.) 1,870 sec.-ft.; Feb. 14 (7 a.m.) 995 sec.-ft.; June 13 (2 p.m.) 1,740 sec.-ft.; June 17 (1 p.m.) 1,420 sec.-ft.; June 27 (8 a.m.) 3,140 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Auglaize River near Fort Jennings and Blanchard River near Findlay.

Note.- Stage-discharge relation affected by ice Dec. 13-25, Jan. 15 to Feb. 6.

Blanchard River near Findlay, Ohio

Location.- Water-stage recorder, lat. 41°03'21", long. 83°41'17", on east line sec. 10, T. 1 N., R. 10 E., at highway bridge 2 miles west of Findlay. Datum of gage is 754.55 feet above mean sea level.

Drainage area.- 343 square miles.

Records available.- November 1923 to December 1935, October 1940 to September 1946.

Average discharge.- 17 years, 213 second-feet.

Extremes.- Maximum discharge during year, 6,400 second-feet June 18 (gage height, 12.40 feet); minimum, 3.0 second-feet Sept. 15 (gage height, 0.72 foot).

1923-35, 1940-46: Maximum discharge, 9,300 second-feet (revised) Dec. 1, 1927 (gage height, 14.5 feet); minimum, 0.4 second-foot Aug. 26, 27, Sept. 3, 1934.

Revisions.- The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
644.....	1926-27	Mar. 21	13.2	7,460
664.....	1927-28	Dec. 1	14.5	9,300
684.....	1928-29	Jan. 19	12.1	6,010
699.....	1929-30	Jan. 14	13.4	7,740
744.....	1932-33	Mar. 14	11.89	5,760
1034.....	1944-45	June 20	12.20	6,140

Flood of March 1913 reached a stage of 18.5 feet.

Remarks.- Records good except those for period of ice effect, which are fair.

Revisions.- Revised figures of discharge for high-water periods in the water years 1927 to 1930 and 1945 are given herewith. They supersede those published in Water-Supply Papers 644, 664, 684, 699, and 1034.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1926-27		1929-30	
Mar. 21.....	6,920	Dec. 18.....	5,280
		Jan. 8.....	5,160
1927-28		9.....	6,270
Dec. 1.....	7,320	13.....	6,660
Mar. 31.....	5,040	14.....	7,460
		15.....	6,140
1928-29			
Jan. 19.....	5,160	1944-45	
20.....	4,710	June 20.....	5,520
Feb. 27.....	5,520		
28.....	4,710		

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Jan. 3-5, 7-20, Jan. 25 to Feb. 13, Feb. 16-26)

0.7	2.5	1.1	25	1.8	145	5.0	1,300
.8	5.0	1.2	37	2.2	250	7.0	2,100
.9	9.0	1.3	51	2.6	405	9.0	3,070
1.0	15	1.4	67	3.0	580	11.2	4,930

Discharge, in second-feet, of Blanchard River near Findlay, Ohio, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	199	37	105	1,460	43	755	62	22	285	143	9.6	5.0
2	685	51	88	755	47	650	59	18	148	103	9.0	4.2
3	615	61	80	387	37	895	54	17	86	75	14	5.4
4	356	48	69	299	33	615	53	24	59	54	17	6.6
5	165	38	67	580	32	387	51	22	44	48	14	7.0
6	107	36	61	860	48	285	47	23	36	38	11	6.6
7	86	29	56	650	53	495	43	25	29	36	10	5.8
8	65	26	53	392	64	755	48	22	25	31	10	8.2
9	54	38	50	310	80	598	47	22	21	27	12	6.6
10	45	71	45	296	45	320	41	26	17	25	8.6	8.2
11	38	61	30	238	45	220	40	47	18	24	8.2	6.6
12	33	57	36	486	37	185	38	37	179	26	8.6	5.0
13	26	53	32	536	97	158	36	32	3,490	26	8.6	5.4
14	25	51	b27	274	1,220	143	35	36	2,520	27	7.8	7.0
15	22	45	b24	200	895	220	38	56	1,110	25	8.6	5.0
16	19	38	b20	121	482	299	40	145	450	18	18	4.0
17	21	41	b17	115	432	278	36	139	3,600	13	9.6	4.8
18	17	154	b15	119	299	410	36	143	4,930	14	8.6	5.0
19	16	313	b14	86	223	378	36	143	3,910	14	8.6	6.6
20	18	195	b15	65	188	271	32	115	3,740	16	7.8	7.4
21	17	*137	b17	b55	148	210	27	86	2,160	14	7.8	7.0
22	25	127	b17	b45	160	172	27	65	772	16	8.2	7.0
23	51	145	b17	b47	160	145	27	50	374	16	7.8	6.6
24	125	137	b17	b50	160	129	26	48	226	14	7.0	6.6
25	170	103	798	51	139	121	25	123	168	14	5.4	7.0
26	129	84	1,780	51	145	107	25	125	125	11	7.4	5.4
27	96	80	*1,040	38	781	99	25	99	960	9.6	7.0	4.8
28	71	92	720	33	1,230	88	24	96	1,620	9.0	5.4	7.4
29	54	125	560	*33	-	80	26	71	580	10	7.0	9.0
30	43	125	1,530	37	-	76	25	53	220	9.6	7.0	12
31	38	-	2,020	48	-	67	-	51	-	10	5.8	-

Peak discharge.- Dec. 26 (3 a.m.) 1,900 sec.-ft.; Dec. 31 (1:30 a.m.) 2,270 sec.-ft.; Feb. 14 (12:30 p.m.) 1,420 sec.-ft.; June 13 (6:30 p.m.) 4,090 sec.-ft.; June 18 (3 a.m.) 6,400 sec.-ft.; June 28 (4:30 a.m.) 2,520 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Monthly discharge, in second-feet, 1926-30, 1944-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1926	19,304	2,450	84	623	1.82	2.10
November	6,018	782	46	201	.586	.65
December	4,053	480	38	131	.382	.44
Calendar year 1926	119,607	3,890	6	328	.956	12.96
January 1927	20,321	3,750	38	656	1.91	2.20
February	25,173	2,950	165	899	2.62	2.73
March	32,553	6,920	194	1,050	3.06	3.53
April	12,101	1,700	88	403	1.17	1.30
May	13,074	2,700	56	422	1.23	1.42
June	4,473	741	26	149	.434	.48
July	6,922	4,030	14	223	.650	.75
August	7,055	1,830	23	228	.665	.77
September	3,708	619	18	124	.362	.40
Water year 1926-27	154,755	6,920	14	424	1.24	16.77
October 1927	1,482	123	11	47.9	.140	.16
November	7,866	2,800	10	262	.764	.85
December	29,686	7,320	54	958	2.79	3.22
Calendar year 1927	164,414	7,320	10	450	1.31	17.81
January 1928	9,151	1,520	-	295	.860	.99
February	15,625	2,450	48	539	1.57	1.69
March	16,281	5,040	52	525	1.53	1.77
April	13,651	2,600	56	455	1.33	1.48
May	2,059	113	34	66.4	.194	.22
June	15,126	3,350	31	504	1.47	1.64
July	2,677	346	26	86.4	.252	.29
August	447	23	8	14.4	.042	.05
September	164	16	3	6.1	.018	.02
Water year 1927-28	114,235	7,320	3	312	.910	12.38
October 1928	244.2	26	2.5	7.88	.022	.03
November	597.2	46	9.0	19.9	.058	.06
December	4,183	948	10	135	.394	.45
Calendar year 1928	80,225.4	5,040	2.5	219	.638	8.69
January 1929	23,536	5,160	-	759	2.21	2.55
February	15,784	5,520	25	564	1.64	1.71
March	14,464	1,830	91	467	1.36	1.57
April	20,942	1,880	131	698	2.03	2.26
May	9,885	1,340	79	319	.930	1.07
June	1,574	364	16	52.5	.153	.17
July	17,417	3,300	24	562	1.64	1.89
August	1,202	79	13	38.8	.113	.13
September	221.2	20	2.4	7.37	.021	.02
Water year 1928-29	110,049.6	5,520	2.4	302	.880	11.91

Monthly discharge, in second-feet, of Blanchard River near Findlay, Ohio, 1926-30, 1944-46--Continued

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1929	9,184.9	2,200	2.4	296	0.862	0.99
November	12,249	1,200	87	408	1.19	1.33
December	29,703	5,280	46	958	2.79	3.22
Calendar year 1929	156,162.1	5,520	2.4	428	1.25	16.91
January 1930	55,814	7,460	67	1,800	5.25	6.05
February	10,612	1,030	45	379	1.10	1.14
March	12,836	1,070	62	414	1.21	1.40
April	7,694	823	69	256	.746	.83
May	1,350	113	19	43.5	.127	.15
June	877	126	13	29.2	.085	.09
July	286.1	22	3.9	9.23	.027	.03
August	81.7	7.3	1.2	2.64	.008	.01
September	127.6	13	2.5	4.25	.012	.01
Water year 1929-30	140,815.3	7,460	1.2	386	1.13	15.25
October 1944	111.8	20	2.1	3.61	.011	.01
November	286.1	32	2.2	9.54	.028	.03
December	202.6	9.6	3.0	6.54	.019	.02
Calendar year 1944	47,413.1	4,760	2.1	130	.379	5.14
January 1945	202.6	8.6	5.4	6.54	.019	.02
February	10,751.4	2,400	5.8	384	1.12	1.17
March	26,914	3,020	129	868	2.53	2.92
April	12,440	1,940	54	415	1.21	1.35
May	11,379	2,300	69	367	1.07	1.23
June	22,926	5,520	43	764	2.23	2.49
July	3,403	508	20	110	.321	.37
August	641.6	165	7.4	20.7	.060	.07
September	556.1	160	2.5	18.5	.054	.06
Water year 1944-45	89,814.2	5,520	2.1	246	.717	9.74
October 1945	3,431	685	16	111	.324	.37
November	2,598	313	26	86.6	.252	.28
December	9,420	2,020	14	304	.886	1.02
Calendar year 1945	104,662.7	5,520	2.5	287	.837	11.35
January 1946	8,717	1,460	33	281	.819	.94
February	7,323	1,230	32	262	.764	.80
March	9,611	895	67	310	.904	1.04
April	1,129	62	24	37.6	.110	.12
May	1,981	145	17	63.9	.186	.21
June	31,902	4,930	17	1,063	3.10	3.46
July	916.2	143	9.0	29.6	.086	.10
August	285.4	18	5.4	9.21	.027	.03
September	193.2	12	4.0	6.44	.019	.02
Water year 1945-46	77,506.8	4,930	4.0	212	.618	8.39

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Town Creek near Van Wert, Ohio

Location.- Water-stage recorder, lat. 40°49'30", long. 84°34'50", in sec. 36, T. 2 S., R. 2 E., at bridge on U. S. Highway 127, 3 miles south of Van Wert and 5½ miles downstream from Roller Creek. Prior to July 28, 1945, wire-weight gage at same site and datum.
Drainage area.- 20.4 square miles.
Records available.- July 1945 to September 1946.
Extremes.- 1945: Maximum discharge during period July to September, 55 second-feet Sept. 29 (gage height, 2.83 feet); no flow on many days.
1945-46: Maximum daily discharge during water year, 350 second-feet June 27; no flow for long period.
Remarks.- Records fair except those for periods of ice effect or fragmentary gage-height record, which are poor. Gage read once daily prior to July 28.

Discharge, in second-feet, 1945-46

1945

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-	1.3	0	11	-	0	0	21	0.1	0	0
2	-	.8	0	12	-	0	0	22	.1	0	0
3	-	.2	0	13	-	0	0	23	.1	0	0
4	-	.1	0	14	-	0	0	24	.1	0	.8
5	-	0	0	15	-	0	0	25	.1	0	11
6	-	0	0	16	-	0	0	26	.1	0	12
7	-	0	0	17	-	0	0	27	0	0	5.3
8	-	0	0	18	0.2	0	0	28	0	0	8.5
9	e1.2	0	0	19	.2	0	0	29	.1	0	40
10	-	0	0	20	.2	0	0	30	.1	0	14
								31	.7	0	-

e Result of discharge measurement.
Note.- No gage-height record July 19-21, Aug. 15-17, Aug. 19-21, Aug. 24 to Sept. 8, Sept. 11-20; discharge interpolated or computed on basis of observer's notes.

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	2.6	6.8	50	1.1	21	4.1	0.3	193	16		
2	103	3.6	6.4	23	1.0	31	3.9	.3	62	7.6		
3	26	3.9	6.2	15	.8	24	3.4	.8	22	4.9		
4	12	2.8	5.2	13	1.0	18	3.2	.8	12	3.6		
5	7.8	2.3	4.6	52	3.0	12	2.3	.7	7.4	3.2		
6	7.1	2.0	4.8	71	4.0	12	2.3	.8	5.5	2.7		
7	6.8	1.6	4.6	39	5.0	63	2.2	1.1	4.5	2.3		
8	5.5	1.2	4.1	25	2.5	38	2.8	1.1	3.6	2.2		
9	4.3	11	3.3	38	2.0	25	2.8	.8	2.8	3.4		
10	3.2	14	2.8	*32	1.3	14	2.0	1.1	2.3	3.2		
11	2.4	9.1	2.4	27	1.0	10	1.9	17	2.3	2.2		
12	2.0	7.1	1.9	83	1.0	9.6	1.8	14	3.0	1.7		
13	1.7	8.8	1.5	32	67	7.6	1.6	5.9	166	1.2		
14	1.1	9.9	1.1	16	169	9.8	1.6	4.3	52	.9		
15	.8	6.4	.8	9.0	f75	120	1.8	4.5	18	.8		
16	.6	5.2	.6	7.0	f66	48	1.7	22	9.9	.5		
17	.5	5.5	.5	5.0	20	38	1.1	38	6.6	.3		
18	.3	5.2	.4	4.0	12	36	.9	20	5.7	.2		
19	.2	8.4	.3	4.0	*11	26	.9	14	25	.2		
20	.2	15	*.3	3.0	8.2	18	.8	11	24	.8		
21	.8	12	.3	3.0	7.4	13	.8	7.6	12	.9		
22	14	10	.3	2.0	6.9	11	.6	4.7	6.6	.7		
23	18	8.8	.4	2.3	12	8.4	.8	3.8	4.9	.4		
24	15	5.9	.5	2.5	11	28	.9	5.6	4.1	.2		
25	9.4	5.3	120	2.5	9.3	22	.9	79	3.6	.1		
26	6.4	4.4	100	2.0	10	16	.9	56	3.4	.1		
27	4.6	4.8	60	1.0	47	10	.8	31	f350	0		
28	3.6	13	35	1.2	24	8.4	.5	21	112	0		
29	3.0	*11	30	1.4	-	7.9	.6	10	109	0		
30	2.7	8.8	152	1.5	-	6.2	.4	7.2	35	0		
31	2.6	-	134	*1.3	-	3.9	-	14	-	0		

Peak discharge.- Oct. 1 (11:30 p.m.) 188 sec.-ft.; Dec. 30 (11:30 a.m.) 336 sec.-ft.; Feb. 14 (1:30 a.m.) 312 sec.-ft.; June 1 (6:30 a.m.) 282 sec.-ft.; June 13 (10 a.m.) 227 sec.-ft.; June 27 (stage and discharge unknown).
* Winter discharge measurement made on this day.
f Fragmentary gage-height record; discharge computed on basis of partly estimated gage height.
Note.- Stage-discharge relation affected by ice Dec. 13-29, Jan. 16 to Feb. 12.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
July 18-31, 1945	2.1	0.7	0	0.15	0.0074	0.004
August	2.4	1.3	0	.08	.0039	.004
September	91.6	40	0	3.05	.150	.17
October 1945	320.6	103	.2	10.3	.505	.58
November	209.6	15	1.2	6.99	.343	.38
December	691.1	152	.3	22.3	1.09	1.26
January 1946	568.7	83	1.0	18.3	.897	1.03
February	579.5	169	.8	20.7	1.01	1.05
March	715.8	120	3.9	23.1	1.13	1.30
April	50.3	4.1	.4	1.68	.082	.09
May	398.4	79	.3	12.9	.632	.73
June	1,268.2	350	2.3	42.3	2.07	2.31
July	60.3	16	0	1.95	.096	.11
August	0	0	0	0	0	0
September	0	0	0	0	0	0
Water year 1945-46	4,862.5	350	0	13.3	.652	8.84

Swan Creek at Toledo, Ohio

Location.- Water-stage recorder, lat. 41°37'37", long. 83°35'40", in SE¼ sec. 9, T. 3 of Twelve Mile Reservation, at Detroit Avenue Bridge in Toledo, 5.2 miles upstream from mouth. Datum of gage is 570.00 feet above mean sea level, datum of 1929. Prior to Apr. 19, 1945, wire-weight gage at same site and datum.

Drainage area.- 185 square miles.

Records available.- March 1945 to September 1946.

Extremes.- 1945: Maximum discharge during period March to September, 2,200 second-feet May 18 (gage height, 14.48 feet); minimum observed, 2.4 second-feet Sept. 24.
1945-46: Maximum discharge during year, 1,090 second-feet Dec. 31 (gage height, 10.72 feet); minimum daily, 2.2 second-feet Sept. 29, 30.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Gage read twice daily prior to Apr. 19, 1945.

Discharge, in second-feet, 1945-46

1945

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	878	92	68	16	8.4	4.6
2						-	1,070	71	71	14	8.4	4.7
3						-	1,070	76	76	a13	8.7	4.6
4						-	959	172	76	a12	8.4	4.2
5						-	716	229	71	a12	8.2	4.1
6						-	446	a220	58	a11	9.4	4.1
7						-	446	203	47	a11	8.2	3.9
8						-	177	a350	41	a12	8.0	3.5
9						-	146	201	37	a14	7.8	3.4
10						-	84	162	38	a13	7.6	3.3
11						-	86	229	50	12	7.4	3.2
12						-	73	203	102	a11	7.4	3.2
13						-	76	188	159	a11	7.8	3.2
14						-	66	185	102	a50	7.6	3.1
15						-	68	419	60	193	7.2	3.0
16						58	66	851	55	279	7.0	2.9
17						46	112	1,480	112	219	7.0	2.7
18						35	112	2,050	211	146	6.6	2.6
19						211	63	2,050	295	60	6.4	2.5
20						419	58	1,400	193	15	6.2	2.5
21						388	49	797	123	12	6.0	2.5
22						392	49	460	105	12	5.9	2.5
23						164	45	303	81	11	5.8	2.5
24						149	44	216	50	10	5.6	2.5
25						66	46	170	42	10	5.4	4.1
26						71	115	146	37	9.7	5.3	4.0
27						30	311	133	28	9.2	5.2	4.6
28						d28	237	105	21	9.2	5.0	4.7
29						30	162	84	17	9.2	4.8	9.0
30						36	120	68	16	9.0	4.7	17
31						392	-	53	-	8.7	4.7	-

a No gage-height record; discharge computed on basis of weather records and records for Bean Creek at Powers and Tenmile Creek at Toledo.
d Doubtful gage-height record; discharge interpolated.
Note.- Computed from wire-weight gage readings May 7, July 11, July 21 to Sept. 28.

Discharge, in second-feet, of Swan Creek at Toledo, Ohio, 1945-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	a36	34	878	30	149	76	21	66	406	a8	a4.5
2	432	a38	38	460	b28	211	73	19	118	188	a7.5	a4.5
3	500	a36	38	287	b24	279	60	21	79	89	a7	a4.5
4	295	a34	38	201	b22	258	53	24	55	44	a7	a4.5
5	162	31	36	224	26	388	47	27	41	a30	a6.5	a4
6	118	29	33	338	33	689	42	a32	32	a22	a6	a4
7	120	28	a30	352	34	a850	38	a28	27	20	a5.5	a4.5
8	141	31	a25	287	34	932	41	24	23	19	a5.5	a5
9	123	41	a22	325	34	824	60	22	18	19	a5	a4.5
10	86	53	a19	540	a32	527	50	19	15	18	a5	a4.5
11	55	50	17	419	a30	352	42	27	13	18	a5	a6
12	41	45	15	287	30	279	40	36	30	17	a5	a5.5
13	36	49	b13	222	46	240	36	36	107	16	a5	a5
14	31	63	b12	172	392	203	36	34	177	14	a5	a4.5
15	29	63	b11	175	608	214	40	102	97	14	h4.6	a4
16	21	44	b10	92	a400	a500	46	248	53	12	a4.5	a3.5
17	28	38	a9	102	a300	a400	40	a350	510	10	a10	a3.5
18	29	40	*h8.2	102	235	676	36	a250	406	a9	8.7	a3
19	31	40	a7.5	55	141	770	34	196	338	a10	7.8	a3
20	30	41	a7	53	138	514	32	149	388	14	7.2	a2.5
21	30	37	a7	44	107	325	31	123	248	17	a7	a2.5
22	45	37	a7.5	36	a100	a250	28	84	144	17	a7	a2.5
23	138	34	a8	b32	a110	a220	28	a65	81	a16	h6.6	a4.5
24	157	32	a20	36	a90	a300	28	a55	a50	a15	a6	a3.5
25	115	33	a100	36	a100	271	27	49	34	a14	a6	a3
26	89	34	a500	b32	120	248	26	89	28	a13	a5.5	a2.8
27	60	*45	a400	a30	*154	198	24	89	24	a12	a5.5	h2.5
28	46	66	a350	29	141	162	24	60	110	a11	a5	a2.4
29	41	47	311	*28	-	128	a23	a50	743	a10	a5	a2.2
30	37	40	540	28	-	118	22	a40	824	a9.5	a5	a2.2
31	36	-	905	32	-	94	-	a35	-	a9	a5	-

Peak discharge.- Dec. 31 (10:30 p.m.) 1,090 sec.-ft.; Feb. 15 (12 m.) 689 sec.-ft.; Mar. 8 (10 p.m.) 959 sec.-ft.; Mar. 19 (9 a.m.) 797 sec.-ft.; June 17 (1 p.m.) 648 sec.-ft.; June 30 (3 a.m.) 959 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Bean Creek at Powers and Tenmile Creek at Toledo.

b Stage-discharge relation affected by ice.

h Computed from wire-weight gage readings.

Monthly discharge, in second-feet, 1945-46

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 16-31, 1945	2,515	419	28	157	0.849	0.51
April	7,950	1,070	44	265	1.43	1.60
May	13,366	2,050	53	431	2.33	2.69
June	2,442	295	16	81.4	.440	.49
July	1,234.0	279	8.7	39.8	.215	.25
August	212.1	9.4	4.7	6.84	.037	.04
September	122.7	17	2.5	4.09	.022	.02
Water year	-	-	-	-	-	-
October 1945	3,182	500	21	103	.557	.64
November	1,235	66	28	41.2	.223	.25
December	3,571.2	905	7	115	.622	.72
Calendar year	-	-	-	-	-	-
January 1946	5,934	878	28	191	1.03	1.19
February	3,539	608	22	126	.681	.71
March	11,569	932	94	373	2.02	2.33
April	1,183	76	22	39.4	.213	.24
May	2,404	350	19	77.5	.419	.48
June	4,879	824	13	163	.881	.98
July	1,132.5	406	9	36.5	.197	.23
August	189.4	10	4.5	6.11	.033	.04
September	113.1	6	2.2	3.77	.020	.02
Water year 1945-46	38,931.2	932	2.2	107	.578	7.83

Time basis: Eastern war time up to 2 a.m. Sept. 30, 1945; eastern standard time thereafter. To convert war time to standard time, subtract 1 hour.

Portage River at Woodville, Ohio

Location.- Water-stage recorder, lat. 41°26'55", long. 83°21'41", in sec. 28, T. 6 N., R. 13 E., at bridge on U. S. Highway 20 in Woodville. Datum of gage is 615.14 feet above mean sea level, adjustment of 1912.

Drainage area.- 433 square miles.

Records available.- July 1928 to December 1935, October 1939 to September 1946.

Average discharge.- 14 years, 253 second-feet.

Extremes.- Maximum discharge during year, 7,040 second-feet June 18 (gage height, 11.50 feet); minimum, 2.6 second-feet Sept. 5, 6 (gage height, 1.93 feet).

1928-35, 1939-46: Maximum discharge, 9,300 second-feet Apr. 12, 1944 (gage height, 13.08 feet); minimum, 0.3 second-foot Aug. 28, 1931; minimum gage height, 1.60 feet July 25, 26, 1934.

Flood of March 1913 reached a stage of 17 feet, from information by local residents.

Remarks.- Records good except those for Apr. 1 to May 16 or periods of ice effect, which are fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	131	26	36	1,580	38	355	68	26	1,430	105	14	4.5
2	904	24	35	700	34	586	62	24	1,840	107	15	4.9
3	763	26	31	435	28	955	63	25	745	81	13	4.5
4	311	26	29	318	21	632	59	27	371	59	11	3.6
5	150	27	28	469	20	498	46	28	202	48	9.5	3.0
6	98	24	25	930	30	538	42	29	128	42	8.9	2.6
7	81	20	24	745	43	766	40	30	94	38	7.7	3.0
8	72	19	24	448	40	1,060	42	29	75	35	7.0	4.5
9	66	20	23	394	41	880	47	30	61	31	8.3	5.4
10	52	21	21	655	27	574	51	34	45	37	8.9	9.5
11	38	26	14	452	29	348	46	41	36	69	8.3	15
12	30	30	16	423	24	263	41	69	574	62	8.9	18
13	25	34	14	700	32	219	41	81	2,710	48	7.7	16
14	22	35	13	348	574	169	42	56	5,530	37	6.4	11
15	19	34	13	322	614	267	43	43	3,440	28	5.8	11
16	16	31	8.9	202	242	477	46	1,010	1,000	21	5.8	9.5
17	14	29	5.4	b160	b260	502	47	1,060	2,890	18	7.0	7.7
18	15	27	*4.5	139	b170	1,440	45	610	6,130	18	15	5.8
19	15	27	b4	98	b140	1,100	43	477	4,930	18	11	5.4
20	14	27	b4	b70	b135	655	38	367	3,950	780	10	4.9
21	14	30	b4	b50	b130	414	35	260	2,080	1,000	17	5.8
22	18	28	b4	b40	148	294	34	162	1,100	452	17	5.8
23	30	22	4.0	b40	124	228	31	101	601	193	21	5.8
24	54	24	4.5	43	b115	182	30	80	371	107	19	5.4
25	89	29	211	43	b115	182	29	564	253	59	12	5.4
26	87	30	b2,400	b40	*135	162	29	1,540	182	38	9.5	4.5
27	69	27	2,000	b35	453	146	28	812	139	28	8.3	4.9
28	52	25	1,340	b30	565	120	28	477	263	23	5.8	5.4
29	41	28	812	27	-	105	28	266	231	19	4.0	5.8
30	34	34	1,910	*28	-	99	28	157	135	14	3.6	7.0
31	28	-	3,250	38	-	87	-	120	-	12	4.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,352	904	14	108	0.249	0.29
November	810	35	19	27.0	.062	.07
December	12,312.3	3,250	4.0	397	.917	1.06
Calendar year 1945	102,424.5	4,270	1.3	281	.649	8.80
January	10,002	1,580	27	323	.746	.86
February	4,327	614	20	155	.358	.37
March	14,303	1,440	87	461	1.06	1.22
April	1,252	68	28	41.7	.096	.11
May	8,635	1,540	24	279	.644	.74
June	41,536	6,130	36	1,385	3.20	3.57
July	3,627	1,000	12	117	.270	.31
August	310.4	21	3.6	10.0	.023	.03
September	205.6	18	2.6	6.85	.016	.02
Water year 1945-46	100,672.3	6,130	2.6	276	.637	8.65

Peak discharge.- Dec. 31 (9 a.m.) 3,550 sec.-ft.; May 26 (6 a.m.) 1,960 sec.-ft.; June 1 (9:30 p.m.) 2,870 sec.-ft.; June 14 (8 p.m.) 6,250 sec.-ft.; June 18 (8 p.m.) 7,040 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Sandusky River near Bucyrus, Ohio

Location.- Water-stage recorder, lat. 40°48'13", long. 83°00'21", in NE¼ sec. 10, T. 3 S., R. 16 E., at highway bridge, 1½ miles west of Bucyrus and 12 miles downstream from Loss Creek. Datum of gage is 955.9 feet above mean sea level, adjustment of 1912.

Drainage area.- 89.8 square miles.

Records available.- August 1925 to November 1935, July 1938 to September 1946.

Average discharge.- 18 years, 75.6 second-feet.

Extremes.- Maximum discharge during year, 3,590 second-feet June 17 (gage height, 8.21 feet); minimum, 0.5 second-foot Sept. 26; minimum gage height, 0.83 foot Sept. 15, 26.

1925-35, 1938-46: Maximum discharge observed, 6,900 second-feet Dec. 14, 1927 (gage height, 9.15 feet); minimum discharge, 0.4 second-foot Sept. 29, 1941, July 16, 1942.

Flood of Mar. 23, 1913, reached a stage of 14.5 feet, from floodmarks.

Remarks.- Records good. Low flow slightly affected by operation of reservoirs for municipal supply of Bucyrus.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	16	92	169	25	218	21	9.6	62	17	3.9	3.9
2	263	18	66	87	20	414	21	9.1	54	13	2.1	2.8
3	177	94	54	70	15	424	19	8.8	40	12	1.7	2.6
4	61	47	50	62	12	171	19	17	30	10	2.3	2.3
5	31	32	42	161	15	112	16	11	25	9.6	2.3	3.0
6	18	24	38	201	52	92	14	12	21	8.2	4.6	1.7
7	22	23	35	115	116	502	14	13	18	6.8	2.3	1.7
8	46	18	32	94	42	369	16	9.1	15	8.2	1.5	1.7
9	28	19	30	75	40	154	14	9.6	12	7.3	2.4	2.6
10	22	14	29	72	24	97	14	12	12	11	1.9	5.2
11	16	14	22	61	26	83	13	109	12	15	1.5	1.2
12	12	13	22	131	22	72	12	172	35	182	1.7	.9
13	10	20	18	103	127	58	13	66	1,730	60	1.7	1.5
14	9.1	42	18	50	1,000	54	18	40	1,340	24	1.9	1.0
15	7.8	36	17	45	244	94	19	32	223	16	1.9	.7
16	7.8	22	14	26	105	93	22	101	137	12	2.4	.8
17	6.8	29	11	31	112	220	24	902	2,270	9.6	2.4	.8
18	6.4	217	9.6	27	82	438	18	312	1,200	7.3	2.3	.9
19	6.0	128	10	23	71	181	14	179	593	6.4	2.6	.9
20	5.0	67	11	21	87	98	14	134	384	6.8	2.8	.9
21	10	57	12	20	59	70	12	130	174	6.0	3.1	.8
22	17	330	13	16	57	55	12	79	94	8.3	3.3	.9
23	176	144	12	15	54	44	11	54	61	6.8	2.6	2.3
24	216	63	11	16	59	39	12	41	46	5.2	2.1	1.3
25	96	48	52	17	49	39	12	36	36	4.4	1.9	.6
26	64	42	240	17	117	36	12	54	30	3.1	1.9	.6
27	44	48	150	13	1,560	32	10	316	25	2.1	2.1	.8
28	32	122	93	10	509	29	9.6	604	72	1.9	2.8	.9
29	26	139	96	10	-	26	10	200	30	1.9	3.1	2.2
30	22	124	433	15	-	25	9.6	82	25	2.1	3.1	.9
31	19	-	622	25	-	21	-	55	-	10	3.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,537.9	263	5.0	49.6	0.552	0.64
November	2,010	330	13	67.0	.746	.83
December	2,354.6	622	9.6	76.0	.846	.98
Calendar year 1945	36,823.5	2,100	1.4	101	1.12	15.27
January	1,798	201	10	58.0	.646	.74
February	4,701	1,560	12	168	1.87	1.95
March	4,360	502	21	141	1.57	1.81
April	445.2	24	9.6	14.8	.165	.18
May	3,809.0	902	8.6	123	1.37	1.58
June	8,806	2,270	12	294	3.27	3.85
July	494.0	182	1.9	15.9	.177	.20
August	75.3	4.6	1.5	2.43	.027	.03
September	48.4	5.2	.6	1.61	.018	.02
Water year 1945-46	30,439.4	2,270	.6	83.4	.929	12.61

Peak discharge.- Dec. 31 (3 a.m.) 915 sec.-ft.; Feb. 14 (9 a.m.) 1,220 sec.-ft.; Feb. 27 (6 p.m.) 1,950 sec.-ft.; May 17 (12:30 p.m.) 1,180 sec.-ft.; June 13 (10 p.m.) 2,790 sec.-ft.; June 17 (7 p.m.) 3,590 sec.-ft.

Sandusky River near Upper Sandusky, Ohio

Location.- Water-stage recorder, lat. 40°51'02", long. 83°15'23", in sec. 21, T. 2 S., R. 14 E., at highway bridge, three-quarters of a mile upstream from Rock Run and 2 miles northeast of Upper Sandusky. Datum of gage is 792.8 feet above mean sea level, adjustment of 1912.

Drainage area.- 299 square miles.

Records available.- October 1921 to Decmeber 1935, January 1938 to September 1946.

Average discharge.- 22 years, 236 second-feet.

Extremes.- Maximum discharge during year, 5,390 second-feet June 18 (gage height, 9.12 feet); minimum, 2.2 second-feet Sept. 19 (gage height, 0.90 foot).
1921-35, 1938-46: Maximum discharge, 8,900 second-feet Dec. 15, 1927 (gage height, 10.5 feet); minimum, 0.9 second-foot Sept. 24, 1939; minimum gage height, 0.67 foot Sept. 6, 7, 1934.
Flood in June 1937 reached a stage of 14.3 feet, from marks in gage well.

Remarks.- Records good except those for periods of ice effect or doubtful or no gage-height record, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	123	41	247	1,260	45	795	59	28	213	67	11	3.6
2	156	38	187	454	45	770	52	27	193	58	14	4.2
3	379	38	146	314	40	1,280	54	26	158	47	21	d4
4	193	90	123	256	40	648	49	28	121	40	17	3.6
5	93	63	109	306	40	422	41	29	93	36	14	3.6
6	56	49	97	580	60	320	40	34	76	33	d16	3.2
7	43	37	84	414	150	665	37	34	61	31	14	3.2
8	37	34	76	286	400	1,280	36	33	58	29	d12	d3.5
9	44	33	67	240	120	670	34	27	49	27	d16	d3
10	43	33	59	210	90	418	33	21	43	27	12	3.2
11	33	37	38	187	80	303	29	40	37	26	d8	5.6
12	28	30	36	220	75	259	28	297	43	64	d7	d4.5
13	22	36	34	300	133	213	27	324	994	253	d6	8.2
14	20	36	32	200	1,740	187	27	163	2,470	114	d5.5	d6
15	19	58	32	150	1,470	320	31	109	1,210	63	d4.5	d4
16	18	72	30	100	466	387	41	86	394	46	d8	d2.5
17	18	58	28	120	394	342	40	1,480	f2,800	37	4.2	d2.5
18	16	127	24	95	300	1,080	49	1,280	f4,960	33	5.6	2.4
19	15	458	26	80	243	848	43	625	3,000	30	6.6	2.2
20	12	237	28	70	228	442	37	536	1,810	28	6.6	2.4
21	12	150	30	65	193	303	34	1,200	930	27	6.6	2.5
22	17	209	30	60	185	228	36	648	491	52	7.6	d3
23	66	540	28	50	166	182	36	356	320	54	d8	2.5
24	415	a300	26	45	166	153	34	237	231	d35	d6.5	4.6
25	320	a150	70	50	158	136	33	182	176	d30	d5	d3.5
26	174	116	300	45	187	123	33	336	133	d25	d5	5.6
27	118	106	*560	40	2,060	111	34	1,510	109	22	d5	d6
28	84	138	400	*36	2,620	97	33	1,470	255	18	d4.5	d4
29	61	303	300	36	-	89	31	795	158	16	4.2	3.2
30	52	283	500	36	-	80	29	402	97	13	3.6	2.8
31	44	-	1,500	40	-	67	-	256	-	12	3.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,731	415	12	88.1	0.295	0.34
Movsmber	3,900	540	30	130	.435	.49
December	5,247	1,500	24	169	.565	.65
Calendar yesr 1945	95,688.3	4,000	4.2	262	.876	11.90
January	6,345	1,260	36	205	.686	.79
February	11,894	2,620	40	425	1.42	1.48
March	13,218	1,280	67	426	1.42	1.64
April	1,120	59	27	37.3	.125	.14
May	12,619	1,510	21	407	1.36	1.57
June	21,683	4,960	37	723	2.42	2.70
July	1,393	253	12	44.9	.150	.17
August	268.6	21	3.6	8.66	.029	.03
September	113.1	8.2	2.2	3.77	.013	.01
Water yesr 1945-46	80,531.7	4,960	2.2	221	.739	10.01

Peak discharge.- Feb. 14 (10:30 p.m.) 2,240 sec.-ft.; Feb. 28 (11 a.m.) 3,020 sec.-ft.; May 18 (12:30 a.m.) 1,880 sec.-ft.; May 27 (6 p.m.) 2,320 sec.-ft.; June 14 (10:30 p.m.) 2,700 sec.-ft.; June 18 (9:30 a.m.) 5,390 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated.

d Doubtful gage-height record; discharge computed on basis of weather records and records for stations near Bucyrus and near Mexico.

f Computed on basis of partly estimated gage-height record.

Note.- Stage-discharge relation affected by ice Dec. 12-31, Jan. 12 to Feb. 12.

Sandusky River near Mexico, Ohio

Location.- Water-stage recorder, lat. 41°02'39", long. 83°11'42", in sec. 13, T. 1 N., R. 14 E., at highway bridge, 3 miles upstream from Honey Creek and 4¼ miles north of Mexico. Datum of gage is 733.1 feet above mean sea level, adjustment of 1912.

Drainage area.- 776 square miles.

Records available.- March 1923 to December 1935, July 1938 to September 1946.

Average discharge.- 20 years, 531 second-feet.

Extremes.- Maximum discharge during year, 9,470 second-feet June 20 (gage height, 15.9 feet); minimum, 8.2 second-feet Sept. 3, 4, 7 (gage height, 1.60 feet).

1923-35, 1938-46: Maximum discharge observed, 15,200 second-feet Mar. 22, 1927 (gage height, 19.9 feet); minimum discharge, 1.8 second-feet (regulated) Oct. 31, 1949

Flood in June 1937 reached a stage of 22.5 feet, from information by local residents.

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

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	100	432	a2,500	140	3,990	190	70	418	f353	56	11
2	982	93	366	a2,000	140	2,520	170	68	366	256	44	10
3	775	86	293	a1,600	135	2,760	164	66	303	203	31	9.7
4	680	81	254	1,430	130	2,280	158	71	247	166	32	9.0
5	353	118	221	1,060	125	1,340	149	82	194	133	36	9.0
6	214	116	201	1,380	162	895	141	79	151	118	36	9.0
7	151	94	186	1,340	270	1,160	129	84	131	108	30	8.2
8	119	82	164	915	323	2,280	127	89	110	106	29	11
9	100	82	147	643	379	1,930	127	84	98	105	29	11
10	91	91	133	538	281	1,240	119	81	88	86	26	11
11	84	86	101	460	192	815	114	94	74	79	24	11
12	70	86	95	500	162	589	108	135	90	76	22	10
13	60	84	90	650	219	490	105	392	1,660	114	19	10
14	55	86	85	400	2,820	418	100	340	3,370	268	17	12
15	48	93	80	300	3,370	544	98	227	3,440	160	17	13
16	45	100	75	250	2,280	895	108	179	1,670	103	38	16
17	46	125	65	230	1,340	975	108	573	3,790	84	45	16
18	41	676	60	200	855	1,900	108	1,930	6,220	71	36	16
19	38	835	70	180	625	2,100	110	1,290	8,000	70	25	16
20	38	699	75	150	521	1,380	110	775	8,480	65	19	16
21	40	432	75	130	432	915	96	1,260	5,860	62	17	12
22	42	405	70	110	418	625	91	1,380	3,410	64	20	12
23	156	607	65	110	379	475	89	815	1,340	79	19	16
24	506	661	65	120	366	405	84	460	756	76	16	17
25	835	392	150	130	353	353	79	340	521	64	16	18
26	554	272	*900	135	340	323	77	270	405	60	16	17
27	353	238	a1,200	130	2,580	293	70	631	509	53	16	17
28	249	258	a800	*127	4,120	270	64	2,240	680	46	16	16
29	190	366	a550	120	-	245	71	1,880	f915	42	16	19
30	145	475	a1,000	120	-	223	71	955	f737	35	14	19
31	119	-	a3,500	130	-	205	-	521	-	33	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,402	982	38	239	0.308	0.36
November	7,919	835	81	284	.340	.38
December	11,568	3,500	60	373	.481	.55
Calendar year 1945	223,223	8,240	14	612	.789	10.70
January	18,088	2,500	110	583	.751	.87
February	23,457	4,120	125	838	1.08	1.12
March	34,833	3,990	205	1,124	1.45	1.67
April	3,335	190	64	111	.143	.16
May	17,461	2,240	66	563	.726	.84
June	54,033	8,480	74	1,801	2.32	2.59
July	3,338	353	33	108	.139	.16
August	789	56	12	25.5	.033	.04
September	397.9	19	8.2	13.3	.017	.02
Water year 1945-46	182,620.9	8,480	8.2	500	.644	8.76

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Sandusky River near Fremont and Blanchard River near Findlay.

f Computed on basis of partly estimated gage-height record.

Note.- Stage-discharge relation affected by ice Dec. 12-26, Jan. 12 to Feb. 4.

Sandusky River near Fremont, Ohio

Location.- Water-stage recorder, lat. 41°18'28", long. 83°09'32", in sec. 17, T. 4 N., R. 15 E., at highway bridge, 2½ miles downstream from Wolf Creek and 3½ miles southwest of Fremont. Datum of gage is 626.3 feet above mean sea level, adjustment of 1912.

Drainage area.- 1,248 square miles.

Records available.- November 1923 to December 1935, July 1938 to September 1946. November 1898 to March 1901 at site 4 miles downstream.

Average discharge.- 20 years (1923-35, 1938-46), 834 second-feet.

Extremes.- Maximum discharge during year, 14,600 second-feet June 18; maximum gage-height, 7.32 feet Dec. 27 (ice jam); minimum discharge, 13 second-feet Sept. 23, minimum gage height, 0.92 foot Sept. 10, 23.
1923-35, 1938-46: Maximum discharge (not determined) occurred Jan. 15, 1930 (gage height, 11.1 feet); maximum gage height, 11.4 feet Mar. 3, 1940 (ice jam); minimum discharge, 5.0 second-feet Sept. 27, 28, 1941 (gage height, 0.80 foot).

Remarks.- Records good except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	481	172	731	4,260	170	5,340	234	116	970	626	75	24
2	2,510	161	616	3,070	180	4,000	210	116	888	388	140	22
3	2,010	182	507	1,880	170	4,390	193	112	616	297	102	20
4	1,190	172	426	1,190	160	3,620	182	112	457	234	75	18
5	720	145	373	1,210	160	2,270	172	131	344	188	64	18
6	449	166	330	1,980	300	1,570	161	131	271	161	61	18
7	317	155	297	1,990	400	1,630	155	131	222	140	58	18
8	246	140	271	1,470	500	3,090	155	136	182	136	52	18
9	204	136	240	1,080	650	2,960	150	136	150	145	52	18
10	166	193	222	956	542	1,960	140	131	131	140	52	a19
11	145	222	199	825	402	1,290	131	155	121	166	43	a21
12	131	177	155	900	264	888	126	177	228	252	40	a23
13	107	172	150	1,100	258	709	121	269	2,560	150	46	24
14	98	166	130	700	3,750	587	121	542	6,260	210	40	22
15	91	172	125	500	5,060	607	121	395	4,660	290	37	20
16	79	172	120	350	3,260	1,030	126	498	3,050	177	43	20
17	72	182	105	280	2,230	1,270	131	542	6,970	131	55	16
18	68	349	95	240	1,470	3,700	140	1,750	12,900	112	64	18
19	64	1,380	100	200	1,040	3,380	145	2,110	11,000	94	64	20
20	61	1,250	110	180	825	2,310	145	1,190	12,600	242	58	20
21	55	800	115	160	742	1,470	145	998	9,050	380	49	20
22	61	607	110	*135	616	1,010	140	1,860	5,340	182	52	16
23	89	775	105	130	587	709	136	1,400	2,380	140	55	13
24	940	1,070	100	140	568	578	131	788	1,290	145	49	14
25	1,250	676	200	180	533	507	126	607	875	126	40	18
26	1,170	457	600	200	524	442	121	764	616	112	34	20
27	687	366	*2,000	180	2,370	395	121	587	776	98	32	24
28	473	344	1,500	160	5,200	352	121	1,950	1,250	91	32	26
29	359	442	1,000	150	-	310	116	2,350	914	75	30	24
30	271	687	2,500	140	-	277	116	1,540	1,010	68	28	22
31	210	-	5,000	160	-	252	-	850	-	61	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	14,774	2,510	55	477	0.382	0.44
November	12,088	1,380	136	403	.323	.36
December	18,532	5,000	95	598	.479	.55
Calendar year 1945	368,487	11,900	20	1,010	.809	10.97
January	26,096	4,260	130	842	.675	.78
February	32,931	5,200	160	1,176	.942	.98
March	52,903	5,340	252	1,707	1.37	1.58
April	4,332	234	116	144	.115	.13
May	22,574	2,350	112	728	.583	.67
June	88,081	12,900	121	2,936	2.35	2.62
July	5,757	626	61	186	.149	.17
August	1,648	140	26	53.2	.043	.05
September	592	26	13	19.7	.016	.02
Water year 1945-46	280,308	12,900	13	768	.615	8.35

Peak discharge.- June 14 (8 a.m.) 7,070 sec.-ft.; June 18 (4:30 a.m.) 14,600 sec.-ft.; June 20 (9:15 a.m.) 13,200 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.- Stage-discharge relation affected by ice Dec. 13-31, Jan. 12 to Feb. 9

Black River at Elyria, Ohio

Location.- Water-stage recorder, lat. 41°22'50", long. 82°06'15", in T. 6 N., R. 17 W., at Elyria, Lorain County, three-quarters of a mile below confluence of East and West Branches.

Drainage area.- 392 square miles.

Records available.- October 1944 to September 1946. May 1903 to July 1906 at site about 5½ miles downstream, published as Black River near Elyria.

Extremes.- Maximum discharge during year, 8,460 second-feet June 18 (gage height, 13.9 feet); minimum, 1.2 second-feet Sept. 22.
1944-46: Maximum discharge, that of June 18, 1946; minimum, 0.4 second-foot Oct. 5, 1945.

Remarks.- Records good except those below 10 second-feet, which are fair, and those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	33	628	1,080	39	712	41	13	575	59	65	2.8
2	434	31	367	451	38	1,010	36	11	436	40	34	4.4
3	375	28	224	316	33	1,820	32	9.4	224	34	19	2.6
4	158	27	173	271	28	878	31	16	127	29	13	2.3
5	93	61	146	422	27	466	26	13	80	25	11	2.3
6	60	49	121	611	36	341	24	17	58	21	9.4	2.3
7	56	39	100	481	47	660	24	27	44	19	8.6	2.1
8	57	34	88	297	b45	1,580	24	25	35	17	7.3	2.1
9	97	35	79	251	b40	731	23	24	29	27	6.9	2.3
10	80	30	68	267	b37	594	22	28	25	27	9.4	5.4
11	61	28	54	276	b35	354	21	67	24	26	7.3	3.3
12	42	27	b47	541	b33	254	20	1,400	29	19	8.9	1.7
13	33	28	b44	570	72	194	18	678	42	17	6.1	4.0
14	29	28	b41	250	*1,480	158	17	249	50	14	7.3	4.1
15	28	27	b38	b150	1,180	200	21	144	56	14	7.3	3.8
16	22	28	b36	b100	b350	341	21	112	587	13	17	4.7
17	21	40	b34	b70	b250	314	24	459	7,170	12	27	3.6
18	20	181	b33	b55	b180	262	28	560	6,320	11	31	2.8
19	22	512	b32	48	b150	234	25	354	2,180	16	17	2.6
20	17	283	b31	b45	b140	186	21	241	2,560	58	24	2.1
21	22	165	b30	*b42	b130	137	20	154	1,080	190	16	1.7
22	32	288	b30	b38	b120	107	20	106	408	150	12	1.4
23	224	512	b30	b35	b170	88	19	80	216	81	9.4	4.8
24	662	288	b33	b33	b180	87	16	63	140	33	6.9	3.7
25	422	144	b110	b31	b150	86	16	60	100	22	5.1	1.7
26	274	104	1,040	b29	203	91	15	107	74	18	4.4	1.4
27	167	91	1,100	b27	2,380	86	14	399	77	13	3.8	1.5
28	108	86	639	b25	2,490	73	14	1,400	142	11	3.8	1.5
29	74	102	451	b25	-	63	14	1,120	146	9.4	4.7	2.6
30	52	392	936	b27	-	54	14	358	116	8.2	3.8	3.6
31	41	-	1,820	37	-	46	-	169	-	8.2	2.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	3,907	662	17	126	0.321	0.37
November	3,721	512	27	124	.316	.35
December	8,603	1,820	30	278	.709	.82
Calendar year 1945	98,576.5	5,580	3.3	270	.689	9.34
January	6,901	1,080	25	223	.569	.66
February	10,063	2,490	27	359	.916	.95
March	12,207	1,820	46	394	1.01	1.16
April	661	41	14	22.0	.056	.06
May	8,463.4	1,400	9.4	273	.696	.80
June	23,148	7,170	24	772	1.97	2.20
July	1,021.8	190	8.2	33.0	.084	.10
August	407.2	65	2.8	13.1	.033	.04
September	85.2	5.4	1.4	2.84	.0072	.008
Water year 1945-46	79,188.6	7,170	1.4	217	.554	7.52

Peak discharge.- Feb. 14 (11 p.m.) 2,140 sec.-ft.; Feb. 27 (11 p.m.) 3,530 sec.-ft.; Mar. 3 (8 a.m.) 2,000 sec.-ft.; Mar. 8 (8 a.m.) 1,820 sec.-ft.; June 18 (4 a.m.) 8,460 sec.-ft.; June 20 (8 a.m.) 2,770 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rocky River near Berea, Ohio

Location.- Water-stage recorder, lat. 41°24'22", long. 81°53'13", in T. 6 N., R. 15 W., at highway bridge just below confluence of East and West Branches and 3 miles northwest of Berea, Cuyahoga County. Datum of gage is 649.9 feet above mean sea level, datum of 1929 (Cuyahoga County bench mark).

Drainage area.- 269 square miles.

Records available.- November 1923 to September 1935, September 1943 to September 1946.

Average discharge.- 15 years, 242 second-feet.

Extremes.- Maximum discharge during year, 8,190 second-feet June 17 (gage height, 7.30 feet); minimum, 2.4 second-feet Sept. 6, 7.

1923-35, 1943-46: Maximum discharge observed, 17,000 second-feet (revised) Aug. 7, 1935, from rating curve extended above 8,000 second-feet; maximum stage observed, 18.6 feet June 29, 1924 (backwater caused by tornado); minimum discharge, 0.2 second-foot Sept. 2, 1932, Aug. 18, 19, 22, 27, 28, 30, 31, 1933.

Maximum stage known, 20.9 feet in March 1913.

Remarks.- Records fair except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	120	58	443	449	b70	369	56	25	581	32	6.8	2.8
2	520	56	250	296	b60	1,310	51	24	332	23	5.0	3.2
3	301	167	195	231	b50	1,450	47	22	165	20	5.0	3.0
4	129	118	165	220	b45	477	44	34	94	16	4.8	3.0
5	74	83	146	489	b45	336	40	54	63	15	4.8	2.5
6	54	69	123	565	b60	287	40	63	49	13	4.8	2.5
7	78	56	115	267	b100	1,420	38	58	41	13	4.5	2.4
8	107	49	107	242	b80	975	40	78	35	14	4.2	2.5
9	816	49	97	209	b70	838	40	67	28	12	4.2	2.8
10	374	51	b90	318	b60	495	36	52	26	11	4.2	3.4
11	165	54	b80	250	b55	346	32	901	24	10	4.0	5.2
12	92	56	b70	494	b50	242	31	1,830	31	10	3.7	3.7
13	58	61	65	350	b60	185	30	323	47	9.5	4.2	3.5
14	49	83	b62	b130	*b1,500	152	29	165	65	10	4.5	3.7
15	102	90	b60	b100	487	415	35	123	42	11	4.8	3.7
16	85	72	b58	b80	b200	466	72	112	920	9.5	8.0	3.2
17	60	65	b56	b70	b160	301	76	301	7,500	8.5	5.4	3.5
18	44	1,160	b54	b60	b140	258	58	309	1,570	9.5	25	4.0
19	36	575	b52	b55	b120	181	51	314	1,290	7.4	51	4.0
20	35	271	b51	b50	b110	126	46	185	1,480	11	18	3.7
21	34	188	b51	*47	b100	107	40	140	449	9.0	11	3.5
22	36	486	b50	b45	b100	100	35	156	202	8.2	10	3.2
23	962	*376	b50	b43	b200	87	34	102	120	8.5	8.2	4.3
24	1,110	178	b50	b42	b170	85	35	74	83	14	6.8	6.0
25	410	137	b250	b41	b120	115	41	63	58	14	5.7	3.2
26	242	123	1,910	b41	198	110	36	311	49	10	5.0	3.2
27	156	115	829	b40	3,350	92	31	467	61	9.5	4.8	3.0
28	107	149	400	b40	744	83	29	1,660	93	8.5	4.2	3.0
29	83	219	318	b40	-	72	28	477	115	7.8	4.5	3.0
30	67	703	1,120	b40	-	63	26	185	51	6.8	3.0	4.2
31	67	-	2,140	b45	-	58	-	115	-	6.4	2.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,573	1,110	34	212	0.788	0.91
November	5,917	1,160	49	197	.732	.82
December	9,507	2,140	50	307	1.14	1.31
Calendar year 1945	94,074.3	4,510	4.5	258	.959	13.00
January	5,389	565	40	174	.647	.75
February	8,504	3,350	45	304	1.13	1.18
March	11,601	1,450	58	374	1.39	1.60
April	1,227	76	26	40.9	.152	.17
May	8,790	1,830	22	284	1.06	1.22
June	15,664	7,500	24	522	1.94	2.16
July	368.1	32	6.4	11.9	.044	.05
August	242.9	51	2.8	7.84	.029	.03
September	102.9	6.0	2.4	3.43	.013	.01
Water year 1945-46	73,885.9	7,500	2.4	202	.751	10.21

Peak discharge.- Feb. 27 (1 p.m.) 4,390 sec.-ft.; Mar. 2 (9:30 p.m.) 2,690 sec.-ft.; Mar 7 (7 p.m.) 2,770 sec.-ft.; May 11 (12 p.m.) 3,540 sec.-ft.; June 17 (3:30 a.m.) 8,190 sec.-ft.; June 19 (10 p.m.) 2,770 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Cuyahoga River at Hiram Rapids, Ohio

Location.- Wire-weight gage, lat. 41°20'27", long. 81°10'01", in T. 5 N., R. 7 W., at Hiram Rapids, Portage County, 0.6 mile downstream from Black Brook. Former gage at site 2¾ miles downstream at different datum.

Drainage area.- 147 square miles.

Records available.- October 1944 to September 1946. August 1927 to December 1935 at site 2¾ miles downstream, published as Cuyahoga River near Hiram.

Extremes.- 1944-45: Maximum discharge during water year, 1,480 second-feet Feb. 24 (gage height, 5.30 feet, from graph based on gage readings, affected by backwater from ice); minimum, 21 second-feet Oct. 8.

1945-46: Maximum discharge during water year, 1,060 second-feet Jan. 8 (gage height, 4.38 feet, from graph based on gage readings); minimum, 22 second-feet July 19, 30, 31, Aug. 5, 6 (gage height, 1.00 foot).

1927-35, 1944-46: Maximum discharge, 2,260 second-feet Jan. 20, 1929 (gage height, 8.2 feet, site and datum then in use); minimum, 5.1 second-feet Sept. 2, 1933.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by East Branch Reservoir. Gage read twice daily.

Revisions.- Revised figures of discharge for the water year 1945, superseding those published in Water-Supply Paper 1034, are given herein.

Discharge, in second-feet, 1944-46

1944-45

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	24	74	60	40	925	171	150	63	56	26	32
2	25	24	67	90	39	700	232	114	64	92	26	35
3	24	24	54	95	39	745	357	103	70	122	26	37
4	24	24	*42	85	39	790	498	140	74	140	24	37
5	27	26	41	80	40	835	565	171	75	140	24	38
6	25	28	41	75	40	835	520	171	69	122	30	38
7	23	28	41	70	40	835	455	171	60	98	46	38
8	21	28	53	65	40	835	376	171	55	76	64	38
9	23	26	71	60	40	745	285	171	46	58	75	46
10	31	28	74	60	40	610	219	171	41	48	81	48
11	40	30	63	60	42	475	171	171	45	35	84	54
12	46	30	54	60	45	376	131	160	54	32	83	56
13	48	28	46	60	50	285	101	160	67	29	74	51
14	49	28	49	60	53	219	90	160	104	29	69	57
15	49	28	47	65	60	*182	81	171	150	51	60	71
16	46	32	45	*73	100	160	79	182	182	74	50	76
17	47	37	46	65	171	150	95	435	194	83	38	69
18	47	41	45	55	219	140	104	970	194	84	32	81
19	46	38	45	50	240	171	95	1,320	194	75	28	103
20	46	40	45	46	280	268	81	1,160	206	67	26	111
21	47	46	45	44	280	542	81	925	232	58	24	108
22	46	57	40	43	*460	880	80	655	232	45	24	95
23	46	60	35	45	760	1,020	76	520	206	38	22	90
24	44	57	35	45	1,300	880	88	376	160	33	23	94
25	36	55	40	43	*1,350	745	131	285	140	30	24	171
26	30	49	45	41	1,150	565	171	219	104	29	23	206
27	26	52	50	40	1,120	415	219	171	81	27	24	206
28	26	72	55	40	1,060	285	252	130	61	26	24	206
29	26	84	55	40	-	206	219	105	50	25	22	232
30	25	84	50	40	-	171	182	85	43	25	23	219
31	24	-	50	40	-	160	-	70	-	26	26	-

* Winter discharge measurement made on this day.

Note.- No gage-height record Oct. 1-19, May 28-31; discharge computed on basis of unpublished records for station near Hiram, 2¾ miles downstream. Stage-discharge relation affected by ice Dec. 19 to Feb. 13, Feb. 19-26.

Discharge, in second-feet, of Cuyahoga River at Hiram Rapids, Ohio, 1944-46--Continued

1945-46

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	208	183	208	542	95	565	106	48	498	46	23	42
2	338	171	208	610	87	610	92	46	498	39	24	42
3	376	160	195	610	78	655	84	44	542	37	25	41
4	395	150	195	520	*65	700	79	50	565	38	24	40
5	435	140	183	520	59	700	72	82	455	33	22	39
6	455	131	171	610	91	610	70	90	357	30	22	37
7	435	122	150	925	131	610	68	92	252	28	26	38
8	395	108	150	1,060	140	610	65	98	208	27	31	37
9	435	97	131	880	140	700	63	92	160	51	34	38
10	435	90	131	745	150	700	63	79	122	43	36	40
11	520	85	114	610	b140	655	61	171	95	34	36	42
12	565	84	b105	542	131	542	60	376	79	28	37	42
13	542	84	b95	475	140	435	59	520	83	26	37	40
14	435	90	b90	415	378	357	55	520	84	26	37	40
15	357	94	b85	338	357	395	64	435	79	25	36	38
16	302	92	b80	285	610	565	103	357	70	24	40	37
17	237	136	b77	222	655	745	114	498	74	23	46	36
18	195	222	b74	180	565	700	114	520	150	23	47	36
19	171	237	b72	131	455	610	111	565	171	22	49	35
20	150	285	*b70	b110	357	435	100	565	195	23	46	34
21	122	320	b68	b85	268	320	85	610	195	26	42	36
22	108	395	b67	b75	195	237	74	610	195	33	40	36
23	150	395	b66	b65	171	195	69	610	183	36	40	37
24	208	415	b65	b60	140	171	72	520	150	42	39	38
25	237	395	b80	63	b130	171	72	415	131	40	39	39
26	320	338	150	64	186	183	70	395	97	31	39	38
27	376	285	171	b60	415	195	69	475	101	28	38	37
28	357	252	183	b57	498	171	64	610	85	26	38	36
29	320	222	208	b55	-	160	56	655	68	24	39	36
30	268	222	285	56	-	140	51	655	55	22	41	36
31	222	-	475	78	-	122	-	565	-	22	42	-

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

Monthly discharge, in second-feet, 1944-46

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1944	1,095	49	21	35.3	-11.5	23.8	0.162	0.19
November	1,208	84	24	40.3	+9.3	49.6	.337	.38
December	1,543	74	35	49.8	+14.0	63.8	.434	.50
Calendar year	-	-	-	-	-	-	-	-
January 1945	1,795	95	40	57.9	+13.5	71.4	.486	.56
February	9,137	1,350	39	326	+16.6	343	2.33	2.43
March	16,150	1,020	140	521	0	521	3.54	4.08
April	6,205	565	76	207	-1.0	206	1.40	1.56
May	9,963	1,320	70	321	-.5	320	2.18	2.51
June	3,316	232	41	111	+4.6	116	.789	.88
July	1,873	140	25	60.4	-5.0	55.4	.377	.43
August	1,225	84	22	39.5	-3.0	36.5	.248	.29
September	2,743	232	32	91.4	+3.6	95.0	.646	.72
Water year 1944-45	56,253	1,350	21	154	+3.3	157	1.07	14.53
October 1945	10,069	565	108	325	+.5	326	2.22	2.56
November	6,000	415	84	200	+.3	200	1.36	1.52
December	4,402	475	65	142	+2.2	144	.980	1.13
Calendar year 1945	72,878	1,350	22	200	+2.5	202	1.37	18.67
January 1946	11,028	1,060	55	356	-2.5	354	2.41	2.78
February	6,823	655	59	244	+.8	245	1.67	1.74
March	13,964	745	122	450	-1.2	449	3.05	3.52
April	2,285	114	51	76.2	-.5	75.7	.515	.57
May	11,368	655	44	367	+1.2	368	2.50	2.88
June	5,997	565	55	200	-1.3	199	1.35	1.51
July	954	51	22	30.8	0	30.8	.210	.24
August	1,115	49	22	36.0	-23.0	13.0	.088	.10
September	1,143	42	34	38.1	-25.5	12.6	.086	.10
Water year 1945-46	75,148	1,060	22	206	-4.1	202	1.37	18.65

† Change in contents in East Branch Reservoir.
Time basis: Eastern war time up to 2 a.m., Sept. 30, 1945; eastern standard time thereafter.
To convert war time to standard time, subtract 1 hour.

Cuyahoga River at Old Portage, Ohio

Location.- Water-stage recorder, lat. 41°08'04", long. 81°32'49", at Old Portage, Summit County, at highway bridge 1¼ miles downstream from Little Cuyahoga River and 4 miles northwest of Akron.

Drainage area.- 405 square miles.

Records available.- September 1921 to December 1935, March 1939 to September 1946.

Average discharge.- 21 years, 413 second-feet.

Extremes.- Maximum discharge during year, 2,300 second-feet Feb. 27 (gage height, 7.10 feet from high-water mark in well); minimum, 40 second-feet Sept. 19, 20 (gage height, 0.67 foot).

1921-35, 1939-46: Maximum discharge, 3,820 second-feet Apr. 5, 1929; maximum gage height, 10.8 feet June 28, 1924; minimum discharge, 14 second-feet Aug. 27, 1944 (gage height, 0.47 foot).

Remarks.- Records good except those above 1,800 second-feet or those for periods of no gage-height record, which are fair. Diurnal fluctuation caused by power plants above station. Flow regulated by Lake Rockwell, about 16 miles above gage, where an average of 53 second-feet was diverted for municipal supply of city of Akron. Sewage from city enters river below station.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

0.7	43	1.2	140	4.0	1,020
.8	56	1.5	217	5.0	1,400
.9	72	2.0	358	6.1	1,850
1.0	92	3.0	674		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	416	369	394	878	149	1,060	280	149	1,090	186	91	48
2	706	588	362	810	116	1,240	251	131	912	126	90	46
3	691	546	365	793	113	1,320	237	136	759	116	106	74
4	608	403	356	776	125	1,130	222	271	708	59	82	82
5	560	348	340	793	141	1,060	208	228	708	99	108	92
6	624	327	320	912	214	1,020	181	212	640	100	94	73
7	708	316	320	948	250	1,240	178	291	560	79	102	52
8	674	308	300	1,020	182	1,240	214	306	433	107	83	46
9	776	311	280	1,170	212	1,210	200	273	357	125	121	72
10	810	343	260	1,170	240	1,090	192	234	302	102	129	152
11	657	335	240	984	218	1,060	174	534	287	146	72	104
12	624	351	200	878	215	948	171	708	255	155	79	78
13	642	329	170	759	357	827	143	674	382	116	83	62
14	624	298	180	608	878	708	113	708	321	75	82	50
15	600	158	160	512	793	793	174	708	175	128	79	42
16	491	173	130	448	608	610	171	708	149	101	182	43
17	421	189	140	373	610	861	138	878	542	89	120	102
18	350	519	160	340	912	984	118	1,020	544	107	122	86
19	318	639	150	300	810	948	145	861	576	84	127	72
20	342	577	160	280	700	810	154	861	576	86	109	56
21	276	538	180	300	535	674	105	1,210	496	75	95	93
22	245	708	180	240	485	560	119	1,060	418	116	104	63
23	517	759	170	220	455	448	141	861	418	173	100	73
24	673	640	141	200	403	433	141	827	433	158	59	92
25	601	576	303	160	361	464	155	742	391	204	56	71
26	538	544	502	140	517	448	165	657	308	125	84	51
27	530	512	449	100	f1,850	433	154	844	224	101	69	64
28	544	496	425	110	f1,400	418	141	1,090	187	62	62	48
29	535	464	450	100	-	367	142	1,060	144	59	68	65
30	474	425	691	135	-	315	167	1,020	159	88	90	83
31	420	-	948	159	-	273	-	1,060	-	109	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	17,001	810	245	548		
November	13,089	759	158	436		
December	9,428	948	130	304		
Calendar year 1945	150,276	2,630	26	412		
January	16,636	1,170	100	537		
February	14,049	1,850	113	502		
March	25,192	1,320	273	813		
April	5,094	280	105	170		
May	20,322	1,210	131	656		
June	13,454	1,090	144	448		
July	3,456	204	59	111		
August	2,901	182	53	93.6		
September	2,133	152	42	71.1		
Water year 1945-46	142,755	1,850	42	391		

f Computed on basis of partly estimated gage heights.

Note.- No gage-height record Dec. 5-22, Jan. 18-28, Feb. 7; discharge computed on basis of weather records and records for station at Independence.

Cuyahoga River at Independence, Ohio

Location.- Water-stage recorder, lat. 41°23'44", long. 81°37'54", in T. 6 N., R. 12 W., at highway bridge 1 mile northeast of Independence. Datum of gage is 584.14 feet above mean sea level (levels by city of Cleveland).
Drainage area.- 709 square miles.
Records available.- September 1903 to July 1906, September 1921 to May 1923, September 1927 to December 1935, March 1940 to September 1946.
Average discharge.- 15 years (1921-22, 1927-35, 1940-46), 661 second-feet.
Extremes.- Maximum discharge during year, 5,380 second-feet Feb. 27 (gage height, 12.72 feet); minimum, 71 second-feet Sept. 4 (gage height, 2.41 feet).
1921-23, 1927-35, 1940-46: Maximum discharge, 10,800 second-feet Jan. 19, 1929 (gage height, 18.9 feet); minimum, 14 second-feet Nov. 30, 1930; minimum combined discharge of river and canal, 48 second-feet Aug. 29, 1933.
Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation caused by power plants above station. A small amount of water from Tuscarawas River is diverted into this basin at Portage Lakes. Water diverted into Ohio Canal at Brecksville, 6 miles above station, bypasses station; measurements of canal during water year 1945-46 are as follows:

Date	Second-feet	Date	Second-feet
Nov. 6	54.9	May 8	58.5
Dec. 19	64.8	June 24	58.4
Feb. 13	62.2	Aug. 1	55.7
Mar. 20	50.4	Sept.10	54.5

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	757	527	790	1,750	285	2,050	380	225	2,050	210	168	95
2	1,920	776	666	1,450	243	2,640	350	224	1,550	218	145	81
3	1,510	965	646	1,250	196	2,700	300	212	1,120	174	145	77
4	1,140	740	626	1,250	202	2,100	280	310	950	165	147	113
5	898	565	606	1,700	210	1,800	260	427	902	112	111	121
6	898	506	549	1,750	344	1,650	240	313	834	146	155	129
7	1,210	461	549	1,650	402	3,090	250	452	747	150	150	123
8	1,110	441	530	1,550	345	2,580	280	530	626	131	144	111
9	3,100	441	492	1,750	350	2,800	270	434	530	251	128	83
10	1,910	457	492	1,950	356	2,100	260	368	416	185	216	144
11	1,360	445	438	1,650	322	1,650	240	2,720	393	173	124	205
12	1,060	453	353	1,650	343	1,550	220	2,540	368	243	100	148
13	920	481	284	1,350	467	1,350	200	1,550	524	183	118	126
14	1,040	540	311	1,000	2,860	1,150	180	1,180	480	165	124	109
15	1,140	354	288	834	1,750	1,800	250	1,080	347	122	120	94
16	830	284	230	686	1,250	1,650	230	1,120	242	185	196	78
17	672	330	b240	568	1,350	1,450	200	2,800	1,120	155	200	100
18	548	2,180	b270	530	1,350	1,500	160	2,310	1,000	146	249	134
19	464	1,550	*b260	474	1,220	1,450	200	2,050	1,020	168	165	129
20	510	1,400	b270	399	1,150	1,250	255	1,450	1,050	158	160	115
21	407	1,100	b280	424	856	1,020	216	2,360	812	172	145	105
22	433	1,850	b260	317	768	856	180	1,850	606	120	147	146
23	2,300	1,500	246	310	950	706	220	1,400	511	252	141	91
24	2,120	1,180	296	292	768	706	250	1,180	530	176	137	136
25	1,460	975	582	265	646	790	248	1,120	511	280	102	124
26	1,140	902	2,050	255	768	750	263	1,220	442	207	90	112
27	920	812	1,250	224	4,500	650	254	1,500	320	168	135	95
28	830	879	975	249	2,970	600	236	2,480	258	147	117	108
29	785	975	926	241	-	550	208	1,750	255	104	109	90
30	695	975	2,180	224	-	450	225	1,450	228	131	113	102
31	607	-	2,750	323	-	350	-	1,350	-	173	129	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	34,694	3,100	407	1,119		
November	25,044	2,180	284	835		
December	20,685	2,750	230	667		
Calendar year 1945	303,816	8,550	59	832		
January	28,315	1,950	224	913		
February	27,221	4,500	196	972		
March	45,938	3,090	350	1,482		
April	7,305	380	160	244		
May	39,955	2,800	212	1,289		
June	20,742	2,050	228	691		
July	5,370	280	104	173		
August	4,430	249	90	143		
September	3,424	205	77	114		
Water year 1945-46	263,123	4,500	77	721		

Peak discharge.- Oct. 9 (11:30 a.m.) 4,280 sec.-ft.; Dec. 30 (11:30 p.m.) 3,740 sec.-ft.; Feb. 27 (10 a.m.) 5,400 sec.-ft.; Mar. 2 (6:30 p.m.) 3,740 sec.-ft.; Mar. 7 (3 p.m.) 4,350 sec.-ft.; May 11 (9 p.m.) 5,380 sec.-ft.
* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.- No gage-height record Mar. 26 to Apr. 19, Apr. 22, 23; discharge computed on basis of weather records and records for station at Old Portage.

Little Cuyahoga River at Mogadore, Ohio

Location.- Water-stage recorder and concrete control, lat. 41°03'45", long. 81°23'40", in T. 1 N., R. 10 W., 0.8 mile north of Mogadore, Summit County, and three-quarters of a mile upstream from Fritch Lake Outlet.

Drainage area.- 12.3 square miles.

Records available.- February to September 1946.

Extremes.- Maximum discharge during period, 87 second-feet June 17 (gage height, 1.79 feet); minimum, 0.6 second-foot Sept. 16-23; (minimum gage height, 0.28 foot Sept. 16-21).

Remarks.- Records good. Flow regulated by Mogadore Reservoir.

Rating table, Feb. 1 to Sept. 30, 1946 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 30 to June 5, Aug. 29 to Sept. 10)

0.25	0.4	0.6	4.2	1.0	16
.3	.7	.7	6.3	1.1	20
.4	1.5	.8	8.9	1.2	26
.5	2.6	.9	12	1.3	35

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					8.9	26	14	5.6	24	7.0	9.8	4.6
2					8.3	27	13	5.4	27	6.5	12	4.6
3					7.5	27	13	5.0	19	5.2	6.0	4.2
4				†17	7.5	26	11	7.3	16	5.3	4.8	3.7
5					8.1	26	10	3.2	20	6.4	5.6	3.2
6					9.5	25	10	2.6	25	5.4	4.4	2.9
7					9.2	29	10	3.5	20	5.8	2.9	2.8
8					8.9	29	10	4.2	15	12	4.9	2.6
9					8.9	28	9.5	3.9	17	9.9	6.9	2.5
10					8.6	28	8.9	3.5	10	6.9	11	2.5
11					8.3	27	8.9	6.5	6.2	7.5	10	2.5
12					8.1	25	8.1	8.1	5.0	11	9.5	2.4
13					11	24	7.3	3.5	5.2	8.3	8.6	1.8
14		†11			17	24	7.0	3.4	5.4	7.0	5.8	1.3
15					17	27	8.1	3.4	4.8	6.0	5.2	1.0
16					17	27	8.6	4.3	5.0	5.8	11	.8
17					17	27	8.3	12	25	3.5	16	.6
18					16	26	7.8	5.4	27	4.2	8.9	.6
19					17	25	7.8	3.7	35	4.4	4.6	.6
20					17	23	7.0	8.6	20	4.2	4.6	.6
21					16	21	7.0	18	18	3.9	8.5	.6
22					16	20	6.5	17	15	18	12	.6
23					16	20	6.8	14	14	11	11	.6
24					16	20	7.3	7.4	11	7.7	9.8	.9
25					15	20	7.3	4.2	9.8	15	7.3	1.0
26					18	20	6.8	4.0	7.8	6.0	5.0	a1.0
27					30	19	6.0	5.3	7.5	3.7	4.6	a1.0
28					26	18	5.8	8.1	17	2.9	4.6	h1.0
29					-	18	5.8	7.5	14	4.0	4.6	a1.5
30					-	17	5.8	4.6	8.8	5.4	4.6	a1.8
31					-	15	-	4.2	-	5.2	4.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	383.8	30	7.5	13.7		
March	734	29	15	23.7		
April	253.4	14	5.8	8.45		
May	197.4	18	2.6	6.37		
June	454.5	35	4.8	15.2		
July	215.1	18	2.9	6.94		
August	229.1	16	2.9	7.39		
September	55.8	4.6	.6	1.86		
Water year	-	-	-	-		

† Result of discharge measurement.
a No gage-height record; discharge computed on basis of recorded range in stage and records for station at Akron.
h Computed from tape-gage reading.

Little Cuyahoga River at Massillon Road, Akron, Ohio

Location.- Water-stage recorder and concrete control, lat. 41°03'35", long. 81°27'45", in T. 1 N., R. 10 W., at bridge on Massillon Road in Akron, Summit County, and 250 feet upstream from Springfield Lake Outlet.

Drainage area.- 31.0 square miles.

Records available.- February to September 1946.

Extremes.- Maximum discharge during period, 250 second-feet Feb. 27 (gage height, 1.90 feet); minimum, 3.8 second-feet Sept. 18 (gage height, 0.30 foot).

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow regulated by Fritch Lake and Mogadore Reservoir.

Rating table, Feb. 1 to Sept. 30, 1946 (gage height in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 8 to July 5)

0.3	3.8	0.8	24	1.3	78
.4	6.2	.9	31	1.4	98
.5	9.3	1.0	40	1.5	124
.6	13	1.1	50	1.6	154
.7	18	1.2	62		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					15	49	24	11	56	17	12	12
2					14	68	22	10	65	16	18	12
3					15	60	21	10	46	14	13	12
4				†32	14	49	19	32	40	13	10	8.6
5					15	47	17	22	38	15	10	7.0
6					22	44	18	13	45	16	11	6.4
7					17	78	18	24	39	15	8.6	6.2
8					15	60	18	19	24	18	9.0	12
9					16	64	17	13	20	21	14	12
10					16	54	16	14	18	15	17	8.3
11					14	48	16	64	12	18	21	6.7
12					14	44	15	51	14	21	21	6.7
13					40	40	14	24	28	17	20	6.7
14		†22			95	40	14	21	18	12	18	8.3
15					34	64	22	19	14	12	16	10
16					32	52	21	26	13	9.3	30	10
17					32	50	17	54	40	8.0	a32	4.9
18					29	46	16	33	45	8.3	a20	4.7
19					29	41	16	21	58	8.6	a17	5.1
20					30	37	27	36	45	11	a16	8.6
21					24	35	14	76	33	10	a20	13
22					31	33	13	40	26	29	a23	8.6
23					35	31	14	29	31	30	a23	8.0
24					29	41	15	21	29	18	a21	4.9
25					26	37	14	27	25	31	a18	4.7
26					63	33	14	41	24	15	a16	4.4
27					148	31	13	74	23	10	a14	4.4
28					58	29	12	106	25	8.3	h13	4.9
29					-	29	12	50	40	7.6	a12	10
30					-	27	11	35	19	10	a12	10
31					-	24	-	33	-	13	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	922	148	14	32.9		
March	1,385	78	24	44.7		
April	500	27	11	16.7		
May	1,049	106	10	33.8		
June	953	65	12	31.8		
July	467.1	31	7.6	15.1		
August	517.6	32	8.6	16.7		
September	241.1	13	4.4	8.04		
Water year	-	-	-	-		

† Result of discharge measurement.
a No gage-height record; discharge computed on basis of weather records, recorded range in stage, record of gate operation at Fritch Lake, and records for station at Mogadore.
h Computed from tape-gage reading.

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Springfield Lake Outlet at Akron, Ohio

Location.- Water-stage recorder and concrete control, lat. 41°03'20", long. 81°27'50", in T. 1 N., R. 10 W., in Akron, Summit County, 0.3 mile upstream from mouth and 3 miles donwstream from Springfield Lake.

Drainage area.- 8.40 square miles.

Records available.- May to September 1946.

Extremes.- Maximum discharge during period, 84 second-feet May 28; maximum gage height, 2.66 feet June 13 (backwater from boards on control); minimum discharge, 0.59 second-foot Sept. 2 (gage height, 0.55 foot).

Remarks.- Records good except those for period of backwater effect from boards on control, which are fair. Flow regulated by Springfield Lake.

Rating table, May 22 to Sept. 30, 1946, except period of backwater from boards on control
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 27-31)

0.5	0.47	0.9	1.97	1.3	6.4	1.7	23
.6	.73	1.0	2.6	1.4	8.9	1.8	32
.7	1.07	1.1	3.5	1.5	12.0	1.9	46
.8	1.48	1.2	4.8	1.6	17.0	2.1	78

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	22	1.76	4.5	0.70
2								-	18.5	1.62	4.2	.95
3								-	15.5	1.44	4.1	2.08
4				†7.1				-	12	1.44	3.8	2.03
5								-	10.5	1.27	3.7	1.97
6					†5.9			-	9.2	1.31	3.6	1.97
7								-	8.4	1.27	3.4	1.92
8								-	c7.5	3.4	3.2	1.92
9								-	c7.0	3.6	3.2	1.87
10								-	c6.5	3.5	3.6	2.03
11								-	c6.0	4.1	3.1	1.92
12								-	c7.0	3.8	3.0	1.92
13								-	c10	3.6	2.8	1.97
14		†3.4						-	6.9	3.6	2.9	1.97
15								-	6.4	4.0	2.9	1.87
16								-	6.1	3.5	4.9	1.76
17								†48	7.6	3.3	4.8	1.71
18								-	6.4	3.1	4.9	1.71
19								-	8.9	2.8	2.7	1.66
20								-	8.4	1.59	1.35	1.68
21						†8.3		-	7.3	2.14	1.23	2.20
22								16	5.9	12	1.07	1.71
23								12.5	4.2	11	1.00	1.76
24								10.5	3.5	8.6	.93	1.71
25								11	2.9	16	.98	1.62
26							†5.2	14	2.44	9.2	.93	1.66
27								35	2.25	6.7	.89	1.81
28								66	2.03	5.5	.83	1.81
29								28	2.03	4.8	.83	1.81
30								19	1.81	4.9	.83	1.97
31							-	17	-	5.2	.79	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March	-	-	-	-		
April	-	-	-	-		
May 22-31	229.0	66	10.5	22.9		
June	225.16	22	1.81	7.51		
July	140.04	16	1.27	4.52		
August	80.94	4.9	.79	2.61		
September	53.65	2.20	.70	1.79		
Water year	-	-	-	-		

† Result of discharge measurement.
c Stage-discharge relation affected by boards on control; discharge computed on basis of weather records and records for Little Cuyahoga River at Akron.

Chagrin River at Willoughby, Ohio

Location.- Water-stage recorder, lat. 41°37'51", long. 81°24'13", at city waterworks, 800 feet downstream from East Branch, 1 mile southeast of Willoughby, Lake County, and 5 miles upstream from mouth.

Drainage area.- 251 square miles.

Records available.- July 1925 to November 1935, October 1939 to September 1946.

Average discharge.- 17 years, 285 second-feet (not including diversion).

Extremes.- Maximum discharge during year, 4,370 second-feet June 1; maximum gage height, 8.96 feet Dec. 30 (backwater from ice); minimum daily discharge, 18 second-feet Sept. 20, 21.

1925-35, 1939-46: Maximum discharge, 20,500 second-feet June 26, 1931 (gage height, 9.90 feet, site and datum then in use); minimum daily, 3.0 second-feet July 25, 26, 1934. Flood of Mar. 23, 1913, reached a stage of 17.3 feet, present datum, from floodmarks.

Remarks.- Records good except those for periods of ice effect, which are poor. Water diverted at dam just above station for municipal supply of city of Willoughby.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	291	140	319	636	b130	367	135	74	2,520	64	22	32
2	1,880	168	257	392	b110	1,300	137	70	767	57	24	29
3	959	237	237	327	b100	1,390	124	66	379	52	26	26
4	413	198	254	354	b90	685	117	74	250	45	30	24
5	268	177	230	1,300	b100	703	109	143	189	42	30	21
6	240	*162	195	1,650	b200	1,920	107	135	162	41	29	20
7	537	137	189	804	b300	1,080	102	127	148	39	29	20
8	396	127	180	468	b220	1,060	98	162	119	38	28	22
9	2,470	140	162	436	b180	1,060	98	117	102	64	26	22
10	893	162	151	603	b150	667	96	93	89	52	25	26
11	440	137	96	379	b130	570	87	1,110	85	39	26	29
12	304	140	162	565	b120	396	85	1,520	114	36	24	30
13	233	183	b150	383	*b170	319	80	443	133	33	24	28
14	244	250	b140	b240	b2,200	268	76	271	117	32	24	26
15	427	192	b130	b170	620	1,970	167	233	83	29	21	25
16	275	157	b125	b140	379	1,160	289	305	85	29	42	24
17	208	162	b125	b125	b300	709	180	1,860	404	29	48	21
18	165	1,390	b125	b115	b250	512	192	950	1,220	29	48	21
19	146	649	b120	b110	b200	358	171	950	581	34	45	19
20	186	388	*b120	b100	b170	278	140	459	388	131	36	18
21	165	293	b120	b95	b150	230	117	1,290	436	64	30	18
22	186	1,030	b115	b95	b170	208	105	587	220	63	32	19
23	2,000	538	b115	b90	b200	186	105	308	143	85	29	21
24	1,410	319	b115	b85	b180	264	127	217	102	57	26	26
25	620	261	b200	b85	b150	422	117	221	80	41	25	25
26	418	227	b1,000	b85	b200	286	102	703	72	36	24	24
27	308	208	733	b80	1,900	237	96	912	276	33	21	21
28	244	261	488	b80	586	204	89	1,510	102	28	22	21
29	204	410	440	b80	-	180	83	542	76	24	32	22
30	174	483	b1,300	b80	-	168	78	300	70	21	36	25
31	154	-	1,750	b120	-	143	-	277	-	24	35	-

Month	Observed				Diversion (mean second-feet)†	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	18,858	2,470	146	544	1.93	546	2.18	2.51
November	9,326	1,390	127	311	1.87	313	1.25	1.40
December	9,843	1,750	96	318	1.92	320	1.27	1.46
Calendar year 1945	136,505	5,270	16	374	1.82	376	1.50	20.36
January	10,272	1,650	80	331	1.90	333	1.33	1.53
February	9,655	2,200	90	345	1.84	347	1.38	1.44
March	19,300	1,970	143	623	1.91	625	2.49	2.87
April	3,609	289	76	120	1.95	122	.486	.54
May	16,029	1,860	66	517	1.63	519	2.07	2.39
June	9,514	2,520	70	317	1.91	319	1.27	1.42
July	1,391	131	21	44.9	2.40	47.3	.188	.22
August	919	48	21	29.6	2.15	31.8	.127	.15
September	705	32	18	23.5	2.22	25.7	.102	.11
Water year 1945-46	107,421	2,520	18	294	1.97	296	1.18	16.04

Peak discharge.- Oct. 9 (8 a.m.) 4,260 sec.-ft.; Oct. 23 (2 p.m.) 3,010 sec.-ft.; Mar. 7 (12:30 p.m.) 3,110 sec.-ft.; Mar. 15 (12 m.) 3,820 sec.-ft.; May 11 (9:30 p.m.) 3,310 sec.-ft.; June 1 (6:30 a.m.) 4,370 sec.-ft.

* Winter discharge measurement made on this day.

† Diversion for municipal supply of city of Willoughby.

b Stage-discharge relation affected by ice.

Grand River near North Bristol, Ohio

Location.- Water-stage recorder, lat. 41°24'45", long. 80°54'45", in T. 6 N., R. 5 W., at highway bridge, an eighth of a mile downstream from Center Creek and 2½ miles west of North Bristol, Trumbull County.

Drainage area.- 89.7 square miles.

Records available.- March 1942 to September 1946.

Extremes.- Maximum discharge during year, 2,110 second-feet May 21 (gage height, 12.38 feet); minimum 1.1 second-feet Sept. 25; minimum gage height, 2.45 feet June 27.
1942-46: Maximum discharge, 2,950 second-feet Feb. 23, 1945 (gage height, 12.80 feet); minimum, that of Sept. 25, 1946.

Remarks.- Records good except those below 10 second-feet and those for periods of no gage-height record, which are fair, and those for periods of ice effect, which are poor.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 5-18, July 1 to Sept. 30)

2.4	1.4	5.8	118	11.5	878
2.6	4.0	7.2	202	11.7	1,000
2.8	7.8	8.6	315	11.9	1,200
3.0	13	9.6	425	12.0	1,350
3.7	34	10.6	582	12.2	1,750
5.0	81	11.1	708		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	98	26	100	f624	32	230	20	9.5	a110	14	3.4	f3.6
2	620	25	66	f247	23	280	21	8.8	a120	11	3.2	2.5
3	663	52	48	123	17	505	19	9.0	a70	9.7	a3.0	1.7
4	321	62	50	f87	12	a300	17	10	45	7.8	a2.5	2.2
5	134	47	61	164	a25	a150	16	39	26	6.0	2.1	3.4
6	185	35	54	438	a50	a250	16	33	20	7.0	2.8	2.8
7	306	28	62	264	*b45	a450	15	30	19	7.0	3.6	2.3
8	297	24	71	164	b38	376	11	54	16	5.4	3.1	2.3
9	466	23	57	184	b35	247	13	47	13	9.0	3.0	2.2
10	706	f20	44	247	b30	202	12	29	9.7	7.2	3.0	2.1
11	276	19	37	152	b25	143	11	113	11	5.8	3.0	1.8
12	120	20	b35	140	22	91	9.7	453	10	6.4	2.1	2.6
13	68	26	b25	152	26	64	11	206	13	7.2	2.0	1.8
14	47	37	b23	77	779	50	11	77	12	6.0	3.1	3.0
15	35	44	b20	54	582	420	9.7	61	11	3.6	2.3	2.4
16	30	36	b16	40	334	580	25	56	9.2	4.2	3.0	a2.4
17	25	34	b16	27	182	223	20	530	8.3	5.6	4.2	a2.3
18	21	523	b16	20	146	137	19	595	61	4.5	6.0	a2.2
19	18	620	b16	b17	94	100	18	256	164	3.7	4.0	a1.9
20	22	324	b17	b15	75	62	15	162	118	4.9	4.4	a2.1
21	27	f195	b18	b13	61	43	15	1,640	73	7.8	4.5	a2.3
22	24	381	b18	b13	56	34	11	760	a50	3.7	3.1	a2.7
23	169	364	b20	13	64	a40	14	186	a13	6.2	2.8	2.2
24	878	148	b22	13	91	a80	15	f50	8.5	6.4	f2.8	1.4
25	485	79	b30	b13	79	a150	14	f42	6.4	3.6	4.2	2.1
26	229	61	351	b13	76	a100	14	86	4.7	3.6	2.8	2.3
27	137	52	528	b12	1,460	70	13	466	3.7	3.0	2.8	1.8
28	77	68	a400	12	818	52	12	1,140	50	3.1	3.0	1.8
29	54	*87	a350	15	-	38	8.0	760	a40	2.3	2.5	1.8
30	38	123	a500	14	-	30	10	201	a20	2.2	2.6	1.7
31	31	-	743	20	-	25	-	66	-	3.2	3.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,607	878	18	213	2.37	2.73
November	3,583	620	19	119	1.33	1.48
December	3,814	743	16	123	1.37	1.58
Calendar year 1945	43,820.4	1,550	1.5	120	1.34	18.14
January	3,387	624	12	109	1.22	1.41
February	5,277	1,460	12	188	2.10	2.19
March	5,522	580	25	178	1.98	2.28
April	435.4	25	8.0	14.5	.162	.18
May	8,175.3	1,640	8.8	264	2.94	3.39
June	1,135.5	164	3.7	37.8	.421	.47
July	181.1	14	2.2	5.84	.065	.07
August	98.0	6.0	2.0	3.16	.035	.04
September	67.7	3.6	1.4	2.26	.025	.03
Water year 1945-46	38,283.0	1,640	1.4	105	1.17	15.85

Peak discharge.- Oct. 24 (12 p. m.) 1,060 sec.-ft.; Dec. 31 (9 p.m.) 1,000 sec.-ft.; Feb. 14 (9 p.m.) 1,450 sec.-ft.; Feb. 27 (2 p.m.) 1,950 sec.-ft.; May 21 (1 p.m.) 2,110 sec.-ft.; May 28 (3 p.m.) 1,390 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for other stations in basin.

b Stage-discharge relation affected by ice.

f Computed on basis of partly estimated gage-height record.

Grand River near Rome, Ohio

Location.- Water-stage recorder, lat. 41°36'20", long. 80°53'40", in T. 9 N., R. 4 W., at bridge on U. S. Highway 6, 2¼ miles upstream from Mud Creek and 2½ miles west of Rome, Ashtabula County.

Drainage area.- 276 square miles.

Records available.- March 1942 to September 1946.

Extremes.- Maximum discharge during year, 2,020 second-feet May 21 (gage height, 14.32 feet); minimum, 3.7 second-feet Sept. 28, 29.
1942-46: Maximum discharge, 4,530 second-feet Dec. 31, 1942 (gage height, 20.0 feet); minimum, that of Sept. 28, 29, 1946.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 7-18, June 24 to July 31, Aug. 7 to Sept. 30)

0.7	3.4	1.5	22	5.6	304
.8	4.8	1.8	32	6.8	441
.9	6.4	2.2	51	8.6	719
1.0	8.3	3.0	99	11.0	1,180
1.2	13	4.4	201	14.0	1,920

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	512	127	368	1,610	69	1,510	92	26	1,560	67	8.1	6.6
2	974	116	285	1,540	96	1,760	86	25	1,100	40	10	6.4
3	1,260	152	217	a1,200	92	1,680	77	24	497	26	15	6.4
4	1,140	169	193	a900	63	1,360	69	25	276	21	15	6.6
5	1,020	158	209	a1,200	46	1,120	57	62	169	20	13	6.1
6	899	141	197	a1,500	83	899	51	124	110	17	12	5.1
7	880	113	193	a1,300	201	937	46	113	80	16	10	5.3
8	789	92	193	1,100	b190	1,060	42	113	66	16	8.7	6.4
9	1,070	80	189	807	b180	1,040	41	116	54	16	9.2	6.2
10	1,460	75	173	789	b165	937	37	106	44	21	9.0	5.8
11	1,240	70	138	685	b140	771	36	287	37	23	8.5	5.6
12	1,040	69	110	620	b120	557	35	975	42	19	7.9	5.6
13	771	74	b95	527	129	357	31	880	47	15	7.5	5.6
14	440	89	b90	403	1,450	249	29	685	47	14	7.4	5.8
15	233	102	b80	276	1,380	766	33	428	41	14	6.8	5.9
16	155	106	b70	193	a1,100	1,410	56	285	33	12	6.2	5.4
17	120	106	b65	144	a800	1,360	80	979	33	11	7.5	5.3
18	96	520	b65	130	a600	1,120	73	1,160	80	9.6	11	5.0
19	79	825	b60	89	a450	685	59	1,140	177	11	16	4.8
20	68	825	b60	73	335	379	54	1,100	209	14	15	4.4
21	69	861	b60	b60	233	241	45	1,860	225	17	12	4.1
22	77	1,140	b65	b50	201	169	37	1,780	201	16	9.4	4.5
23	424	1,040	b65	b45	185	134	36	1,900	124	17	9.0	4.8
24	1,220	807	b70	b45	189	134	33	1,510	80	14	8.7	5.8
25	1,040	652	120	46	209	285	42	861	52	13	7.2	5.1
26	956	403	338	50	233	379	42	771	35	13	6.8	4.8
27	956	258	668	50	825	368	38	807	37	11	6.6	4.5
28	753	233	825	45	1,160	249	36	1,440	42	9.6	7.0	4.0
29	441	285	b770	40	-	177	33	1,310	36	9.0	6.8	4.0
30	249	379	1,040	39	-	134	29	1,310	80	8.7	6.4	4.4
31	166	-	1,680	47	-	106	-	1,180	-	8.7	6.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	20,597	1,460	68	664	2.41	2.78
November	10,067	1,140	69	336	1.22	1.36
December	8,751	1,680	60	282	1.02	1.18
Calendar year 1945	122,053.7	3,000	6.8	334	1.21	16.46
January	15,603	1,610	39	503	1.82	2.10
February	10,924	1,450	46	390	1.41	1.47
March	22,333	1,760	106	720	2.61	3.01
April	1,455	92	29	48.5	.176	.20
May	23,382	1,900	24	754	2.73	3.15
June	5,614.	1,560	33	187	.678	.76
July	539.6	67	8.7	17.4	.063	.07
August	290.5	16	6.2	9.37	.034	.04
September	160.3	6.6	4.0	5.34	.019	.02
Water year 1945-46	119,716.4	1,900	4.0	328	1.19	16.14

a No gage-height record; discharge computed on basis of weather records and records for stations near Madison and near North Bristol.
b Stage-discharge relation affected by ice.

Grand River near Madison, Ohio

Location.- Water-stage recorder, lat. 41°44'26", long. 81°02'48", at highway bridge, half a mile upstream from Griswold Creek and 2 miles south of Madison, Lake County. Datum of gage is 674.47 feet above mean sea level, adjustment of 1912.

Drainage area.- 587 square miles.

Records available.- July 1922 to December 1935, February 1938 to September 1946.

Average discharge.- 21 years, 623,second-feet.

Extremes.- Maximum discharge during year, 7,380 second-feet June 1; maximum gage height, 11.2 feet Dec. 30 (backwater from ice); minimum discharge, 3.0 second-feet Sept. 26-29 (gage height, 0.63 foot).

1922-35, 1938-46: Maximum discharge, 16,400 second-feet Jan. 19, 1929; maximum gage height, 12.15 feet Feb. 22, 1945 (backwater from ice); practically no flow July 31, Aug. 1-2, 1934.

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

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.6	2.5	1.8	115	5.0	1,610
.7	4.6	2.2	199	6.0	2,590
.8	8.0	2.6	310	7.0	3,850
1.0	19	3.0	450	7.8	5,180
1.2	35	3.5	670	8.5	6,580
1.5	70	4.0	930		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,250	238	930	a3,200	b180	2,210	192	61	6,330	101	8.9	5.8
2	3,360	212	670	a2,500	b220	4,000	199	55	5,380	92	8.9	5.8
3	4,300	227	503	*a1,860	b210	5,180	188	46	1,760	66	11	5.8
4	2,480	271	490	1,460	b170	2,990	158	44	745	41	11	5.5
5	1,530	274	536	1,970	b110	2,480	134	53	439	33	20	5.2
6	1,320	240	462	3,230	b350	2,540	115	101	301	31	20	4.9
7	1,770	204	412	2,640	b720	2,640	101	169	219	26	17	4.9
8	1,770	176	442	1,820	b1,200	3,170	95	178	176	23	13	5.2
9	2,900	154	405	1,360	b1,100	2,320	92	174	148	18	12	4.6
10	5,180	134	342	1,610	b1,000	2,010	89	165	138	18	9.8	4.9
11	2,700	128	310	1,420	b900	1,500	86	236	108	18	9.4	5.2
12	1,610	124	b220	1,280	b900	1,080	80	1,920	667	24	9.8	5.2
13	1,180	134	b190	1,220	b1,200	770	74	1,840	930	24	9.4	4.6
14	848	163	b170	820	4,110	511	70	1,140	1,080	18	8.0	4.4
15	524	192	b150	622	4,240	2,250	74	848	416	13	7.2	3.9
16	352	199	a125	380	1,690	3,420	101	659	202	12	7.2	3.9
17	263	181	a110	301	1,570	2,260	126	1,790	152	11	8.0	3.6
18	209	880	a110	271	1,360	1,770	132	2,810	432	10	8.0	3.6
19	167	2,210	a110	204	902	1,280	119	2,060	720	9.8	8.9	4.1
20	152	1,530	a110	b160	622	770	101	1,650	576	18	9.4	3.9
21	140	1,380	a115	b120	519	490	90	4,250	599	23	17	3.9
22	148	2,060	a115	b90	450	349	83	3,850	646	26	18	3.9
23	1,510	2,320	a120	b85	329	271	73	2,760	380	26	12	3.9
24	4,300	1,390	a130	b85	316	246	70	2,320	219	41	9.4	4.6
25	2,760	990	a150	b90	313	674	66	1,530	150	26	8.4	3.6
26	1,730	770	a300	b95	401	770	71	1,980	105	28	8.0	3.0
27	1,500	532	a900	b95	1,880	670	73	3,560	76	20	7.6	3.0
28	1,220	507	a1,200	b90	2,540	507	70	5,380	69	19	6.1	3.2
29	848	720	a1,300	b80	-	369	71	3,170	136	15	6.9	3.2
30	515	1,050	a1,500	b80	-	280	70	1,910	82	12	7.6	4.6
31	332	-	3,700	b90	-	216	-	1,730	-	11	7.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,868	5,180	140	1,576	2.68	3.09
November	19,550	2,320	124	652	1.11	1.24
December	16,327	3,700	110	527	.898	1.04
Calendar year 1945	282,544.1	8,650	6.2	774	1.32	17.90
January	29,328	3,230	80	946	1.61	1.86
February	29,502	4,240	110	1,054	1.80	1.87
March	49,993	5,180	216	1,613	2.75	3.17
April	3,063	199	66	102	.174	.19
May	48,439	5,380	44	1,563	2.66	3.07
June	23,381	6,330	69	779	1.33	1.48
July	851.8	101	9.8	27.5	.047	.05
August	325.1	20	6.1	10.5	.018	.02
September	131.9	5.8	3.0	4.40	.0075	.008
Water year 1945-46	269,759.8	6,330	3.0	739	1.26	17.09

Peak discharge.- Oct. 10 (8 a.m.) 5,780 sec.-ft.; Feb. 14 (12 m.) 6,180 sec.-ft.; Mar. 3 (5 a.m.) 5,980 sec.-ft.; May 21 (6 p.m.) 4,790 sec.-ft.; May 28 (10 a.m.) 5,780 sec.-ft.; June 1 (7:30 a.m.) 7,380 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for other stations in basin.

b Stage-discharge relation affected by ice.

Phelps Creek near Windsor, Ohio

Location.- Water-stage recorder, lat. 41°30'55", long. 80°56'05", in T. 8 N., R. 5 W., at bridge on State Highway 534, 1.4 miles south of Windsor, Ashtabula County, and 1½ miles upstream from mouth.

Drainage area.- 26.4 square miles.

Records available.- March 1942 to September 1946.

Extremes.- Maximum discharge during year, 1,120 second-feet Mar. 15 (gage height, 6.40 feet); minimum, 0.2 second-foot Sept. 19-22, 26-28; minimum gage height, 0.41 foot July 15, 16, Aug. 26.

1942-46: Maximum discharge, 1,740 second-feet Feb. 22, 1945 (gage height, 8.27 feet), from rating curve extended above 840 second-feet; no flow Aug. 20, 21, 1943.

Remarks.- Records good above 5 second-feet and fair below, except those for periods of ice effect, which are poor.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 17-27,
May 22-31, June 24 to Sept. 30)

0.3	0.2	0.8	7.5	2.0	103
.4	.8	.9	11	2.5	180
.5	1.6	1.1	20	3.5	384
.6	2.8	1.3	32	4.5	610
.7	4.7	1.5	48		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	8.6	27	99	b11	47	7.2	3.0	432	1.4	0.8	0.5
2	325	18	18	44	b9	173	7.5	2.8	81	1.3	1.3	.6
3	103	28	16	30	b4.5	272	7.2	2.7	26	1.0	1.4	.5
4	30	18	21	29	b3.5	85	6.1	4.0	14	1.0	1.8	.4
5	17	13	20	260	b3	57	5.3	12	8.6	.9	1.3	.4
6	67	10	15	b400	23	71	4.5	12	6.1	.8	1.3	.4
7	100	8.6	15	95	*45	196	4.3	8.8	5.3	.8	1.1	.4
8	40	7.5	15	40	24	124	4.1	14	4.1	.8	1.0	.5
9	470	7.5	12	73	b20	102	4.1	9.3	3.8	.8	.9	.5
10	107	7.5	11	92	b17	63	3.9	6.1	3.2	.8	.9	.6
11	33	6.9	6.4	56	b13	62	3.9	137	2.6	.8	.9	.5
12	20	7.2	b6	60	11	33	3.6	209	3.8	.9	.9	.5
13	14	8.9	b5.5	55	12	22	3.4	36	5.3	.9	.9	.4
14	11	14	b5.5	b16	597	17	3.2	17	4.3	.8	.9	.4
15	9.7	12	b5	b11	56	458	3.9	19	2.8	.7	.9	.3
16	8.9	9.3	b4.5	b7.5	34	155	15	29	2.3	.7	1.0	.3
17	7.2	9.3	b4.5	b6.5	b38	50	11	166	14	.7	1.4	.3
18	6.1	262	b4.5	b6	b23	34	6.9	75	50	.7	1.0	.3
19	5.5	59	b4.5	b5.5	16	24	6.9	42	25	.8	.8	.2
20	6.4	39	b4.5	b4.5	15	18	5.3	73	17	1.4	.7	.2
21	7.5	27	b5	b4	10	14	4.1	540	38	1.8	.8	.2
22	6.9	220	b5	b3.5	10	11	3.4	72	14	2.0	.6	.2
23	286	41	b5.5	b3	12	9.7	3.2	29	6.4	1.5	.5	.3
24	184	19	b6	b3	15	11	3.2	17	3.4	1.3	.5	.4
25	51	15	b10	b3	17	63	3.8	63	2.6	1.2	.5	.3
26	40	*14	b80	b3	14	32	3.9	198	2.1	1.0	.4	.2
27	30	14	b85	b3	393	21	4.5	213	1.8	.9	.4	.2
28	18	31	b65	b3	92	15	4.3	266	2.0	.9	.4	.2
29	13	52	b50	b3	-	14	3.8	55	2.2	.9	.6	.3
30	11	57	b80	b3.5	-	10	3.4	26	1.7	.9	.5	.5
31	9.3	-	b300	b7	-	8.2	-	17	-	.9	.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,071.5	470	5.5	66.8	2.53	2.92
November	1,044.3	262	6.9	34.8	1.32	1.47
December	912.4	300	4.5	29.4	1.11	1.28
Calendar year 1945	15,345.1	1,000	1.2	42.0	1.59	21.62
January	1,389.0	400	3	44.8	1.70	1.96
February	1,538.0	597	3	54.9	2.08	2.17
March	2,271.9	458	8.2	73.3	2.78	3.20
April	154.9	15	3.2	5.16	.195	.22
May	2,373.5	540	2.7	76.6	2.90	3.34
June	785.4	432	1.7	26.2	.992	1.11
July	31.3	2.0	.7	1.01	.038	.04
August	26.7	1.8	.4	.86	.033	.04
September	11.0	.6	.2	.37	.014	.02
Water year 1945-46	12,609.9	597	.2	34.5	1.31	17.77

Peak discharge.- Oct. 9 (12 m.) 887 sec.-ft.; Feb. 14 (6 a.m.) 1,060 sec.-ft.; Feb. 27 (10 a.m.) 808 sec.-ft.; Mar. 15 (3:30 p.m.) 1,120 sec.-ft.; May 21 (1 a.m.) 970 sec.-ft.; June 1 (4:30 a.m.) 706 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rock Creek near Rock Creek, Ohio

Location.- Water-stage recorder, lat. 41°39'05", long. 80°50'10", in T. 10 N., R. 4 W., at highway bridge, 0.4 mile downstream from Plum Creek, 1.4 miles southeast of village of Rock Creek, Ashtabula County, 1½ miles downstream from Sugar Creek, and 3 miles upstream from mouth.

Drainage area.- 56.6 square miles.

Records available.- March 1942 to September 1946.

Extremes.- Maximum discharge during year, 1,170 second-feet June 1; maximum gage height, 5.00 feet Feb. 14 (backwater from ice); no flow at times in July, August, and September.

1942-46: Maximum discharge, 2,930 second-feet May 16, 1942 (gage height, 6.60 feet); no flow at times during 1943, 1944, 1945, and 1946.

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

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.1	0	0.7	12	2.3	198
.2	.1	.8	18	2.6	275
.3	.6	1.0	31	2.9	380
.4	2.6	1.2	48	3.5	640
.5	5.1	1.6	92	4.0	905
.6	8.2	2.0	144		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	23	69	404	b40	250	18	3.4	803	4.4	0	
2	779	33	49	*b160	b25	570	24	3.4	241	2.8	0	
3	595	50	42	122	b17	505	20	3.1	82	2.0	0	
4	221	37	49	100	b12	275	16	4.6	37	1.2	0	
5	102	28	65	372	b10	226	12	12	21	.8	0	
6	137	22	47	456	b16	190	11	16	15	.4	0	
7	348	17	77	223	*b50	485	9.1	15	12	.4	0	
8	230	15	67	120	b45	328	7.9	18	9.5	.4	0	
9	410	14	46	150	b40	305	7.3	14	7.6	.6	0	
10	452	14	37	267	b30	169	7.0	9.5	a9	.3	0	
11	194	14	28	124	b25	125	6.3	311	a11	.2	0	
12	99	15	b24	160	b17	79	5.7	505	13	.2	0	
13	65	19	b21	126	b35	51	5.1	147	13	.1	0	
14	45	28	b18	82	b62	37	4.8	57	9.5	.1	0	
15	37	27	b15	60	266	579	5.7	51	6.0	.1	0	
16	30	20	b13	47	b120	438	10	60	4.8	0	0	
17	23	17	b13	b50	b90	184	11	829	4.8	0	0	
18	19	544	b12	b20	b60	113	8.2	404	20	0	0	
19	16	318	b12	b16	b45	69	7.3	147	15	0	0	
20	15	192	b13	b12	b35	44	6.6	71	20	.2	0	
21	17	138	b14	b9	b30	30	5.1	400	55	1.6	0	
22	18	391	b14	b8.5	b28	23	4.6	388	16	15	0	
23	499	198	b15	b8	b27	18	4.6	138	7.6	10	0	
24	640	87	b17	b8	b30	24	4.6	67	4.6	1.8	.5	
25	287	58	b25	b8.5	b45	87	4.8	212	3.4	.4	.5	
26	173	51	b200	b8.5	41	74	5.1	319	2.4	.3	.4	
27	129	48	b350	b8	664	48	4.8	776	2.2	.2	.2	
28	80	70	b270	b8	404	33	4.6	690	77	.1	.2	
29	52	*84	b220	b9	-	25	4.1	299	21	0	.1	
30	37	98	497	b10	-	21	3.8	102	7.9	0	.1	
31	28	-	822	b25	-	16	-	56	-	0	.1	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,890	779	15	190	3.36	3.87
November	2,670	544	14	89.0	1.57	1.75
December	3,161	822	12	102	1.80	2.08
Calendar year 1945	34,282.1	1,450	0	93.9	1.66	22.50
January	3,181.5	456	8	103	1.82	2.10
February	3,109	862	10	111	1.96	2.04
March	5,421	579	16	175	3.09	3.56
April	249.1	24	3.8	8.30	.147	.16
May	6,128	829	3.1	198	3.50	4.04
June	1,551.3	803	2.2	51.7	.913	1.02
July	43.6	15	0	1.41	.025	.03
August	2.1	0.5	0	.07	.0012	.001
September	0	0	0	0	0	0
Water year 1945-46	31,406.6	862	0	86.0	1.52	20.65

Peak discharge.- Oct. 23 (10 p.m.) 932 sec.-ft.; Dec. 31 (1 a.m.) 1,020 sec.-ft.; Feb. 14 (8 a.m.) 1,110 sec.-ft.; May 17 (8 a.m.) 1,020 sec.-ft.; May 27 (10 p.m.) 990 sec.-ft.; June 1 (7 a.m.) 1,170 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated.

b Stage-discharge relation affected by ice.

Mill Creek near Jefferson, Ohio

Location.- Water-stage recorder, lat. 41°45'10", long. 80°48'00", in T. 11 N., R. 3 W., at bridge on State Highway 307, 1¾ miles northwest of Jefferson, Ashtabula County, and 3½ miles downstream from Griggs Creek.

Drainage area.- 78.3 square miles.

Records available.- March 1942 to September 1946.

Extremes.- Maximum discharge during year, 2,730 second-feet Oct. 9 (gage height, 7.72 feet); no flow in July, August, September.
1942-46: Maximum discharge, 5,900 second-feet May 16, 1942 (gage height, 9.5 feet); no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	261	17	148	419	b9	315	12	2.7	1,700	3.2	0	
2	1,090	17	105	*b190	b20	1,060	11	2.9	735	2.2	1.1	
3	934	22	96	b130	b15	898	9.9	2.9	149	1.4	.9	
4	311	38	124	b110	b10	267	9.5	2.9	46	.9	.5	
5	120	26	116	401	b6	376	8.3	2.9	25	.7	.2	
6	104	21	80	660	b15	445	7.2	3.0	20	.7	.1	
7	256	16	85	236	b45	737	5.8	4.6	18	.5	.1	
8	267	13	95	125	*b60	505	a5	8.0	16	.4	.1	
9	1,640	11	70	104	b55	366	a4.5	8.6	a20	.3	0	
10	1,240	10	54	242	b45	354	a4	8.3	a25	0	0	
11	292	9.5	b30	164	b35	159	3.7	34	a40	0	0	
12	114	9.9	b23	163	b25	99	3.2	389	62	0	0	
13	66	12	b19	b120	b45	66	2.9	133	636	0	0	
14	82	22	b14	b80	1,530	48	2.9	37	376	0	0	
15	87	31	b10	b55	371	457	3.9	22	74	0	0	
16	70	22	b7.5	b40	173	476	4.6	38	32	0	0	
17	48	17	b7	b30	b110	154	4.6	407	24	0	0	
18	32	430	b7	b20	b80	115	5.5	337	233	0	0	
19	24	444	b6.5	b15	b50	86	5.3	124	276	0	0	
20	25	215	b6.5	b10	b35	56	4.1	76	93	0	0	
21	26	167	b6.5	b7	b25	37	3.4	595	191	0	0	
22	37	373	b6.5	b5	b20	27	3.0	332	175	0	0	
23	632	280	b7	b4	b20	20	2.7	75	50	.1	0	
24	1,190	108	b7.5	b4.5	b20	33	2.4	28	26	16	0	
25	390	68	b9	b4.5	23	111	2.2	24	15	11	0	
26	226	57	b35	b4.5	39	94	2.6	774	8.6	5.8	0	
27	171	60	b110	b4	412	59	2.4	1,220	6.6	4.6	0	
28	85	133	b95	b4	355	40	2.4	1,040	5.0	3.2	0	
29	45	*182	b80	b4	-	28	2.6	294	4.6	2.1	0	
30	31	219	352	b4.5	-	20	2.7	72	3.9	.6	0	
31	22	-	955	b5.5	-	14	-	37	-	.1	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	9,918	1,640	22	320	4.09	4.72
November	3,050.4	444	9.5	102	1.30	1.45
December	2,767.0	955	6.5	89.3	1.14	1.31
Calendar year 1945	46,248.1	3,150	0	127	1.62	21.96
January	3,365.5	660	4	109	1.39	1.60
February	3,648	1,530	6	130	1.66	1.73
March	7,542	1,080	14	243	3.10	3.57
April	144.3	12	2.2	4.81	.061	.07
May	6,134.8	1,220	2.7	198	2.53	2.92
June	5,085.7	1,700	3.9	170	2.17	2.42
July	53.8	16	0	1.74	.022	.03
August	3.0	1.1	0	.10	.0013	.002
September	0	0	0	0	0	0
Water year 1945-46	41,712.5	1,700	0	114	1.46	19.82

Peak discharge.- Oct. 2 (11:30 p.m.) 1,430 sec.-ft.; Oct. 9 (9 p.m.) 2,730 sec.-ft.; Oct. 24 (5 a.m.) 1,600 sec.-ft.; Feb. 14 (3:30 p.m.) 2,420 sec.-ft.; Mar. 2 (12 p.m.) 1,710 sec.-ft.; June 1 (6 p.m.) 2,250 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for other stations in basin.

b Stage-discharge relation affected by ice.

Ashtabula River near Ashtabula, Ohio

Location.- Water-stage recorder, lat. 41°51'19", long. 80°45'43", at highway bridge, 1 mile upstream from Hubbard Run, 1¼ miles southeast of Ashtabula, Ashtabula County, and 5½ miles upstream from mouth.

Drainage area.- 118 square miles.

Records available.- July 1924 to December 1935, March 1939 to September 1946.

Average discharge.- 18 years, 141 second-feet.

Extremes.- Maximum discharge during year, 4,180 second-feet June 1 (gage height, 6.60 feet); no flow Aug. 29 to Sept. 30.
1924-35, 1939-46: Maximum discharge, 10,800 second-feet May 16, 1942 (gage height, 9.67 feet); no flow at times during 1925-35, 1939-46.

Remarks.- Records good except those for periods of ice effect, which are poor.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	246	40	264	448	b50	414	20	7.1	2,940	7.9	0.7	
2	1,540	38	184	b200	b40	1,380	19	6.6	1,060	6.8	.5	
3	1,170	52	181	*b135	b30	1,170	17	6.2	284	5.2	.4	
4	454	77	238	b130	b25	419	16	7.5	106	4.4	.4	
5	192	62	167	600	b25	576	14	9.5	55	4.0	.4	
6	135	52	93	756	b50	678	13	10	44	3.6	.4	
7	305	41	105	315	b100	976	12	16	46	3.2	.4	
8	305	34	126	170	*b95	694	12	16	42	2.9	.4	
9	1,900	31	79	141	b80	522	11	20	37	2.4	.2	
10	1,470	30	62	339	b70	375	11	16	27	1.8	.1	
11	375	31	40	230	b65	260	11	27	20	2.4	.1	
12	184	31	b35	247	b60	157	11	447	588	5.2	.1	
13	132	43	b33	230	b150	93	9.5	186	2,080	3.2	.1	
14	414	113	b31	b90	b1,700	62	9.5	58	788	2.6	.1	
15	375	107	b30	b70	495	167	12	35	208	1.8	.1	
16	260	62	b29	b60	b170	438	16	38	86	1.4	.1	
17	135	47	b28	b50	b100	188	23	323	92	1.2	.1	
18	84	613	b27	b40	b70	154	21	447	763	1.0	.5	
19	58	510	b26	b35	b50	167	16	195	607	1.2	1.0	
20	58	339	b26	b32	b40	84	13	137	208	4.0	1.2	
21	86	256	b25	b29	b35	50	12	1,530	548	4.0	.8	
22	84	478	b25	b27	b33	36	11	528	326	3.6	.5	
23	1,050	366	b25	b25	32	30	9.5	151	96	2.9	.4	
24	1,400	144	b30	b23	50	36	9.0	58	48	11	.2	
25	510	86	b60	b22	b40	178	8.5	40	32	6.3	.1	
26	334	79	b250	b21	b45	151	9.5	615	21	4.0	.1	
27	286	90	b350	b20	b450	77	9.0	1,240	16	2.6	.1	
28	164	285	334	b20	460	49	8.5	1,320	11	1.8	.1	
29	95	*350	230	b20	-	35	8.5	375	8.7	1.4	0	
30	64	472	502	b25	-	29	7.5	126	7.4	1.2	0	
31	49	-	1,240	b35	-	23	-	85	-	.8	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	13,914	1,900	49	449	3.81	4.39
November	4,959	613	30	165	1.40	1.56
December	4,875	1,240	25	157	1.33	1.53
Calendar year 1945	70,995.9	3,450	0	195	1.65	22.35
January	4,585	756	20	148	1.25	1.44
February	4,610	1,700	25	165	1.40	1.46
March	9,668	1,380	23	312	2.64	3.04
April	380.0	23	7.5	12.7	.108	.12
May	8,075.9	1,530	6.2	261	2.21	2.55
June	11,195.1	2,940	7.4	373	3.16	3.53
July	105.8	11	.8	3.41	.029	.03
August	9.6	1.2	0	.31	.0026	.003
September	0	0	0	0	0	0
Water year 1945-46	62,377.4	2,940	0	171	1.45	19.65

Peak discharge.- Oct. 9 (9:30 p.m.) 3,280 sec.-ft.; Oct. 23 (12 p.m.) 2,200 sec.-ft.; Feb. 14 (12 m.) 2,910 sec.-ft.; Mar. 2 (10:30 p.m.) 2,280 sec.-ft.; June 1 (6 p.m.) 4,180 sec.-ft.; June 13 (11 a.m.) 2,460 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Cattaraugus Creek at Gowanda, N. Y.

Location.- Water-stage recorder, lat. 42°27'50", long. 78°56'10", at Gowanda, Erie County, 380 feet downstream from highway bridge, 600 feet downstream from powerhouse of Niagara, Lockport & Ontario Power Co., and 4.2 miles downstream from South Branch.

Drainage area.- 428 square miles.

Records available.- November 1939 to September 1946.

Extremes.- Maximum discharge during year, 21,100 second-feet Oct. 2 (gage height, 10.74 feet), from rating curve extended above 6,500 second-feet by logarithmic plotting; minimum, 46 second-feet (regulated) Sept. 16, 17 (gage height, 1.48 feet); minimum daily, 82 second-feet (regulated) Sept. 28.

1939-46: Maximum discharge, 35,900 second-feet Mar. 17, 1942 (gage height, 13.73 feet), from rating curve extended above 6,500 second-feet by logarithmic plotting; minimum, 6 second-feet (regulated) Aug. 21, 1941 (gage height, 1.01 feet); minimum daily, 52 second-feet Sept. 13, 1945.

Remarks.- Records good except those for periods of ice effect or partially obstructed intake, which are fair. Flow regulated by municipal power plant and several industrial plants above station. Diurnal fluctuation at low and medium flow.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,930	714	1,250	700	300	760	260	188	6,000	309	153	100
2	14,200	908	980	560	260	1,500	260	180	2,300	500	272	106
3	3,380	1,200	1,170	480	215	2,500	250	173	1,200	324	201	107
4	1,530	1,250	1,460	480	170	3,900	245	175	840	245	145	112
5	1,000	952	980	1,450	180	2,790	260	188	660	221	135	87
6	790	752	1,450	5,800	225	2,500	280	204	620	190	123	97
7	1,140	635	2,160	3,900	330	3,000	348	190	709	186	138	92
8	937	560	1,840	*1,980	300	1,700	290	195	559	182	127	95
9	893	511	1,600	1,430	310	2,300	300	183	567	181	122	191
10	895	561	1,350	2,310	320	1,300	291	184	452	174	126	142
11	748	494	700	1,380	290	1,180	275	298	408	160	136	166
12	700	567	540	1,150	260	760	259	744	422	282	123	154
13	637	613	450	920	280	964	252	430	367	241	124	122
14	662	863	410	420	3,200	806	238	302	330	182	130	112
15	891	618	380	440	1,160	1,020	314	259	304	185	112	113
16	507	512	350	370	540	1,080	652	250	286	167	116	99
17	452	472	330	350	640	740	375	1,590	319	152	361	104
18	408	1,190	430	380	470	680	310	1,050	1,990	140	508	90
19	376	1,050	480	350	330	660	296	1,120	871	150	227	93
20	395	1,290	*480	310	280	540	289	1,110	488	150	161	86
21	378	866	460	330	240	470	271	4,290	476	157	149	92
22	362	946	440	290	220	440	253	1,470	404	148	138	106
23	2,220	846	410	250	250	460	231	791	333	143	132	93
24	3,350	606	380	260	240	440	225	572	304	126	127	102
25	1,760	589	400	250	230	460	213	647	264	131	126	99
26	1,550	573	520	240	220	470	237	1,590	250	123	122	92
27	1,480	524	620	225	220	420	250	1,760	254	123	119	83
28	1,100	2,070	580	210	320	370	228	4,060	273	112	100	82
29	832	*3,130	540	200	-	330	214	1,410	271	118	116	84
30	800	1,690	580	215	-	300	200	838	247	108	109	126
31	769	-	1,040	290	-	280	-	652	-	114	114	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,772	14,200	362	1,573	3.68	4.24
November	27,552	3,130	472	918	2.14	2.39
December	24,760	2,160	330	799	1.87	2.15
Calendar year 1945	373,909	14,200	52	1,024	2.39	32.49
January	27,920	5,800	200	901	2.11	2.43
February	12,000	3,200	170	429	1.00	1.04
March	35,120	3,900	280	1,133	2.65	3.05
April	8,366	652	200	279	.652	.73
May	27,093	4,290	173	874	2.04	2.35
June	22,768	6,000	247	759	1.77	1.98
July	5,724	500	108	185	.432	.50
August	4,892	508	100	158	.369	.43
September	3,227	191	82	108	.252	.28
Water year 1945-46	248,194	14,200	82	680	1.59	21.57

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 1, 2, 5, 6, Dec. 10 to Jan. 6, Jan. 13 to Feb. 14, Feb. 16 to Mar. 2. Intake partially obstructed Mar. 3, 4, 6-12, Mar. 15 to Apr. 6, Apr. 8, 9, June 2-5; discharge computed on basis of gage heights, weather records, and records for nearby stations.

Buffalo Creek at Gardenville, N. Y.

Location.- Water-stage recorder, lat. 42°51'15", long. 78°45'30", in Gardenville, Erie County, 700 feet downstream from bridge on Union Road and 2 miles upstream from Cayuga Creek. Datum of gage is 604.04 feet above mean sea level, unadjusted.

Drainage area.- 145 square miles.

Records available.- October 1938 to September 1946.

Extremes.- Maximum discharge during year, 9,980 second-feet Oct. 2 (gage height, 7.39 feet), from rating curve extended above 4,000 second-feet by logarithmic plotting; minimum, 8.3 second-feet Sept. 7 (gage height, 1.08 feet).

1938-46: Maximum discharge, 14,000 second-feet Mar. 17, 1942, from rating curve extended above 4,000 second-feet by logarithmic plotting; maximum gage height, 11.90 feet Mar. 9, 1942 (ice jam); minimum discharge, 0.7 second-foot (regulated) Aug. 22, 24, 25, 1941; minimum gage height observed, 0.70 foot Aug. 28, 31, Sept. 3, 1939 (affected by backwater from leaves and debris), Aug. 22, 24, 25, 1941.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation at low flow caused by mill 3.2 miles above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	902	159	509	190	64	150	59	43	431	a58	17	11
2	5,050	154	350	150	56	450	63	41	328	a250	23	11
3	704	234	480	130	45	840	59	38	130	a130	31	11
4	299	362	699	130	36	2,100	59	39	90	a58	22	11
5	167	299	340	1,040	38	1,300	63	47	72	a35	17	10
6	120	193	460	3,280	52	1,120	67	54	71	a26	13	9.0
7	176	142	1,070	1,100	76	1,470	87	54	101	23	16	9.0
8	184	116	878	*442	68	616	72	49	97	20	14	14
9	159	106	676	411	72	922	73	49	137	20	12	74
10	159	113	490	773	74	384	73	47	84	18	14	58
11	124	99	195	319	64	353	64	51	63	21	20	34
12	183	113	145	288	56	*217	62	166	59	41	24	31
13	147	148	124	260	64	271	58	94	54	58	19	26
14	106	301	112	108	*1,200	217	55	62	44	34	16	19
15	109	163	106	112	280	283	86	51	38	33	14	15
16	90	113	96	94	150	290	192	68	34	36	14	12
17	74	99	84	90	180	195	101	399	35	25	23	12
18	65	421	120	96	116	183	75	276	358	19	59	11
19	61	290	130	86	68	179	65	281	184	16	47	10
20	59	380	130	74	58	130	67	167	88	17	26	10
21	61	206	*124	78	52	113	71	884	253	17	20	12
22	58	296	120	66	48	104	61	274	107	17	16	12
23	284	225	112	56	52	110	54	130	64	17	15	15
24	913	130	102	58	50	104	50	88	50	17	14	16
25	442	124	110	56	48	107	48	73	40	16	13	13
26	390	124	145	52	47	107	62	130	33	15	13	12
27	409	120	170	48	48	97	63	134	81	13	12	12
28	234	1,350	150	45	66	86	57	172	69	12	11	10
29	154	1,900	140	43	-	76	51	113	a47	12	11	10
30	146	654	160	48	-	69	47	75	a36	14	11	9.6
31	154	-	300	66	-	61	-	63	-	15	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	12,183	5,050	58	393	2.71	3.12
November	9,134	1,900	99	304	2.10	2.34
December	8,827	1,070	84	285	1.97	2.26
Calendar year 1945	89,490.7	5,050	8.4	245	1.69	22.94
January	9,789	3,280	43	316	2.18	2.51
February	3,228	1,200	36	115	.793	.83
March	12,704	2,100	61	410	2.83	3.26
April	2,064	192	47	68.8	.474	.53
May	4,212	884	38	136	.938	1.08
June	3,278	431	38	109	.752	.84
July	1,103	250	12	35.6	.246	.28
August	588	59	11	19.0	.131	.15
September	519.6	74	9.0	17.3	.119	.13
Water year 1945-46	67,629.6	5,050	9.0	185	1.28	17.33

Peak discharge.- Oct. 2 (7:45 a.m.) 9,980 sec.-ft.; Jan. 6 (10 a.m.) 4,120 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Cayuga Creek near Lancaster.

Note.- Stage-discharge relation affected by ice Nov. 23-28, Dec. 2, 3, 5, 6, Dec. 10 to Jan. 5, Jan. 13 to Mar. 4, Mar. 6.

Cayuga Creek near Lancaster, N. Y.

Location.- Water-stage recorder, lat. 42°53'20", long. 78°38'40", just upstream from low flat-crested dam in Como Lake Park, 700 feet downstream from bridge on Bowen Road, 800 feet downstream from Little Buffalo Creek, and 2 miles southeast of Lancaster, Erie County. Datum of gage is 672.80 feet above mean sea level, unadjusted.

Drainage area.- 93.3 square miles.

Records available.- September 1938 to September 1946.

Extremes.- Maximum discharge during year, 5,910 second-feet Oct. 2; maximum gage height, 11.44 feet Jan. 5 (ice jam); minimum discharge, 1.2 second-feet July 30 (gage height, 2.86 feet).

1938-46: Maximum discharge, 7,480 second-feet Mar. 17, 1942; maximum gage height, 12.36 feet Mar. 9, 1942 (ice jam); practically no flow Aug. 8, 9, 1939, when permanent stop logs were installed in dam.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.8	0.6	3.2	7.2	4.1	48	5.3	740
2.85	1.1	3.4	12	4.2	74	5.8	1,280
2.9	1.7	3.6	18	4.4	149	6.3	2,000
3.0	3.2	3.8	25	4.6	244	6.8	2,910
3.1	5.1	4.0	36	4.9	424	7.1	3,520

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	692	88	420	125	39	56	30	18	100	17	5.1	5.2
2	2,850	92	320	88	32	300	31	16	112	82	8.1	6.4
3	453	125	391	70	26	840	29	14	46	25	6.0	5.8
4	177	190	509	68	20	2,200	28	14	29	13	4.4	4.7
5	106	154	280	880	22	915	26	18	22	9.0	4.7	4.1
6	78	109	422	3,500	33	886	31	19	22	6.8	4.2	3.3
7	139	78	844	827	50	1,030	43	17	38	5.7	3.5	3.2
8	124	62	722	*327	41	420	32	16	34	4.9	2.7	8.5
9	125	55	627	364	45	662	38	15	70	4.6	1.9	14
10	78	62	434	608	48	250	38	15	36	3.8	3.6	61
11	59	53	180	214	41	220	31	17	22	5.1	6.4	89
12	100	66	106	209	32	*140	29	49	24	18	5.9	61
13	86	86	88	130	35	185	25	32	20	11	4.7	25
14	58	170	78	70	*760	154	23	21	14	6.6	a3.8	15
15	56	86	70	74	230	237	60	17	12	8.4	a2.8	10
16	48	60	58	60	116	190	150	30	9.8	6.7	a22	8.1
17	41	52	45	56	145	133	59	168	10	4.8	a1040	7.0
18	34	191	62	62	84	149	41	121	79	4.0	340	6.4
19	29	141	66	54	48	137	34	158	67	3.3	69	5.7
20	31	237	66	45	38	90	40	90	30	3.9	31	5.0
21	30	117	*64	49	32	71	39	345	189	3.9	20	5.9
22	26	208	60	36	28	63	30	132	65	3.6	15	7.7
23	127	130	56	32	32	74	25	60	33	3.1	12	6.9
24	444	88	52	33	31	63	23	40	19	2.7	10	6.5
25	260	74	56	32	29	71	21	30	14	2.9	9.0	6.0
26	224	74	84	31	28	69	30	36	11	2.3	7.9	5.0
27	158	62	94	28	28	58	38	40	15	2.1	7.1	4.6
28	95	1,350	84	27	34	49	29	38	26	1.7	6.3	4.2
29	71	1,060	78	26	-	44	23	31	13	1.4	6.7	3.8
30	71	*459	84	29	-	39	20	21	9.0	1.3	7.1	4.4
31	88	-	200	41	-	34	-	18	-	2.3	6.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,958	2,850	26	224	2.40	2.77
November	5,779	1,350	52	193	2.07	2.30
December	6,700	844	45	216	2.32	2.67
Calendar year 1945	58,613.4	2,850	.8	161	1.73	23.36
January	8,195	3,500	26	264	2.83	3.27
February	2,127	760	20	76.0	.815	.85
March	9,829	2,200	34	317	3.40	3.92
April	1,096	150	20	36.5	.391	.44
May	1,656	345	14	53.4	.572	.66
June	1,190.8	189	9.0	39.7	.426	.47
July	270.9	82	1.3	8.74	.094	.11
August	1,677.1	1,040	1.9	54.1	.580	.67
September	403.4	89	3.2	13.4	.144	.16
Water year 1945-46	45,882.2	3,500	1.3	123	1.35	18.29

Peak discharge.- Oct. 2 (6:15 a.m.) 5,910 sec.-ft.; Mar. 4 (6 p.m.) 4,850 sec.-ft.

* Winter discharge measurement made on this day.

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

Note.- Stage-discharge relation affected by ice Nov. 23-28, Dec. 1, 2, 5, Dec. 11 to Jan. 6, Jan. 13 to Mar. 4, Mar. 10-12 (no gage-height record Dec. 26-28).

Cazenovia Creek at Ebenezer, N. Y.

Location.- Water-stage recorder, lat. 42°49'45", long. 78°46'40", 40 feet upstream from highway bridge on Ridge Road in Ebenezer, Erie County, 4.4 miles upstream from mouth, and 5 miles southeast of Buffalo. Datum of gage is 606.86 feet above mean sea level, unadjusted.

Drainage area.- 136 square miles.

Records available.- June 1940 to September 1946.

Extremes.- Maximum discharge during year, 9,530 second-feet Oct. 2, from rating curve extended above 5,200 second-feet by logarithmic plotting; maximum gage height, 12.41 feet Jan. 5 (ice jam); minimum discharge, 4.6 second-feet Sept. 29 (gage height, 0.49 foot).

1940-46: Maximum discharge, 11,200 second-feet Mar. 17, 1942 (gage height, 13.11 feet), from rating curve extended above 5,200 second-feet by logarithmic plotting; minimum, 3.7 second-feet Aug. 25, 1941 (gage height, 0.42 foot).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 5

1.0	49	2.4	464	6.5	3,100
1.2	85	3.0	713	7.5	4,030
1.4	132	3.5	950	8.3	4,840
1.7	219	4.5	1,540		
2.0	318	5.5	2,270		

Jan. 6 to Sept. 30

0.5	5.0	1.4	141	3.5	1,100
.6	10	1.6	200	4.0	1,390
.7	18	1.8	269	4.5	1,690
.8	28	2.0	348	5.0	2,040
.9	40	2.2	436	5.5	2,400
1.0	54	2.6	629	6.0	2,800
1.2	92	3.0	831	6.9	3,560

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,240	156	440	170	68	220	59	53	757	178	15	8.0
2	4,780	187	270	135	58	700	59	51	404	164	25	11
3	617	241	500	116	50	1,140	56	50	166	59	25	8.6
4	230	364	665	114	40	1,900	56	50	110	38	17	7.2
5	137	267	270	1,100	42	1,350	58	56	84	29	14	6.1
6	103	197	430	3,500	58	1,350	61	61	98	25	11	5.6
7	158	143	935	1,360	82	1,720	72	58	133	22	10	6.1
8	156	117	804	*569	70	760	59	54	111	16	10	50
9	146	107	588	526	74	1,120	66	54	115	19	8.6	107
10	195	122	420	1,100	78	490	64	54	72	18	10	53
11	140	98	180	386	68	420	58	65	59	19	21	32
12	200	110	130	340	60	250	53	373	61	99	18	35
13	143	155	112	270	66	*340	50	151	50	54	13	29
14	122	327	102	116	*1,600	258	45	99	41	30	10	19
15	103	156	94	120	360	344	121	80	36	39	10	15
16	83	112	84	98	180	318	383	101	31	34	10	13
17	72	96	74	94	220	220	136	886	31	23	13	11
18	61	536	104	102	130	200	94	463	505	18	48	9.7
19	54	298	114	90	82	200	84	861	173	16	30	8.8
20	56	358	*114	78	68	147	86	317	80	19	18	8.0
21	58	200	110	82	58	123	80	993	323	18	14	9.1
22	51	327	106	70	54	115	68	351	104	17	12	8.3
23	511	215	96	60	60	125	61	178	61	16	11	10
24	921	125	88	62	58	110	58	120	47	15	9.7	11
25	472	120	94	60	56	120	54	94	38	14	8.8	11
26	482	118	130	58	54	118	76	167	32	13	8.6	9.7
27	636	104	145	54	56	106	92	144	72	11	9.1	8.3
28	a300	1,300	135	52	90	90	72	357	38	10	11	6.9
29	a165	*1,670	124	50	-	80	61	151	30	8.8	12	6.1
30	a155	656	135	54	-	72	56	94	26	8.6	10	7.2
31	a159	-	250	70	-	64	-	76	-	10	8.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	12,706	4,780	51	410	3.01	3.47
November	8,982	1,670	96	299	2.20	2.46
December	7,843	935	74	253	1.86	2.14
Calendar year 1945	93,520.9	4,780	5.1	256	1.88	25.56
January	11,056	3,500	50	357	2.62	3.02
February	3,940	1,600	40	141	1.04	1.08
March	14,570	1,900	64	470	3.46	3.98
April	2,398	383	45	79.9	.588	.66
May	6,662	993	50	215	1.58	1.82
June	3,888	757	26	130	.956	1.06
July	1,060.4	178	8.6	34.2	.251	.29
August	451.6	48	8.6	14.6	.107	.12
September	530.7	107	5.6	17.7	.130	.15
Water year 1945-46	74,087.7	4,780	5.6	203	1.49	20.25

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of partial recorder record and records for nearby stations.

Note.- Stage-discharge relation affected by ice Nov. 23-28, Dec. 1-3, 5, 6, Dec. 10 to Jan. 6, Jan. 13 to Mar. 6, Mar. 10-12.

Tonawanda Creek at Batavia, N. Y.

Location.- Water-stage recorder, lat. 42°59'55", long. 78°11'20", 150 feet downstream from municipal dam and 500 feet above Walnut Street Bridge in Batavia, Genesee County. Datum of gage is 876.01 feet above mean sea level (city of Batavia bench mark).

Drainage area.- 172 square miles.

Records available.- July 1944 to September 1946.

Extremes.- Maximum discharge during year, 4,010 second-feet Jan. 7 (gage height, 12.58 feet); minimum, 8.1 second-feet Sept. 7 (backwater from debris); minimum gage height, 1.16 feet July 30, Sept. 7.

1944-46: Maximum discharge, that of Jan. 7, 1946; minimum, 1.5 second-feet (regulated) Aug. 12, 1944 (gage height, 0.975 foot).

Maximum stage known, 14.5 feet in March 1942, from records of city of Batavia.

Remarks.- Records excellent except those for periods of ice effect, backwater from debris, or those below 25 second-feet, which are good. Slight regulation at low flow by plants above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	179	174	b880	516	105	107	73	59	170	c37	25	c16
2	2,050	148	b680	330	98	169	74	56	404	c60	34	c15
3	2,230	202	609	251	b86	464	73	53	170	c58	28	c14
4	779	301	680	237	b78	918	69	52	c114	c36	21	c16
5	333	268	b580	415	b76	2,320	66	56	c94	c30	20	c13
6	229	209	b540	2,390	92	1,300	77	67	c80	c27	17	c11
7	220	170	931	*3,400	182	1,530	120	63	c122	c25	16	c10
8	249	144	1,130	1,320	155	1,230	88	58	c110	c24	17	c11
9	216	128	1,040	678	142	796	95	57	c130	c23	15	c34
10	172	132	934	841	159	648	95	56	c96	c22	16	c35
11	142	126	530	652	130	459	86	55	c70	c22	27	c26
12	155	140	b330	395	b102	*299	80	146	c68	c31	26	c24
13	186	159	b290	b300	*105	361	73	113	c70	44	21	c23
14	138	239	b270	b210	399	328	67	74	c52	30	17	c18
15	140	172	b250	234	506	364	70	61	c44	28	14	c16
16	126	132	b190	174	249	420	162	65	c39	33	13	c13
17	109	114	*146	155	239	268	115	183	c36	26	102	c12
18	95	198	186	174	184	251	86	312	c78	23	446	c13
19	83	316	206	144	120	236	77	206	c135	21	108	c12
20	78	337	206	b112	104	184	82	185	c68	21	49	c12
21	82	253	b200	b120	b94	155	92	841	c130	23	35	c16
22	72	225	195	b112	b86	141	78	907	c90	22	c30	c17
23	84	263	b185	b106	b96	139	71	287	c54	21	c26	c17
24	565	159	b165	b108	b94	129	67	169	c43	17	c23	c16
25	499	148	174	107	b88	134	64	122	c34	16	c21	c16
26	349	151	244	b102	85	134	63	152	c30	15	c19	c15
27	337	132	321	b86	83	122	80	169	c58	14	c17	c13
28	229	414	301	b78	102	106	86	199	c80	13	c16	c11
29	179	1,220	268	b76	-	95	71	154	c43	12	c16	c11
30	188	1,080	282	78	-	88	64	102	c35	11	c17	c14
31	179	-	522	92	-	78	-	82	-	17	c17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,672	2,230	72	344	2.00	2.31
November	7,854	1,220	114	262	1.52	1.70
December	13,465	1,130	146	434	2.52	2.91
Calendar year 1945	101,802.8	2,960	9.8	279	1.62	22.02
January	13,993	3,400	76	451	2.62	3.03
February	4,039	506	76	144	.837	.87
March	13,973	2,320	78	451	2.62	3.02
April	2,464	162	63	82.1	.477	.53
May	5,161	907	52	166	.965	1.12
June	2,747	404	30	91.6	.533	.59
July	802	60	11	25.9	.151	.17
August	1,269	446	13	40.9	.238	.27
September	490	35	10	16.3	.095	.11
Water year 1945-46	76,929	3,400	10	211	1.23	16.63

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

Little Tonawanda Creek at Linden, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°52'35", long. 78°09'45", at highway bridge in Linden, Genesee County, and 7 miles upstream from mouth.

Drainage area.- 22.0 square miles.

Records available.- July 1912 to September 1946.

Average discharge.- 33 years (1912-19, 1920-46), 27.4 second-feet.

Extremes.- Maximum discharge during year, 1,190 second-feet May 20 (gage height, 8.66 feet); minimum, 1.0 second-foot Sept. 29 (gage height, 0.325 foot).

1912-46: Maximum discharge, about 2,400 second-feet Apr. 22, 1916 (gage height, 14.6 feet, from floodmarks), from rating curve extended above 1,500 second-feet by logarithmic plotting; minimum, about 0.1 second-foot Sept. 5-7, 1934, and several times during Aug. 4-28, 1936.

Remarks.- Records good.

Rating table, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Sept. 11-14, 26-28)

0.3	0.8	0.9	12	2.5	113
.4	1.7	1.0	16	3.0	164
.5	3.0	1.1	19	4.0	288
.6	4.7	1.3	28	5.0	437
.7	6.8	1.6	44	6.0	617
.8	9.3	2.0	70	6.9	801

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	24	b98	b48	14	16	12	7.5	64	4.0	2.4	2.0
2	493	27	b80	b38	14	b40	12	7.0	47	8.4	2.3	2.0
3	122	36	89	b32	b12	b68	11	6.6	25	5.3	1.9	1.9
4	52	47	96	32	b12	354	10	6.1	18	4.1	1.8	1.8
5	34	37	b70	156	12	173	10	6.8	16	3.5	1.6	1.6
6	28	30	119	800	16	203	17	7.5	18	3.1	1.5	1.6
7	35	25	170	*331	20	222	14	7.3	21	2.8	1.6	1.6
8	30	22	158	119	b17	107	13	6.8	17	2.6	1.4	2.5
9	28	20	144	113	b18	139	16	6.4	21	2.5	1.2	3.4
10	21	21	118	149	b19	b68	14	6.0	13	2.3	1.7	2.6
11	18	19	b70	66	b14	56	13	7.2	11	2.2	1.8	2.4
12	27	26	b56	58	*13	*43	12	19	13	4.3	1.5	2.2
13	21	27	b50	b41	19	53	11	11	9.6	3.2	1.8	2.0
14	21	34	b47	b30	126	53	9.8	8.8	8.2	2.6	2.0	1.8
15	21	24	b42	b32	b40	72	13	8.5	7.3	3.0	1.6	1.7
16	18	20	b32	b26	b32	55	20	9.6	6.6	2.5	1.4	1.6
17	15	18	*b28	b24	b31	42	13	56	6.0	2.3	46	1.5
18	13	47	b30	25	b20	46	11	37	13	2.2	43	1.5
19	12	40	b31	b21	b16	38	9.8	30	10	2.0	10	1.5
20	13	56	b31	b17	b14	29	13	182	7.7	2.0	6.0	1.4
21	12	33	b30	18	b13	25	11	348	14	2.0	4.6	1.5
22	12	44	29	b17	b12	23	10	62	8.8	1.9	4.0	1.4
23	45	32	b27	b16	13	24	9.0	32	9.8	1.8	3.6	1.3
24	112	24	b26	16	b13	21	8.5	22	6.4	1.7	3.3	1.4
25	62	23	b29	b15	b12	23	8.0	18	5.2	1.7	3.0	1.3
26	53	23	45	b14	b12	21	8.5	23	4.7	1.6	2.7	1.2
27	45	21	43	b12	b14	19	13	23	8.8	1.5	2.8	1.1
28	32	225	38	12	b14	16	11	41	6.5	1.4	2.6	1.1
29	27	178	36	11	-	15	9.3	22	5.1	1.3	2.6	1.1
30	33	111	44	12	-	13	8.2	15	4.3	1.2	2.4	1.4
31	28	-	75	17	-	12	-	12	-	1.5	2.2	-

Month	Second-feet-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,616	493	12	52.1	2.37	2.73
November	1,314	225	18	43.8	1.99	2.22
December	1,981	170	26	63.9	2.90	3.35
Calendar year 1945	15,599.0	493	1.1	42.7	1.94	26.37
January	2,318	800	11	74.8	3.40	3.92
February	582	126	12	20.8	.945	.98
March	2,089	354	12	67.4	3.06	3.53
April	351.1	20	8.0	11.7	.532	.59
May	1,055.1	348	6.0	34.0	1.55	1.78
June	426.0	64	4.3	14.2	.645	.72
July	82.5	8.4	1.2	2.66	.121	.14
August	166.3	46	1.2	5.36	.244	.28
September	51.4	3.4	1.1	1.71	.078	.09
Water year 1945-46	12,032.4	800	1.1	33.0	1.50	20.33

Peak discharge.- Oct. 2 (4:20 a.m.) 866 sec.-ft.
* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Genesee River at Scio, N. Y.

Location.- Water-stage recorder, lat. 42°09'50", long. 77°58'50", at highway bridge, three-quarters of a mile upstream from Scio, Allegany County.

Drainage area.- 309 square miles.

Records available.- June 1916 to September 1946.

Average discharge.- 30 years, 382 second-feet.

Extremes.- Maximum discharge during year, 12,000 second-feet May 28 (gage height, 10.63 feet); minimum, 63 second-feet Sept. 21; minimum gage height, 0.96 foot Feb. 25.
1916-46: Maximum discharge, that of May 28, 1946; minimum, 5.8 second-feet Sept. 4, 1939 (gage height, 0.71 foot).

Remarks.- Records good except those for periods of ice or no gage-height record, which are fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	616	a360	*673	244	180	769	216	133	4,000	1,340	771	93
2	4,040	a474	596	201	138	720	207	126	3,570	4,580	625	88
3	2,550	819	615	184	b102	370	192	118	2,380	1,440	404	83
4	1,390	679	673	198	b88	511	190	114	1,600	843	319	78
5	1,010	524	542	326	98	678	181	121	1,310	593	389	75
6	819	469	712	3,650	103	711	178	123	976	459	294	72
7	770	416	938	3,570	113	1,340	170	143	870	362	570	70
8	654	377	880	2,120	*98	1,150	153	292	676	295	356	131
9	846	351	808	*1,810	103	1,460	156	204	654	261	267	172
10	578	340	760	1,810	98	838	148	178	455	222	240	296
11	494	333	606	1,250	80	674	136	190	410	192	207	196
12	460	469	b480	1,120	86	525	128	286	710	185	183	134
13	424	400	494	925	92	494	121	235	630	165	177	111
14	412	494	469	b680	353	*477	114	201	427	140	239	100
15	385	393	424	b620	b160	848	121	195	320	136	166	90
16	333	348	b300	b440	b120	828	167	187	276	121	145	81
17	301	344	b250	b410	138	684	128	284	244	107	508	77
18	267	697	*b270	419	111	839	114	418	1,270	98	748	73
19	a241	588	b280	b320	80	776	109	374	631	93	353	69
20	a220	744	b270	b235	94	612	107	325	403	102	279	64
21	a205	550	b260	b270	b82	534	105	351	574	849	240	69
22	a190	753	244	b245	b72	486	96	322	387	1,750	212	85
23	a390	620	222	b185	82	456	92	258	314	1,590	183	75
24	a880	511	b185	b200	80	394	100	226	267	689	166	142
25	a540	489	210	208	77	386	94	207	235	483	149	174
26	a560	444	222	200	90	355	96	259	203	350	145	106
27	a620	385	225	b145	1,120	374	170	2,630	314	270	134	88
28	a520	724	207	143	586	314	159	8,960	671	226	119	80
29	a460	1,120	204	150	-	282	172	3,740	2,190	191	111	91
30	a410	775	213	143	-	261	151	1,820	1,350	168	108	814
31	a380	-	298	178	-	232	-	1,210	-	414	102	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	21,965	4,040	190	709	2.29	2.64
November	15,990	1,120	333	533	1.72	1.92
December	13,530	938	185	436	1.41	1.63
Calendar year 1945	235,178	6,280	29	644	2.08	28.29
January	22,599	3,650	143	729	2.36	2.72
February	4,624	1,120	72	165	.534	.56
March	19,378	1,460	232	625	2.02	2.33
April	4,271	216	92	142	.460	.51
May	24,230	8,960	114	782	2.53	2.92
June	28,317	4,000	203	944	3.06	3.41
July	18,714	4,580	93	604	1.95	2.25
August	8,909	771	102	287	.929	1.07
September	3,877	814	64	129	.417	.47
Water year 1945-46	186,404	8,960	64	511	1.65	22.43

Peak discharge.- Oct. 2 (12:15 p.m.) 6,060 sec.-ft.; May 28 (6:30 a.m.) 12,000 sec.-ft.; June 1 (6:45 p.m.) 4,720 sec.-ft.; July 2 (4 a.m.) 6,840 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, observer's inspections, and records for Allegheny River at Red House.

b Stage-discharge relation affected by ice.

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Genesee River at Portageville, N. Y.

Location.- Water-stage recorder, lat. 42°34'10", long. 78°02'45", in Portageville, Wyoming County, 300 feet downstream from unnamed tributary, 350 feet downstream from Pennsylvania Railroad bridge, and 0.7 mile upstream from Upper Falls.

Drainage area.- 982 square miles.

Records available.- December 1945 to September 1946.

Extremes.- Maximum discharge during period, 27,600 second-feet May 28 (gage height, 17.08 feet); minimum, 133 second-feet Sept. 23 (gage height, 2.73 feet).

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Some diurnal fluctuation during low flow caused by power plants. Slight seasonal regulation by Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.8	150	3.8	546	5.5	2,160	9.0	8,420
3.0	205	4.0	668	6.0	2,810	10.0	10,700
3.2	272	4.2	810	6.5	3,540	12.0	15,700
3.4	351	4.6	1,160	7.0	4,370	14.0	20,700
3.6	442	5.0	1,580	8.0	6,300	14.7	22,400

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	f1,060	860	1,900	541	400	11,500	1,350	589	211
2			-	f800	800	2,300	503	355	10,000	4,310	1,340	205
3			-	700	720	1,550	482	322	5,070	2,590	788	185
4			-	773	680	2,050	472	306	3,080	1,490	581	176
5			-	1,230	*720	3,960	462	306	2,670	1,080	503	168
6			-	10,900	760	3,750	487	326	2,090	818	535	160
7			-	11,400	440	4,880	519	343	2,030	655	511	155
8			-	5,790	310	4,740	477	405	1,670	558	688	238
9			-	3,960	330	4,340	487	558	2,020	514	497	364
10			-	*5,460	330	2,910	467	462	1,400	462	428	373
11			-	3,300	270	*2,200	437	447	1,090	404	382	447
12			-	2,580	300	1,580	428	874	2,220	423	339	343
13			-	2,310	330	1,560	395	780	1,790	395	318	262
14			-	1,650	700	1,460	360	611	1,350	322	306	231
15			-	1,500	720	2,450	386	508	957	322	339	205
16			1,270	1,020	330	3,120	437	477	766	291	287	196
17			a1,000	900	350	2,080	472	1,020	688	280	575	182
18			*a1,040	1,000	280	2,120	418	1,550	1,820	254	2,120	176
19			a1,180	740	200	2,640	369	1,860	2,390	232	1,020	166
20			a1,160	520	220	1,780	a360	1,370	1,270	234	630	155
21			a1,140	600	200	1,420	a350	4,430	1,360	218	503	163
22			a1,100	560	370	1,220	a330	1,710	1,380	1,120	437	150
23			a1,060	430	620	1,100	a320	1,040	914	1,840	382	158
24			a980	450	600	983	a310	715	803	1,290	343	190
25			a1,040	960	560	966	a300	624	599	743	318	188
26			a1,080	940	600	948	a290	879	546	593	302	272
27			a1,100	820	1,220	857	a340	3,420	546	477	287	211
28			a1,100	800	2,600	788	437	22,200	1,030	386	265	182
29			a1,120	820	-	709	457	9,920	1,630	335	248	176
30			1,140	820	-	636	452	4,150	2,370	299	237	435
31			1,520	880	-	570	-	2,710	-	280	227	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	-	-	-	-		
November	-	-	-	-		
December 16-31	18,030	1,520	980	1,127		
Calendar year	-	-	-	-		
January	65,673	11,400	430	2,118		
February	16,440	2,600	200	587		
March	63,567	4,880	570	2,051		
April	12,545	541	290	418		
May	65,114	22,200	306	2,100		
June	67,049	11,500	546	2,235		
July	24,565	4,310	218	792		
August	16,325	2,120	227	527		
September	6,723	447	150	224		
Water year	-	-	-	-		

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for station at St. Helena.
f Fragmentary gage-height record; discharge computed on basis of reconstructed gage-height graph and records for station at St. Helena.
Note.- Stage-discharge relation affected by ice Jan. 3, Jan. 14 to Mar. 4.

Genesee River at St. Helena, N. Y.

Location.- Water-stage recorder, lat. 42°37'20", long. 77°59'20", at highway bridge in St. Helena, Wyoming County, 1½ miles downstream from Wolf Creek and 3 miles east of Castile.

Drainage area.- 1,017 square miles.

Records available.- August 1908 to September 1946.

Average discharge.- 38 years, 1,221 second-feet.

Extremes.- Maximum discharge during year, 25,200 second-feet May 28 (gage height, 11.07 feet); minimum, 162 second-feet (regulated) Sept. 20, 23 (gage height, 2.61 feet).
1908-46: Maximum discharge, 44,400 second-feet May 17, 1916, from rating curve extended above 29,000 second-feet; maximum gage height, 16.3 feet Feb. 23, 1945 (ice jam); minimum discharge, 18 second-feet Oct. 5, 17, 1913 (gage height, 1.70 feet).

Remarks.- Records excellent except those for periods of partially obstructed intake or doubtful gage-height record, which are good, and those for periods of ice effect, which are fair. Some diurnal fluctuation during low flow caused by power plants. Slight seasonal regulation by Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,970	1,120	2,380	1,160	880	2,000	560	438	10,100	1,460	566	230
2	12,100	1,390	1,900	860	840	2,400	540	376	11,400	d4,000	1,310	226
3	9,700	3,770	1,850	740	740	1,600	520	335	6,240	d3,000	793	210
4	4,420	3,480	2,250	800	700	2,100	500	312	3,820	d1,650	589	198
5	2,710	2,100	1,900	1,080	740	4,200	490	323	3,090	d1,180	557	190
6	2,090	1,900	1,950	9,240	780	4,190	520	329	2,380	d880	557	184
7	1,840	1,670	3,930	12,200	470	5,220	540	346	2,240	720	532	180
8	1,800	1,480	3,620	6,390	320	5,180	520	395	1,870	600	660	283
9	1,800	1,390	3,070	4,250	340	4,660	520	586	2,180	560	548	408
10	1,750	1,350	2,730	*5,540	340	3,230	500	508	1,590	490	463	401
11	1,390	1,290	1,910	3,590	290	2,320	470	490	1,190	430	408	463
12	1,050	1,570	1,350	2,660	310	*1,630	450	849	2,180	440	357	389
13	1,040	1,620	1,300	2,440	340	1,600	437	785	2,040	430	345	296
14	915	1,820	1,350	1,740	680	1,500	398	623	1,430	350	322	257
15	935	1,660	1,580	1,550	760	2,490	404	551	1,020	340	351	226
16	875	1,430	1,300	1,100	340	3,420	461	516	796	310	306	214
17	749	1,290	1,080	960	360	2,180	524	958	701	281	493	202
18	686	1,800	1,160	1,020	290	2,180	461	1,560	1,500	262	2,100	198
19	625	2,270	1,250	780	215	2,860	397	1,870	2,800	244	1,040	184
20	828	2,860	1,240	560	230	1,860	390	1,410	1,400	244	624	178
21	865	1,840	1,200	620	215	1,480	581	4,590	1,310	230	548	184
22	845	1,810	1,160	600	380	1,260	359	1,890	1,470	981	471	180
23	1,350	2,070	1,120	450	640	1,140	341	1,070	961	1,820	415	176
24	4,750	1,460	1,040	470	620	1,030	329	764	828	1,360	364	210
25	2,550	1,210	1,100	940	600	995	323	633	620	744	339	198
26	1,980	1,190	1,140	1,000	620	972	317	866	580	607	322	280
27	2,550	1,360	1,160	860	1,300	872	364	2,980	580	525	301	234
28	2,050	2,290	1,140	840	2,700	796	477	19,400	1,090	428	285	202
29	1,510	5,630	1,140	860	-	711	508	11,700	1,690	357	266	194
30	1,370	3,110	1,180	860	-	652	508	4,820	2,510	322	257	344
31	1,260	-	1,600	900	-	600	-	2,910	-	301	243	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	70,353	12,100	625	2,269	-	-
November	59,230	5,630	1,120	1,974	-	-
December	52,080	3,930	1,040	1,680	-	-
Calendar year 1945	704,032	19,300	125	1,929	1.90	25.74
January	67,060	12,200	450	2,163	-	-
February	17,040	2,700	215	609	-	-
March	67,328	5,220	600	2,172	-	-
April	13,509	560	317	450	-	-
May	65,183	19,400	312	2,103	-	-
June	71,608	11,400	580	2,387	-	-
July	25,548	4,000	230	824	-	-
August	16,742	2,100	243	540	-	-
September	7,317	463	176	244	-	-
Water year 1945-46	532,994	19,400	176	1,460	1.44	19.47

Peak discharge.- Oct. 2 (7:45 p.m.) 15,800 sec.-ft.; Jan. 7 (4 to 6 a.m.) 14,800 sec.-ft.; May 28 (5:30 p.m.) 25,200 sec.-ft.; June 1 (10:45 p.m.) 16,400 sec.-ft.

* Winter discharge measurement made on this day.

d Doubtful gage-height record; discharge computed on basis of normal pattern for recession and records for upstream stations.

Note.- Stage-discharge relation affected by ice Dec. 2-4, 12-14, Dec. 16 to Jan. 5, Jan. 16 to Mar. 5 (no gage-height record Dec. 19-23). Intake partially obstructed Mar. 31 to Apr. 12, June 25-27, July 7-16; discharge computed on basis of discharge measurements, gage heights, outside-gage readings, and records for upstream stations.

Genesee River at Jones Bridge, near Mount Morris, N. Y.

Location.- Water-stage recorder, lat. 42°45'55", long. 77°50'25", at Jones Bridge, 3½ miles northeast of Mount Morris, Livingston County. Datum of gage is 540.00 feet above mean sea level (levels by New York State Conservation Commission).

Drainage area.- 1,419 square miles.

Records available.- May 1903 to April 1906, August 1908 to April 1914, July 1915 to September 1946.

Average discharge.- 36 years (1908-13, 1915-46), 1,585 second-feet.

Extremes.- Maximum discharge during year, 23,100 second-feet May 29 (gage height, 23.65 feet); minimum, 66 second-feet (regulated) Sept. 7 (gage height, 0.31 foot); minimum daily, 235 second-feet (regulated) Sept. 7.

1903-6, 1908-14, 1915-46: Maximum discharge, 55,100 second-feet May 17, 1916 (gage height, 25.44 feet); minimum, 18 second-feet (regulated) Aug. 29, 1909; minimum daily, 30 second-feet (regulated) Aug. 8, 1909.

Remarks.- Records excellent except those for periods of partially obstructed intake, which are good, and those for periods of ice effect, which are fair. Diurnal fluctuation at low flow caused by power plants. Slight seasonal regulation by Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,960	1,500	3,600	1,550	1,120	2,800	800	660	9,080	1,900	520	310
2	12,300	1,400	2,800	1,160	1,080	3,200	760	580	13,400	3,800	1,450	300
3	12,900	4,020	2,700	1,000	960	2,300	740	520	7,910	4,000	1,080	290
4	6,910	4,760	3,400	1,000	900	3,000	720	470	4,980	2,100	780	269
5	4,100	3,000	2,900	1,400	920	5,400	720	470	3,970	1,550	698	250
6	3,120	2,470	3,200	9,200	960	5,310	740	470	3,230	1,200	680	240
7	2,620	2,150	5,730	15,100	820	5,820	760	500	2,900	960	660	235
8	2,490	1,950	5,700	9,040	500	6,320	740	540	2,600	780	800	300
9	2,240	1,800	4,930	5,880	520	5,190	740	740	2,690	740	680	520
10	2,200	1,700	4,380	*6,860	520	4,540	724	680	2,300	660	580	520
11	1,800	1,650	3,100	5,010	450	*3,260	680	660	1,700	600	520	580
12	1,400	1,800	2,050	3,810	470	2,400	640	1,020	2,250	600	470	540
13	1,360	2,050	1,900	3,510	*520	2,150	620	1,060	2,800	580	450	430
14	1,230	2,150	1,900	2,600	920	2,050	560	840	1,900	500	440	370
15	1,200	2,100	2,050	2,250	1,080	2,600	560	740	1,450	480	430	320
16	1,160	1,850	1,700	1,650	540	4,310	620	700	1,160	440	420	290
17	1,030	1,650	1,400	1,350	560	2,970	700	1,040	960	400	540	280
16	914	1,850	*1,500	1,450	460	2,620	640	1,900	1,350	370	2,100	270
19	850	2,960	1,600	1,200	340	3,560	560	2,150	3,350	350	1,500	250
20	880	3,540	1,600	860	360	2,580	540	1,830	1,850	340	860	240
21	1,020	2,600	1,550	920	350	1,950	530	4,480	1,500	330	700	260
22	1,000	2,200	1,500	920	400	1,700	490	2,670	1,860	700	620	260
23	1,350	2,700	1,450	740	760	1,500	480	1,500	1,350	1,850	560	250
24	5,790	2,000	1,300	740	760	1,400	470	1,080	1,120	1,690	490	290
25	3,940	1,700	1,400	940	740	1,330	460	920	900	1,000	450	290
26	2,760	1,550	1,450	1,250	760	1,300	460	1,200	800	760	430	360
27	3,180	1,600	1,500	1,100	1,700	1,220	560	1,990	1,060	636	410	330
28	2,910	2,350	1,500	1,060	3,300	1,120	640	16,500	1,500	554	390	270
29	2,150	7,620	1,450	1,060	-	1,020	720	16,100	1,800	470	370	280
30	1,850	4,750	1,450	1,080	-	940	720	7,180	2,880	430	350	542
31	1,700	-	2,050	1,100	-	860	-	4,030	-	410	330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	90,314	12,900	850	2,913	-	-
November	75,420	7,620	1,400	2,514	-	-
December	74,740	5,730	1,300	2,411	-	-
Calendar year 1945	913,342	20,500	190	2,502	1.76	23.94
January	86,790	15,100	740	2,800	-	-
February	22,770	3,300	340	813	-	-
March	86,720	6,320	860	2,797	-	-
April	19,094	800	460	636	-	-
May	75,220	16,500	470	2,426	-	-
June	86,600	13,400	800	2,887	-	-
July	31,180	4,000	330	1,006	-	-
August	20,758	2,100	330	670	-	-
September	9,936	580	235	331	-	-
Water year 1945-46	679,542	16,500	235	1,862	1.31	17.81

Peak discharge.- Oct. 2 (8 p.m.) 16,900 sec.-ft.; May 29 (1:30 a.m.) 23,100 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 1-6, Dec. 11 to Jan. 6, Jan. 14 to Mar. 5 (doubtful gage-height record Dec. 22-26). Intake partially obstructed Oct. 10-12, 20-23, Oct. 29 to Nov. 2, Nov. 7-10, 12-18, 21-27, Mar. 12-14, 21-24, Mar. 26 to Apr. 9, Apr. 11-20, Apr. 22 to May 19, May 23-25, June 10-18, 20, 21, 23-29, July 1, 4-23, 25, 26, July 29 to Aug. 4, Aug. 6-10, Aug. 12 to Sept. 3, Sept. 5-29 (no gage-height record Mar. 21-24; fragmentary gage-height record June 25, 26); discharge computed on basis of discharge measurements, outside-gage readings, gage-height record, and records for upstream stations.

Genesee River at Driving Park Avenue, Rochester, N. Y.

Location.- Water-stage recorder, lat. 43°11'05", long. 77°37'40", in Rochester, Monroe County, 40 feet downstream from plant 5 of Rochester Gas & Electric Corp. and 100 feet upstream from Driving Park Avenue Bridge.

Drainage area.- 2,467 square miles.

Records available.- December 1919 to September 1946.

Average discharge.- 26 years (1920-46), 2,749 second-feet.

Extremes.- Maximum discharge during year, 18,900 second-feet (regulated) Jan. 7 (gage height, 9.44 feet); minimum, 75 second-feet (regulated) Apr. 5 (gage height, -1.24 feet); minimum daily, 458 second-feet (regulated) Sept. 7.

1919-46: Maximum discharge, 33,500 second-feet Apr. 2, 1940 (gage height, 14.08 feet); minimum, less than 10 second-feet, occurred during low-water periods in some years when power plant was shut down; minimum daily, 219 second-feet (regulated) Aug. 14, 1927.

Maximum discharge known, about 54,000 second-feet sometime in March 1865.

Remarks.- Records good except those for periods of fragmentary or doubtful gage-height record, or between 3,500 second-feet and 5,500 second-feet, which are fair. New York State Barge Canal crosses river near southern boundary of Rochester. Water diverted by the canal from Lake Erie is discharged into river from the west, the canal again diverting a smaller amount of water from river to the east. Additional regulation is provided by Caneadea Reservoir.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,310	3,150	9,410	5,120	2,000	2,420	1,330	1,660	5,480	3,430	1,240	877
2	11,800	2,890	8,130	4,080	2,170	2,590	1,290	1,580	13,200	2,940	1,350	878
3	16,600	3,100	7,320	3,260	2,000	4,630	1,240	1,420	14,300	5,060	2,020	828
4	16,700	6,280	7,260	3,030	1,940	8,250	1,120	1,290	9,240	3,770	1,720	866
5	11,200	6,160	7,740	3,160	1,800	12,200	1,320	1,380	6,140	2,750	1,490	848
6	6,560	5,020	6,910	7,190	1,890	12,800	1,290	1,490	4,850	2,250	1,410	1,010
7	5,380	4,580	11,400	16,000	1,980	11,900	1,430	1,320	4,500	1,800	1,400	458
8	4,950	3,420	13,700	18,400	2,020	11,700	1,900	1,420	4,150	1,650	1,390	901
9	4,670	3,160	13,100	15,400	1,720	10,300	1,920	1,510	3,890	1,530	1,450	972
10	4,320	3,040	11,900	11,400	1,690	8,980	1,870	1,520	3,880	1,410	1,480	1,390
11	3,970	2,890	9,150	10,600	1,780	6,440	1,780	1,590	3,290	1,420	1,210	1,230
12	3,350	2,870	6,210	7,880	1,640	4,950	1,780	1,570	2,810	1,430	1,230	1,230
13	3,020	3,470	4,980	6,860	1,650	4,360	1,700	1,940	3,560	1,400	1,220	1,180
14	2,760	3,300	4,670	5,150	2,190	3,630	1,540	1,970	3,260	1,310	1,150	1,170
15	2,710	3,600	4,690	4,500	2,520	3,620	1,670	1,730	2,680	1,320	1,140	931
16	2,830	3,270	f4,000	4,070	2,680	4,620	1,630	1,620	2,170	1,200	1,180	937
17	2,650	2,950	f2,600	2,550	2,750	5,630	1,600	1,780	1,930	1,160	d1,500	973
18	2,380	2,870	2,380	3,040	2,360	4,550	1,730	2,840	1,900	1,220	d1,350	1,030
19	2,130	3,760	2,720	2,900	2,040	3,880	1,570	3,350	2,770	1,200	d2,900	1,010
20	2,050	4,820	2,780	2,100	1,790	4,550	1,610	3,580	3,650	1,120	2,000	902
21	2,020	5,700	2,980	2,100	1,600	3,810	1,400	4,270	2,720	953	1,520	1,020
22	2,170	4,870	2,860	2,170	1,510	2,810	1,620	6,550	2,370	1,140	1,390	905
23	2,140	4,230	2,810	2,020	1,580	2,540	1,510	4,180	2,540	1,430	1,330	906
24	4,780	4,330	2,880	1,940	1,660	1,590	1,480	2,660	1,980	2,300	1,210	950
25	8,420	3,390	2,660	1,970	1,820	2,270	1,430	2,200	1,880	2,080	1,150	928
26	5,740	2,980	2,810	2,090	1,670	2,030	1,480	2,130	1,660	1,640	1,130	920
27	4,870	2,800	3,480	2,280	1,490	1,930	1,620	2,500	1,590	1,420	1,110	935
28	5,400	3,440	3,460	2,180	1,470	1,740	1,600	6,780	2,470	1,280	1,080	995
29	4,980	9,660	3,500	1,800	-	1,650	1,660	14,600	2,550	1,240	1,090	881
30	3,680	11,600	3,600	1,790	-	1,560	1,700	15,000	2,960	1,200	1,060	971
31	3,470	-	4,470	1,790	-	1,190	-	7,810	-	1,170	1,010	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	161,010	16,700	2,020	5,194	-	-
November	127,600	11,600	2,800	4,253	-	-
December	176,560	13,700	2,380	5,695	-	-
Calendar year 1945	1,616,711	24,200	752	4,429	1.80	24.36
January	158,820	18,400	1,790	5,123	-	-
February	53,410	2,750	1,470	1,908	-	-
March	155,120	12,800	1,190	5,004	-	-
April	46,820	1,920	1,120	1,561	-	-
May	105,240	15,000	1,290	3,395	-	-
June	120,370	14,300	1,590	4,012	-	-
July	55,223	5,060	953	1,781	-	-
August	42,910	2,900	1,010	1,384	-	-
September	29,032	1,390	458	968	-	-
Water year 1945-46	1,232,115	18,400	458	3,376	1.37	18.57

d Doubtful gage-height record; discharge computed on basis of power-plant records.
f Fragmentary gage-height record; discharge computed on basis of power-plant records.
Note.- Shifting-control method used Oct. 7-11, 24, Oct. 26 to Nov. 1, Nov. 3, 5-7, 13, 15, 19-24, 28, 29, Dec. 12-15, 20-27, Dec. 31 to Jan. 2, Jan. 13-16, Mar. 3, 11-21, May 18-23, 28, June 1, 5-15, 19, 20.

Canaseraga Creek near Dansville, N. Y.

Location.- Water-stage recorder, lat. 42°33'40", long. 77°42'55", just downstream from Ossian Street Bridge, half a mile downstream from Mill Creek, and 1 mile west of Dansville, Livingston County. Datum of gage is 640.00 feet above mean sea level (levels by New York State Conservation Commission).

Drainage area.- 153 square miles.

Records available.- July 1910 to December 1912, July 1915 to June 1917, March 1919 to September 1946. October 1917 to September 1919 at Cumminsville, 1¼ miles downstream, published as Canaseraga Creek at Cumminsville.

Average discharge.- 26 years (1920-46), 148 second-feet.

Extremes.- Maximum discharge during year, 4,260 second-feet June 1 (gage height, 10.68 feet), from rating curve extended above 1,700 second-feet on basis of contracted-opening determination at gage height 13.1 feet; minimum, 25 second-feet Sept. 6, 7, 20 (gage height, 6.635 feet).

1910-12, 1915-46: Maximum discharge at present site, 8,830 second-feet July 23, 1940 (gage height, 13.1 feet, from floodmark), by contracted-opening method; maximum at former site, 9,110 second-feet July 23, 1940 (gage height, 9.93 feet) by slope-area method; minimum, 10 second-feet Aug. 9, 1934, Sept. 27, 28, 1941.

Remarks.- Records good except those for periods of ice effect or partially obstructed intake, which are fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	256	135	330	b120	98	340	91	106	2,040	175	83	28
2	1,240	200	290	b102	b80	330	91	96	814	323	86	31
3	507	420	290	b96	b70	290	89	87	408	142	52	30
4	281	360	330	b100	b62	400	87	78	271	107	58	29
5	202	280	270	b380	b70	512	84	71	216	91	73	27
6	164	215	*560	b1,900	b72	543	87	67	186	80	57	26
7	147	180	680	1,180	77	644	87	69	186	71	68	26
8	138	160	640	818	b68	*425	84	73	209	67	53	65
9	129	145	580	478	70	470	91	71	215	65	45	45
10	120	140	500	560	b68	280	89	65	148	59	43	54
11	109	135	320	363	b60	230	84	69	180	53	40	80
12	101	180	230	321	64	180	82	101	189	84	38	46
13	98	170	*245	b260	74	175	80	82	132	57	38	40
14	96	185	b235	b210	184	170	78	73	112	50	39	35
15	96	160	b215	b195	b82	347	78	67	96	66	35	32
16	93	145	b145	b170	b74	290	82	69	89	53	34	31
17	86	140	b125	b180	b80	227	80	124	84	47	94	31
18	79	320	b135	b160	b70	265	75	151	181	45	107	29
19	75	270	b140	b130	b60	261	73	151	129	45	61	27
20	73	350	b135	b116	b66	199	73	125	101	46	48	26
21	73	240	b130	b130	*b60	170	73	162	115	47	44	35
22	68	350	b120	b120	b50	154	69	139	94	52	40	33
23	134	250	b112	*b96	b58	142	69	109	82	58	38	32
24	600	195	b96	b100	b56	125	71	89	73	50	38	50
25	310	170	b106	b108	b54	122	71	80	67	44	37	39
26	320	150	b112	b104	64	117	69	84	62	39	34	35
27	360	130	b112	b90	185	109	89	358	72	37	33	32
28	215	370	b104	b88	98	99	106	1,260	87	35	32	29
29	165	640	b102	b90	-	104	134	398	125	33	32	61
30	145	400	b106	b88	-	101	117	231	96	32	32	282
31	140	-	b140	104	-	94	-	166	-	38	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	6,620	1,240	68	214	1.40	1.81
November	7,185	640	130	240	1.57	1.75
December	7,635	680	96	246	1.81	1.88
Calendar year 1945	91,629	2,500	29	251	1.64	22.27
January	8,737	1,900	88	282	1.64	2.12
February	2,174	185	50	77.6	.507	.53
March	7,915	644	94	255	1.67	1.92
April	2,533	134	69	84.4	.552	.62
May	4,871	1,260	65	157	1.03	1.18
June	6,859	2,040	62	229	1.50	1.67
July	2,169	323	32	70.0	.458	.53
August	1,523	107	31	49.1	.321	.37
September	1,346	282	26	44.9	.293	.33
Water year 1945-46	59,567	2,040	26	163	1.07	14.49

Peak discharge.- Oct. 2 (8:45 a.m.) 2,400 sec.-ft.; May 28 (3:30 a.m.) 2,510 sec.-ft.; June 1 (9 a.m.) 4,260 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- Intake partially obstructed Oct. 24 to Nov. 23, Nov. 28 to Dec. 13, Feb. 27 to Mar. 4, Mar. 10-14; discharge computed on basis of discharge measurements, gage-height record, outside-gage readings, and records for nearby stations.

Honeoye Creek at Honeoye Falls, N. Y.

Location.- Water-stage recorder, lat. 42°57'25", long. 77°35'20", 25 feet downstream from highway bridge in Honeoye Falls, Monroe County, and about 13 miles upstream from mouth.

Drainage area.- 197 square miles.

Records available.- October 1945 to September 1946.

Extremes.- Maximum discharge during year, 1,490 second-feet Dec. 7 (gage height, 4.43 feet); minimum, 4.0 second-feet Sept. 4, 5 (gage height, 0.89 foot).

Remarks.- Records good except those for periods of ice effect, shifting-control, or no gage height record, which are fair. Flow regulated by Hemlock and Canadice Lakes for water supply of city of Rochester, and, to a lesser extent, by Honeoye Lake. Diurnal fluctuation at low flow caused by mills above station.

Rating tables, water year 1945-46, except periods of ice effect or shifting-control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30					
1.7	54	2.8	364	0.89	4.0	1.3	22	2.4	217
1.8	67	3.0	470	.9	4.2	1.4	28	2.6	297
2.0	99	3.2	589	1.0	7.1	1.6	48	3.0	496
2.2	142	3.6	860	1.1	11	1.8	70	3.4	728
2.4	200	4.0	1,160	1.2	16	2.0	105		
2.6	274	4.3	1,390						

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	140	769	450	78	76	62	54	186	64	19	6.8
2	f962	133	660	300	78	205	66	48	377	86	18	6.5
3	f717	a155	602	250	66	490	64	45	225	90	17	6.0
4	f386	a245	720	205	64	660	55	43	156	67	16	5.2
5	195	a205	640	280	62	680	55	42	132	52	16	4.4
6	145	a170	739	1,020	68	407	53	46	118	42	13	5.9
7	135	a155	1,370	938	74	*418	55	45	118	37	14	5.2
8	a147	150	*1,350	557	78	372	53	42	114	35	11	5.2
9	a156	145	1,170	470	80	348	55	40	103	33	11	5.8
10	a166	135	1,040	534	78	280	57	38	96	32	14	9.4
11	147	121	720	a448	*72	236	53	40	86	32	23	8.2
12	135	133	500	*420	68	186	49	75	88	36	19	8.2
13	128	145	420	350	74	180	45	69	86	43	13	6.8
14	113	147	380	230	260	174	44	53	73	39	13	6.4
15	119	133	350	245	230	*186	43	44	66	36	15	6.0
16	124	121	270	195	140	232	44	45	60	34	14	5.8
17	113	117	210	170	106	190	43	81	57	32	14	6.5
18	105	208	220	160	88	165	40	103	61	30	23	6.2
19	96	283	225	145	78	153	39	73	73	28	27	9.0
20	92	501	215	130	72	135	40	64	61	26	20	8.0
21	89	346	210	125	62	123	41	72	56	25	18	8.8
22	85	334	200	114	62	114	40	76	52	24	13	9.6
23	119	326	185	106	66	109	38	56	46	23	12	9.9
24	518	266	175	100	66	103	38	46	41	22	9.6	6.8
25	389	232	180	96	62	101	38	43	37	21	9.0	5.4
26	278	214	220	90	60	96	39	145	36	18	7.8	7.8
27	296	184	260	82	60	88	54	156	32	17	8.6	9.0
28	278	286	260	76	64	80	69	200	156	15	7.6	9.0
29	224	878	250	74	-	75	66	207	126	14	8.2	8.1
30	178	762	260	74	-	70	61	125	81	12	8.3	14
31	150	-	520	76	-	65	-	92	-	14	7.4	-

Month	Observed					Adjusted†		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	6,874	962	85	222		307	1.56	1.80
November	7,370	878	117	246		293	1.49	1.66
December	15,290	1,370	175	493		504	2.56	2.95
Calendar year	-	-	-	-		-	-	-
January	8,510	1,020	74	275		317	1.61	1.85
February	2,416	260	60	86.3		110	.558	.58
March	6,797	680	65	219		333	1.69	1.95
April	1,499	69	38	50.0		80.3	.408	.45
May	2,308	207	38	74.5		143	.726	.84
June	2,999	377	32	100		170	.863	.96
July	1,079	90	12	34.8		43.1	.219	.25
August	439.5	27	7.4	14.2		21.4	.109	.13
September	219.9	14	4.4	7.33		17.5	.089	.10
Water year 1945-46	55,801.4	1,370	4.4	153		196	.995	13.52

* Winter discharge measurement made on this day.

† Adjusted for diversion from and change in contents in Hemlock and Canadice Lakes; no data available concerning change in contents in Honeoye Lake.

a No gage-height record; discharge computed on basis of partial gage-height record, recorded range in stage, and records for Oatka Creek at Garbutt and Black Creek at Churchville.

f Fragmentary gage-height record; discharge computed on basis of partial gage-height record, recorded range in stage, and records for Oatka Creek at Garbutt and Black Creek at Churchville.

Note.- Stage-discharge relation affected by ice Dec. 2, Dec. 11 to Jan. 6, Jan. 13 to Mar. 4. Shifting-control method used May 12 to June 28.

Canadice Lake Outlet near Hemlock, N. Y.

Location.- Hook gage, lat. 42°44'25", long. 77°34'15", upstream from weir at outlet of Canadice Lake, Ontario County, 4 miles southeast of Hemlock, Livingston County.

Drainage area.- 12.6 square miles.

Records available.- April 1903 to September 1946.

Average discharge.- 43 years, 11.7 second-feet.

Cooperation.- Records furnished by Department of Public Works, Division of Water, city of Rochester, N. Y.

Monthly discharge, water year October 1945 to September 1946

Month	Mean elevation of lake above low-water mark (feet)	Discharge in second-feet		Runoff in inches
		Mean	Per square mile	
October	+3.286	30.108	2.390	2.755
November	+2.362	27.439	2.178	2.430
December	+2.693	28.588	2.269	2.616
Calendar year 1945	+3.013	19.828	1.574	21.363
January	+2.410	27.965	2.219	2.559
February	+.871	19.806	1.572	1.637
March	+1.750	1.977	.157	.181
April	+2.634	.038	.003	.003
May	+3.381	1.683	.134	.154
June	+4.157	23.318	1.851	2.065
July	+2.617	18.438	1.463	1.687
August	+1.009	13.254	1.052	1.213
September	+.244	2.019	.160	.179
Water year 1945-46	+2.295	16.223	1.288	17.479

Note.- Terminal water-surface elevation for year ending Dec. 31, 1945, was 2.69 feet higher than that of preceding year, corresponding to an increasein contents of 78,410,257 cubic feet or 907.526 second-foot days. This adjustment applied to above, gives a mean for year of 22.315 second-feet, 1.771 second-feet per square mile, and 24.040 inches runoff from drainage area.

Terminal water-surface elevation for year ending Sept. 30, 1946, was 2.57 feet lower than that of preceding year, corresponding to a decrease in contents of 77,016,573 cubic feet or 891.396 second-foot days. This adjustment applied to above, gives a mean for year of 13.781 second-feet, 1.094 second-feet per square mile, and 14.846 inches runoff from drainage area.

Oatka Creek at Garbutt, N. Y.

Location.- Water-stage recorder, lat. 43°00'30", long. 77°47'25", 40 feet downstream from highway bridge at Garbutt, Genesee County, and 3½ miles upstream from mouth.

Drainage area.- 208 square miles.

Records available.- October 1945 to September 1946.

Extremes.- Maximum discharge during year, 2,830 second-feet Jan. 7 (gage height, 6.63 feet); minimum daily, 23 second-feet Sept. 4-6 (backwater from debris); minimum gage height, 2.12 feet Sept. 21.

Remarks.- Records good except those for periods of backwater from debris or partially obstructed intake, which are fair.

Rating tables, water year 1945-46, except periods of backwater from ice or debris (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Mar. 5, 6)

Oct. 1 to Mar. 5				Mar. 5 to Sept. 30					
2.6	116	4.0	725	2.0	17	2.7	125	4.0	780
2.8	170	4.5	1,040	2.1	25	2.8	154	4.5	1,120
3.0	233	5.0	1,400	2.2	36	2.9	191	5.0	1,500
3.2	311	5.5	1,800	2.3	48	3.0	236	5.6	2,000.
3.4	404	6.0	2,230	2.4	64	3.2	336		
3.6	506	6.4	2,600	2.6	102	3.6	550		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	193	216	966	501	159	142	145	88	145	78	45	25
2	1,140	200	796	394	162	167	142	82	398	77	42	24
3	1,790	203	784	320	b140	291	137	78	457	80	41	24
4	1,290	278	778	299	b140	859	131	78	256	73	38	23
5	575	295	743	356	b135	2,000	125	80	161	61	37	23
6	329	237	714	1,350	145	1,500	128	77	148	53	36	23
7	270	203	1,090	2,530	159	*1,300	148	78	142	50	37	24
8	282	185	*1,330	1,680	b160	1,130	154	78	161	48	37	26
9	255	173	1,260	879	167	945	142	77	137	47	34	28
10	226	164	1,120	802	167	780	145	73	128	46	41	32
11	197	159	827	*749	b160	649	137	75	107	46	48	30
12	194	162	597	602	*150	517	128	77	90	47	47	29
13	213	185	517	506	153	432	120	108	88	45	44	27
14	197	185	464	345	306	479	114	94	80	45	43	27
15	191	191	424	361	400	*500	109	82	71	48	44	26
16	194	164	361	303	b320	572	109	78	68	45	46	26
17	179	150	286	278	255	517	125	88	68	43	50	26
18	164	156	299	274	216	425	111	292	68	42	62	25
19	150	248	303	244	b180	420	102	263	77	42	74	25
20	142	266	290	b215	167	362	102	204	90	41	43	24
21	137	290	282	216	b140	300	102	822	90	40	37	25
22	137	223	270	203	b140	270	102	726	80	40	35	26
23	139	248	259	b195	148	256	98	424	68	39	33	25
24	359	226	240	191	148	236	92	204	59	38	31	27
25	554	188	244	191	139	222	88	145	55	37	30	27
26	482	173	270	182	137	222	90	139	52	35	29	28
27	366	162	324	b165	132	204	98	246	52	34	28	25
28	320	212	329	159	137	184	104	241	180	33	28	24
29	248	997	311	153	-	172	100	341	92	32	27	24
30	223	902	324	153	-	158	92	218	90	31	26	28
31	233	-	455	156	-	151	-	140	-	36	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	11,369	1,790	137	367	1.76	2.03
November	7,641	997	150	255	1.23	1.37
December	17,267	1,330	240	557	2.68	3.09
Calendar year	-	-	-	-	-	-
January	14,952	2,530	153	482	2.32	2.67
February	4,962	400	132	177	.851	.89
March	16,362	2,000	142	528	2.54	2.93
April	3,520	154	88	117	.562	.65
May	5,796	822	73	187	.899	1.04
June	3,758	457	52	125	.601	.67
July	1,452	80	31	46.8	.225	.26
August	1,219	74	26	39.3	.189	.22
September	774	32	23	25.8	.124	.14
Water year 1945-46	89,072	2,530	23	244	1.17	15.94

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.- Backwater from debris July 18 to Aug. 1, Aug. 22 to Sept. 30. Intake partially obstructed Aug. 10-19; discharge computed on basis of gage-height record and records for nearby stations.

Black Creek at Churchville, N. Y.

Location.- Water-stage recorder, lat. 43°06'00", long. 77°53'00", at east end of Carrol Street in Churchville, Monroe County, 60 feet downstream from main line tracks of New York Central Railroad.

Drainage area.- 123 square miles.

Records available.- October 1945 to September 1946.

Extremes.- Maximum discharge during year, 1,740 second-feet Mar. 5 (gage height, 6.37 feet); minimum, 2.4 second-feet (regulated) July 23 (gage height, 1.005 feet).

Remarks.- Records good except those for periods of ice effect, which are fair. New York Central System diverted approximately 13,500,000 gallons each month from a point just above station for use by locomotives, equivalent to a mean discharge of 0.7 second-foot at station. Slight regulation caused by pumping operations above station.

Rating tables, water year 1945-46, except periods of ice effect or backwater from weeds (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 7

1.9	58	2.8	224	4.5	854
2.0	70	3.0	280	5.0	1,080
2.2	98	3.2	342	5.7	1,410
2.4	134	3.6	487		
2.6	176	4.0	645		

Jan. 8 to Sept. 30

1.0	2.4	2.0	76	3.6	503
1.1	4.6	2.2	106	4.0	660
1.2	7.9	2.4	144	4.5	860
1.4	18	2.6	190	5.0	1,080
1.6	32	3.0	300	5.5	1,310
1.8	51	3.2	362	6.1	1,610

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	180	73	752	310	80	86	58	39	34	55	8.9	3.6
2	818	73	640	350	80	93	59	36	53	64	14	3.6
3	1,380	82	522	260	74	145	55	33	49	42	11	3.6
4	999	86	503	192	72	596	56	30	38	24	8.2	3.4
5	503	83	490	199	70	1,610	52	36	30	16	7.0	3.4
6	267	79	500	467	82	*1,380	56	37	28	12	6.2	3.5
7	197	71	791	1,140	100	*1,100	57	37	28	8.7	5.6	4.1
8	183	65	950	940	112	865	57	36	30	7.9	5.4	4.9
9	178	63	915	524	128	720	66	33	42	7.4	4.9	6.8
10	165	62	777	416	130	490	63	30	36	6.7	5.6	10
11	140	64	540	*369	130	395	57	35	37	6.5	7.4	21
12	123	70	370	303	*110	291	53	42	40	8.1	7.2	16
13	119	79	280	225	107	263	50	40	29	8.5	6.0	12
14	121	78	225	145	255	246	47	36	23	8.7	6.0	9.4
15	128	74	190	140	300	*230	49	32	19	11	6.6	7.6
16	136	64	155	130	250	221	57	39	17	12	6.6	6.6
17	119	59	*125	118	188	206	53	85	16	9.8	10	6.0
18	95	65	150	114	160	171	50	90	24	7.9	17	5.4
19	79	82	145	102	135	146	45	79	29	7.7	15	5.0
20	69	110	135	90	116	136	49	67	24	7.4	12	4.7
21	65	134	130	88	88	120	50	83	30	7.2	9.0	4.8
22	60	124	125	86	86	108	47	106	32	7.4	7.8	6.2
23	63	123	120	84	90	101	44	92	28	6.5	6.6	7.6
24	94	96	120	82	90	100	45	52	20	7.7	6.0	7.6
25	163	83	130	82	84	96	41	41	15	6.8	5.4	6.4
26	214	75	145	80	80	95	41	37	12	6.2	4.8	5.6
27	197	65	163	76	80	87	50	36	10	5.5	4.5	4.9
28	150	133	185	74	82	79	51	33	10	5.4	4.2	4.6
29	110	514	210	72	-	73	47	30	33	5.0	4.1	4.6
30	88	750	220	72	-	68	44	25	62	4.5	3.8	5.2
31	78	-	290	76	-	61	-	21	-	4.4	3.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	7,281	1,380	60	235	1.91	2.20
November	3,579	750	59	119	.967	1.08
December	10,993	950	120	355	2.89	3.32
Calendar year	-	-	-	-	-	-
January	7,406	1,140	72	239	1.94	2.24
February	3,359	300	70	120	.976	1.02
March	10,378	1,610	61	335	2.72	3.14
April	1,549	66	41	51.6	.420	.47
May	1,448	106	21	46.7	.380	.44
June	878	62	10	29.3	.238	.27
July	397.9	64	4.4	12.8	.104	.12
August	230.6	17	3.8	7.44	.060	.07
September	198.1	21	3.4	6.60	.054	.06
Water year 1945-46	47,697.6	1,610	3.4	131	1.07	14.43

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 2, 5, 6, 11-26, Dec. 29 to Jan. 3, Jan. 13-29, Feb. 2-5, 8, 15, 16, Feb. 18 to Mar. 1, Mar. 9, 10. Backwater from weeds Aug. 3 to Sept. 30.

Oswego River at lock,7, Oswego, N. Y.

Location.- Water-stage recorders, lat. 43°27'00", long. 76°30'25", at lock 7 in Oswego, Oswego County, three-quarters of a mile upstream from mouth. Datum of gage is 246.00 feet above mean sea level (New York State Barge Canal datum).
Drainage area.- 5,121 square miles.
Records available.- November 1933 to September 1946. April 1897 to December 1901 and, of doubtful accuracy, October 1927 to September 1928 at High Dam, about three-quarters of a mile upstream.
Average discharge.- 12 years (1934-46), 6,460 second-feet.
Extremes.- Maximum discharge during year, 22,000 second-feet Oct. 4 (gage height, 9.94 feet); includes mean daily discharge of canals; minimum (river only), 113 second-feet (regulated) Sept. 15, 27 (gage height, 1.33 feet); minimum daily discharge, 833 second-feet Sept. 16.

1933-46: Maximum discharge, 37,500 second-feet Mar. 28, 1936, includes mean daily discharge of canals; maximum gage height, 13.46 feet Apr. 10, 1940; minimum discharge (river only), 30 second-feet Nov. 6, 1944; minimum gage height, 0.97 foot Aug. 24, 1934; minimum daily discharge, 465 second-feet Aug. 12, 1934.

Remarks.- Records excellent except those for periods of backwater from Lake Ontario or fragmentary or no gage-height record, which are good. This record represents total discharge at Oswego and includes flow in Hydraulic and Barge Canals. A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Barge Canal system in river basin. Large diurnal fluctuations at low and medium flow caused by power plants above station. Oswego River Basin receives water from Erie division of Barge Canal through lock 32 near Pittsford. Small diversion from basin is occasionally made from tributary streams through summit level of Barge Canal at New London into Mohawk River Basin. During part of year entire flow from 45 square miles of drainage area of Mud Creek may be diverted from Chemung River Basin into Lake Keuka in Oswego River Basin. Nearly all of flow from 15.7 square miles of the Tioughnioga River Basin may be diverted into DeRuyter Reservoir, in Oswego River Basin.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,190	9,420	14,200	11,300	8,280	6,930	5,000	3,700	4,400	3,800	3,200	1,170
2	14,800	9,310	14,700	11,000	8,450	6,550	5,200	3,300	5,000	4,200	3,100	968
3	20,500	9,590	13,600	11,500	e,490	6,180	4,500	3,100	5,600	4,100	2,450	2,310
4	21,800	10,300	12,900	11,100	8,330	6,720	4,200	3,200	6,400	3,400	1,650	2,470
5	21,600	10,200	f12,400	10,900	8,410	8,410	4,000	2,350	6,600	4,300	2,450	2,270
6	19,600	10,600	f13,000	11,100	8,200	11,000	3,900	3,500	7,400	4,200	2,450	2,390
7	17,600	10,300	15,000	12,600	8,180	15,800	3,000	2,700	8,800	3,700	2,700	2,020
8	15,500	10,000	16,900	13,000	8,220	f16,000	4,100	2,800	10,000	4,100	1,700	1,100
9	13,300	9,580	18,100	12,600	8,320	f20,500	4,400	2,500	8,600	4,000	1,550	1,800
10	12,700	9,270	18,800	12,900	8,170	f19,500	4,300	2,800	7,600	3,500	1,900	2,520
11	11,800	9,110	19,700	13,100	e,290	a19,000	4,200	2,600	7,800	3,600	1,250	2,400
12	12,000	8,670	19,000	13,000	8,760	a18,000	4,100	2,150	8,800	4,000	2,600	2,010
13	11,700	9,160	18,600	12,700	8,640	a16,500	3,900	3,000	9,000	3,400	2,000	2,080
14	11,700	8,380	18,300	12,700	9,350	a14,500	3,200	3,800	8,800	2,800	1,570	1,760
15	11,800	8,520	17,900	12,500	10,300	a13,000	3,900	3,100	8,200	3,600	1,660	855
16	12,100	8,580	17,200	11,600	9,890	a14,000	4,100	3,100	7,800	3,600	1,880	833
17	12,100	8,660	15,200	10,700	10,200	11,900	3,900	2,900	8,000	3,300	2,420	1,240
18	11,900	8,670	15,600	11,900	9,040	11,200	3,200	3,400	8,200	3,100	1,430	1,270
19	11,200	e,890	15,400	10,600	8,860	10,000	3,300	2,500	7,800	3,000	2,790	1,370
20	10,300	11,800	14,800	10,400	7,830	9,610	3,000	3,900	7,200	3,000	3,000	1,770
21	9,540	13,200	13,900	10,900	7,470	7,600	2,450	4,400	4,700	1,950	2,700	1,640
22	9,560	13,300	13,600	10,300	8,120	7,600	3,600	4,300	5,000	3,300	2,520	1,060
23	9,790	13,000	13,000	10,400	7,680	6,800	3,900	4,700	3,900	3,300	f2,800	2,130
24	9,760	12,600	12,600	10,600	7,100	6,200	3,600	4,400	4,500	2,900	2,290	3,020
25	10,100	11,500	12,300	10,700	6,770	6,600	3,400	4,000	4,300	2,800	1,350	2,640
26	10,400	11,200	12,500	10,500	6,960	6,600	3,400	2,900	4,000	2,600	2,410	2,490
27	10,600	10,600	10,400	9,910	6,690	5,600	3,300	4,500	3,800	2,600	2,600	2,170
28	10,500	11,000	10,600	9,680	6,760	5,400	2,400	4,400	3,700	1,600	2,660	2,150
29	10,900	11,600	11,300	9,560	-	4,800	3,900	4,100	3,600	2,500	2,410	1,590
30	10,800	12,800	11,000	8,710	-	4,500	4,100	4,300	2,500	3,000	2,370	1,930
31	10,300	-	11,100	8,310	-	3,200	-	4,700	-	2,500	2,240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	394,440	21,800	8,190	12,720	2.48	2.86
November	309,810	13,300	8,380	10,330	2.02	2.25
December	453,600	19,700	10,400	14,630	2.86	3.29
Calendar year 1945	3,536,200	23,300	1,300	9,688	1.89	25.67
January	346,970	13,100	8,310	11,190	2.19	2.52
February	231,760	10,300	6,690	8,277	1.62	1.68
March	320,200	20,500	3,200	10,330	2.02	2.32
April	113,450	5,200	2,400	3,782	.739	.82
May	107,100	4,700	2,150	3,455	.675	.78
June	191,600	10,000	2,500	6,393	1.25	1.39
July	101,750	4,300	1,600	3,282	.641	.74
August	69,920	3,200	1,250	2,255	.440	.51
September	55,326	3,020	833	1,844	.360	.40
Water year 1945-46	2,696,126	21,800	833	7,387	1.44	19.56

a No gage-height record; discharge computed on basis of power-plant records at Fulton and High Dam.
f Fragmentary gage-height record; discharge computed on basis of reconstructed gage-height graph.
Note.- Backwater from Lake Ontario Mar. 21 to Aug. 13.

Fall Creek near Ithaca, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°27'20", long. 76°28'30", in Forest Home, Tompkins County, half a mile upstream from Cornell University Dam and 1½ miles northeast of Ithaca. Datum of gage is 794.81 feet above mean sea level, adjustment of 1912 (levels by Corps of Engineers, War Department).

Drainage area.- 124 square miles.

Records available.- February 1925 to September 1946. July 1908 to June 1909 at site 1¼ miles downstream.

Average discharge.- 21 years, 186 second-feet.

Extremes.- Maximum discharge during year, 2,480 second-feet May 28; maximum gage height, 8.20 feet Mar. 2 (ice jam); minimum discharge, 20 second-feet Sept. 6, 7, (gage height, 0.45 foot).

1925-46: Maximum discharge, 15,500 second-feet July 8, 1935 (gage height, 9.52 feet), from average of computed flow over each of four dams; minimum, about 3 second-feet Aug. 25, 1927 (gage height, 0.18 foot).

Remarks.- Records excellent except those for periods of ice effect, which are fair. Cornell University diverted 327,816,000 gallons during year from a point about a mile above station for water supply, equivalent to a mean discharge at station of 1.39 second-feet.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.4	18	1.2	104	2.4	700
.5	24	1.4	153	2.8	1,020
.6	32	1.6	225	3.2	1,390
.8	49	1.8	320	3.7	1,950
1.0	71	2.0	434		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	219	170	381	180	98	380	93	95	595	82	74	26
2	1,210	431	320	130	76	350	106	80	911	864	72	25
3	822	761	305	114	54	340	99	71	569	281	46	24
4	416	544	370	118	48	600	95	67	336	153	40	23
5	295	331	300	124	47	900	97	69	261	119	149	22
6	238	266	300	1,020	50	1,100	100	67	217	94	100	21
7	238	225	496	952	56	1,700	108	65	230	86	74	21
8	280	202	561	609	52	1,150	91	100	202	80	63	24
9	1,280	186	459	453	49	1,520	111	84	478	77	47	28
10	605	213	404	*477	47	697	145	76	202	69	40	122
11	353	194	250	331	41	442	111	76	163	63	39	83
12	275	365	200	295	43	*294	100	276	293	61	38	46
13	266	298	190	267	48	305	93	154	202	63	37	36
14	310	666	180	158	330	305	86	106	148	54	54	31
15	326	342	160	190	300	481	80	129	124	52	46	28
16	285	252	130	135	104	489	122	113	113	50	37	26
17	225	251	110	130	116	336	93	141	102	45	59	26
18	190	574	112	135	*94	270	80	270	243	42	146	25
19	170	528	120	110	60	230	76	238	207	40	76	24
20	163	1,010	118	96	56	198	83	160	122	38	61	23
21	153	490	104	104	50	176	86	466	122	59	52	24
22	142	1,010	94	96	46	163	74	390	119	66	43	47
23	192	615	86	82	56	156	77	194	100	67	38	41
24	496	370	78	86	60	142	110	145	88	83	36	78
25	393	320	90	84	56	145	91	124	78	57	35	152
26	366	295	165	82	52	142	78	153	71	44	34	64
27	364	252	185	58	76	131	108	885	83	40	32	45
28	266	324	145	62	280	117	122	1,910	86	37	30	38
29	221	680	130	64	-	108	163	681	74	34	29	38
30	198	484	125	64	-	104	122	353	105	34	28	301
31	183	-	190	70	-	95	-	248	-	36	27	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	11,140	1,280	142	359	2.90	3.34
November	12,649	1,010	170	422	3.40	3.79
December	6,858	561	78	221	1.78	2.06
Calendar year 1945	104,529	2,200	22	286	2.31	31.35
January	6,876	1,020	58	222	1.79	2.06
February	2,445	330	41	87.3	.704	.73
March	13,566	1,700	95	438	3.53	4.07
April	3,000	163	74	100	.806	.90
May	7,986	1,910	65	258	2.08	2.40
June	6,644	911	71	221	1.78	1.99
July	2,970	864	34	95.8	.773	.89
August	1,682	149	27	54.3	.438	.50
September	1,512	301	21	50.4	.406	.45
Water year 1945-46	77,328	1,910	21	212	1.71	23.18

Peak discharge.- Mar. 7 (8:30 p.m.) 2,110 sec.-ft.; Mar. 9 (11:45 a.m.) 2,050 sec.-ft.; May 28 (5:30 a.m.) 2,480 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 11 to Jan. 6, Jan. 15 to Mar. 6 (no gage-height record Feb. 24-27).

Cayuga Inlet near Ithaca, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°23'35", long. 76°32'40", half a mile upstream from Butternut Creek and 5 miles south of Ithaca, Tompkins County. Datum of gage is 437.16 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 36.7 square miles.

Records available.- March 1937 to September 1946.

Extremes.- Maximum discharge during year, 1,890 second-feet May 27 (gage height, 5.31 feet); minimum, 4.8 second-feet about Sept. 21 (gage height, 0.56 foot, from recorder range in stage).

1937-46: Maximum discharge, 4,110 second-feet Aug. 13, 1942 (gage height, 7.58 feet), from rating curve extended above 650 second-feet on basis of slope-area determinations at gage heights, 5.5 and 7.58 feet; minimum, 1.8 second-feet Aug. 30, 31, Sept. 1, 2, 1939 (gage height, 0.42 foot).

Remarks.- Records good except those for periods of ice effect, partially obstructed intake, or no gage-height record, which are fair.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	30	80	41	25	150	30	16	200	23	27	6.2
2	96	57	72	35	22	115	29	15	270	50	15	6.0
3	51	67	78	35	17	139	29	14	145	23	12	5.8
4	35	54	88	36	16	186	28	14	110	18	11	5.7
5	30	45	72	52	16	126	27	16	88	16	38	5.7
6	27	41	94	276	17	138	27	15	80	15	16	5.5
7	29	37	122	211	18	*228	24	19	74	14	24	5.5
8	43	34	122	146	17	156	25	27	68	13	16	6.4
9	167	32	113	135	17	290	30	20	60	13	12	6.4
10	73	35	100	*117	16	130	27	17	48	12	11	8.7
11	53	35	72	87	15	96	23	19	50	11	10	9.6
12	45	44	60	e5	16	76	21	26	52	12	11	7.2
13	41	41	54	71	17	76	20	20	41	11	11	6.4
14	41	57	54	52	68	74	19	17	35	10	11	6.0
15	43	43	52	50	23	140	20	22	31	9.5	9.0	5.8
16	38	38	40	35	24	116	21	20	29	9.0	8.8	5.7
17	32	43	31	34	25	92	18	34	28	8.8	31	a5.5
18	29	53	32	35	*20	84	17	44	38	8.5	22	a5.4
19	26	92	32	28	16	72	16	43	29	8.2	13	a5.2
20	24	131	31	25	15	62	19	34	25	8.8	11	a5.0
21	23	83	30	27	14	56	17	67	26	23	9.6	a5.2
22	23	215	29	25	13	52	15	48	24	21	8.6	a8.2
23	34	115	27	23	15	49	16	37	22	23	8.0	a7.0
24	61	83	25	24	15	45	18	31	20	17	7.8	a18
25	45	75	29	24	14	45	16	31	18	12	7.6	a16
26	a45	66	41	23	14	43	17	43	17	10	7.2	a10
27	a44	57	43	18	19	42	26	923	18	9.2	6.8	a7.2
28	a38	81	37	19	82	37	22	780	20	8.5	6.6	8.2
29	35	122	37	20	-	34	20	220	18	8.2	6.8	6.5
30	33	90	40	20	-	32	18	140	16	8.0	6.6	24
31	31	-	57	22	-	30	-	110	-	12	6.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	1,360	167	23	43.9	1.20	1.58
November	1,996	215	30	66.5	1.81	2.02
December	1,794	122	25	57.9	1.58	1.82
Calendar year 1945	20,879.9	560	5.0	57.2	1.56	21.16
January	1,831	276	18	59.1	1.61	1.88
February	606	82	13	21.6	.589	.61
March	3,011	290	30	97.1	2.65	3.05
April	655	30	15	21.8	.594	.66
May	2,882	923	14	93.0	2.53	2.92
June	1,700	270	16	56.7	1.54	1.72
July	445.7	50	8.0	14.4	.392	.45
August	401.9	38	6 4	13.0	.354	.41
September	232.0	24	5.0	7.73	.211	.24
Water year 1945-46	16,914.5	923	5.0	46.3	1.26	17.14

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of partial record, recorded range in stage, weather records, and records for nearby stations.

Note.- Stage-discharge relation affected by ice Dec. 2, 3, 5, 11-19, 22-28, Jan. 1-3, 14, Jan. 16 to Mar. 1. Intake partially obstructed Nov. 22, 29, 30, Mar. 9 to Apr. 17, May 28 to June 12; discharge computed on basis of discharge measurements, appearance of gage-height graph, outside-gage readings, and records for nearby stations.

Canandaigua Lake at Canandaigua, N. Y.

Location.- Water-stage recorder, lat. 42°52'20", long. 77°16'20", at south end of City Pier at northern end of Canandaigua Lake, 1 mile southeast of Canandaigua, Ontario County. Datum of gage is 680.76 feet above mean sea level (levels by Corps of Engineers, War Department). Prior to June 27, 1946, staff gage at west outlet (on west side of E. T. Waldorf's boathouse) at same datum.

Drainage area.- 189 square miles.

Records available.- November 1939 to September 1946. Records previously collected at site on west outlet on west side of E. T. Waldorf's boathouse by Oswego River Watershed Corp. of Fulton, N. Y.

Extremes.- Maximum gage height observed during year, 7.81 feet Dec. 9, 10; minimum observed, 5.83 feet Feb. 26.

1939-46: Maximum gage height observed, 9.09 feet Apr. 12, 13, 1940; minimum observed, 4.45 feet Jan. 30, 1942.

Remarks.- Elevation of lake surface regulated by stop logs on east and west outlets. West outlet, which usually carries most of lake outflow, is an artificial canal 1¼ miles long which discharges in Canandaigua Lake Outlet; spillway consists of permanent stop log 9.8 feet long with top at elevation 683.96 feet extending across a masonry arch opening under roadway. East outlet is at head of natural outlet channel from lake; spillway consists of 40 feet of detachable stop logs mounted in six courses on concrete footing. The city engineer, Canandaigua, N. Y., regulates storage in lake for Oswego River Watershed Corp., Fulton, N Y., by operation of stop logs on both spillways. Capacity of lake not determined. Area of water surface is about 16.57 square miles at elevation 686 feet. Staff gage read twice daily prior to June 27, 1946.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	6.6	7.0	7.0	6.5	5.95	6.5	6.5	7.0	7.11	6.36	a6.15
2	7.35	6.5	7.1	7.0	6.5	5.95	6.45	6.55	7.2	7.17	6.37	a6.16
3	7.4	6.55	7.1	6.9	6.45	5.95	6.5	6.5	7.25	7.14	6.35	a6.15
4	7.4	6.6	7.15	6.95	6.4	6.05	6.5	6.55	7.3	7.10	6.35	a6.13
5	7.35	6.55	7.1	7.0	6.4	6.1	6.45	6.55	7.3	7.06	6.34	a6.04
6	7.3	6.6	7.2	7.1	6.3	6.4	6.5	6.55	7.35	7.01	6.34	a6.06
7	7.25	6.5	7.4	7.25	6.3	6.45	6.55	6.5	7.35	6.93	6.33	a6.02
8	7.2	6.5	7.6	7.4	6.3	6.5	6.55	6.55	7.4	6.89	6.32	6.03
9	7.15	6.5	7.8	7.4	6.25	6.55	6.55	6.5	7.3	6.84	6.33	6.05
10	7.15	6.5	7.8	7.45	6.25	6.65	6.5	6.5	7.3	6.80	6.36	6.12
11	7.1	6.5	7.8	7.5	6.2	6.65	6.5	6.5	7.3	6.79	6.32	6.10
12	7.05	6.5	7.8	7.45	6.1	6.65	6.5	6.5	7.35	6.75	6.29	6.08
13	6.95	6.4	7.8	7.4	6.1	6.6	6.5	6.5	7.3	6.70	6.29	6.07
14	6.95	6.45	7.8	7.3	6.15	6.55	6.5	6.55	7.3	6.67	6.28	6.06
15	6.85	6.45	7.6	7.3	6.2	6.6	6.5	6.55	7.3	8.57	6.28	6.05
16	6.85	6.4	7.55	7.2	6.1	6.6	6.45	6.55	7.3	6.55	6.28	6.04
17	6.8	6.4	7.55	7.2	6.1	6.7	6.45	6.55	7.35	6.51	6.29	6.03
18	6.75	6.4	7.5	7.15	6.05	6.65	6.45	6.5	7.3	6.48	6.32	6.03
19	6.7	6.45	7.4	7.1	6.05	6.6	6.5	6.55	7.3	6.48	6.36	6.03
20	6.9	6.55	7.4	7.05	6.0	6.6	6.45	6.55	7.3	6.46	6.32	6.03
21	6.85	6.6	7.35	7.05	5.95	6.55	6.5	6.6	7.25	6.46	6.29	6.05
22	6.7	6.6	7.25	7.05	5.95	6.55	6.5	6.6	7.25	6.46	6.27	6.06
23	6.8	6.6	7.25	6.95	5.95	6.5	6.5	6.6	7.25	6.47	6.26	6.09
24	6.65	6.6	7.25	6.95	5.9	6.5	6.5	6.65	7.25	6.47	6.24	6.10
25	6.65	6.55	7.2	6.85	5.9	6.45	6.5	6.6	7.25	6.43	6.22	f6.08
26	6.65	6.55	7.15	6.8	5.85	6.5	6.5	6.7	7.25	6.40	6.20	6.07
27	6.65	6.6	7.1	6.65	5.9	6.45	6.5	6.65	7.13	6.38	6.20	6.06
28	6.65	6.65	7.1	6.65	5.95	6.55	6.5	6.75	7.13	6.38	6.19	6.07
29	6.7	6.65	7.0	6.65	-	6.55	6.55	6.85	7.12	6.35	6.16	6.09
30	6.6	6.65	7.0	6.6	-	6.5	6.55	6.85	7.07	6.33	6.15	6.10
31	6.5	-	7.0	6.55	-	6.5	-	6.9	-	6.31	6.15	-

a No recorder record; mean daily gage heights estimated on basis of twice daily staff-gage readings.

f Fragmentary gage-height record; mean daily gage height estimated on basis of reconstructed gage-height graph.

Monthly gage height, in feet, water year October 1945 to September 1946

Month	Maximum	Minimum	Mean	Change in contents during month (equivalent, second-feet)
October	7.4	6.5	6.93	-88.0
November	6.65	6.4	6.53	+49.9
December	7.8	7.0	7.36	+29.3
Calendar year 1945	8.55	5.05	6.84	+25.9
January	7.5	6.55	7.06	-81.1
February	6.5	5.85	6.14	-111
March	6.7	5.95	6.46	+100
April	6.55	6.45	6.50	+1.77
May	8.9	6.5	6.59	+72.5
June	7.4	7.0	7.26	+25.0
July	7.17	6.31	6.66	-136
August	6.37	6.15	6.28	-25.9
September	6.16	6.02	6.07	-12.5
Water year 1945-46	7.8	5.85	6.66	-14.2

Canandaigua Lake Outlet at Chapin, N. Y.

Location.- Water-stage recorder, lat. 42°55'00", long. 77°14'00", in Chapin, Ontario County, about 500 feet upstream from highway bridge and 3 miles downstream from Canandaigua Lake. Datum of gage is 673.6 feet above mean sea level (levels by Corps of Engineers, War Department).
Drainage area.- 199 square miles.
Records available.- November 1939 to September 1946.
Extremes.- Maximum discharge during year, 551 second-feet Dec. 11; maximum gage height, 3.98 feet Dec. 18 (backwater from ice); minimum daily, 17 second-feet Sept. 2-6; minimum gage height, 1.265 feet Sept. 4, 5 (backwater from weeds).
1939-46: Maximum discharge, 1,100 second-feet Mar. 17, 1942 (gage height, 4.64 feet); minimum, 11 second-feet Sept. 28, 1943; minimum gage height, 1.22 feet Feb. 1, 1942.
Remarks.- Records excellent except those for periods of backwater from debris or weeds, which are good, and those for periods of ice effect, or no gage-height record, which are fair. Flow regulated by Canandaigua Lake (see preceding page).

Rating tables, water year 1945-46, except periods of backwater from ice, debris, or weeds (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Dec. 6)

Oct. 1 to Dec. 6, May 31 to Sept. 30				Dec. 6 to May 30			
1.2	15	2.2	196	1.6	43	2.6	257
1.4	32	2.4	255	1.8	72	2.8	312
1.6	57	2.6	316	2.0	110	3.0	369
1.8	94	2.8	379	2.2	155	3.3	459
2.0	141	3.0	444	2.4	204	3.6	558

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	261	344	340	250	160	94	58	117	237	32	18
2	348	264	353	330	240	177	94	58	118	267	29	17
3	319	279	363	312	215	251	92	60	121	249	28	17
4	398	273	395	281	210	283	80	60	124	285	28	17
5	424	270	392	360	215	244	58	62	124	294	28	17
6	411	264	415	472	220	262	58	60	126	288	28	17
7	408	258	469	440	215	287	56	58	128	276	28	18
8	398	237	485	447	210	287	56	60	128	267	27	19
9	389	225	501	485	205	309	58	58	128	258	27	19
10	379	216	511	498	200	300	56	58	128	249	27	21
11	369	210	544	475	*195	298	56	62	141	243	25	21
12	360	216	544	*485	189	295	56	60	171	240	24	20
13	347	219	534	478	194	295	56	58	174	234	24	20
14	335	219	524	450	225	287	56	60	171	228	23	20
15	325	213	498	430	210	295	59	60	165	222	22	19
16	319	208	460	420	195	295	56	60	163	210	22	19
17	307	202	440	410	185	292	58	64	163	205	24	19
18	300	216	450	390	180	290	59	64	165	146	24	18
19	291	232	430	360	175	284	56	64	160	105	24	18
20	282	264	420	310	175	279	56	64	a154	62	24	18
21	270	237	410	330	170	276	56	66	a180	40	24	21
22	267	246	*404	320	155	270	56	66	a155	36	23	33
23	270	234	395	300	160	247	58	68	a145	35	22	24
24	307	228	386	310	157	134	58	68	a140	33	21	34
25	291	225	381	310	155	106	55	70	a135	32	21	36
26	288	222	378	300	150	98	56	74	a130	31	21	33
27	285	222	366	245	155	96	62	76	a140	30	20	32
28	276	260	349	250	155	94	58	84	a250	29	20	33
29	273	323	332	260	-	94	56	82	a237	28	20	34
30	270	325	337	260	-	92	56	86	234	28	20	39
31	267	-	340	268	-	92	-	88	-	28	19	-

Month	Observed					Adjusted for change in contents†		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	9,943	424	170	321		233	1.17	1.35
November	7,288	325	202	243		293	1.47	1.64
December	13,150	544	332	424		454	2.28	2.63
Calendar year 1945	90,606	884	34	248		274	1.38	18.70
January	11,326	496	245	365		284	1.43	1.65
February	5,360	250	150	191		80.7	.406	.42
March	7,069	309	92	228		328	1.65	1.90
April	1,843	94	55	61.4		63.2	.318	.35
May	2,036	88	58	65.7		138	.693	.80
June	4,615	250	117	154		179	.899	1.00
July	4,915	294	28	159		22.3	.112	.13
August	749	32	19	24.2		-1.71	-.009	-.01
September	691	39	17	23.0		10.6	.053	.06
Water year 1945-46	68,985	544	17	189		175	.879	11.92

† Adjusted for change in contents in Canandaigua Lake; negative figures indicate that natural losses from Canandaigua Lake exceeded inflow.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and elevations of Canandaigua Lake.
Note.- Stage-discharge relation affected by ice Dec. 16-21, Dec. 31 to Jan. 2, Jan. 14-30, Feb. 1-11, 15-22, Feb. 25 to Mar. 1, Mar. 10. Backwater from debris Apr. 30 to May 30. Backwater from weeds July 23 to Sept. 30 (no gage-height record Sept. 14-25).

Owasco Lake Outlet near Auburn, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°56'45", long. 76°36'05", 2½ miles downstream from center of Auburn, Cayuga County, and 4 miles downstream from State dam at outlet of Owasco Lake.

Drainage area.- 208 square miles.

Records available.- November 1912 to September 1946.

Average discharge.- 33 years (1913-46), 286 second-feet.

Extremes (regulated).- Maximum discharge during year, 1,000 second-feet Mar. 9 (gage height, 3.36 feet); minimum, 17 second-feet Sept. 27 (gage height, 1.52 feet); minimum daily, 99 second-feet Sept. 23.

1912-46: Maximum discharge, 2,090 second-feet Mar. 19, 1936, Apr. 9, 1940 (gage height, 4.88 feet); minimum, about 2 second-feet Dec. 5, 1936 (gage height, 1.36 feet); minimum daily, 5 second-feet Nov. 11, 1934.

Remarks.- Records good. Diurnal fluctuation caused by mills in Auburn; seasonal regulation at State dam. Water supply for Auburn taken from Owasco Lake, part of which returns as sewage to outlet above gaging station.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris or weeds Feb. 8-21, July 16 to Sept. 30)

1.9	94	2.6	378
2.0	121	2.8	508
2.2	187	3.0	665
2.4	272	3.3	940

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	240	447	718	375	356	257	379	223	253	294	240	156
2	301	460	700	380	281	260	343	227	219	297	222	162
3	267	476	709	378	170	252	314	223	288	350	216	156
4	306	516	700	384	220	303	312	215	339	354	212	160
5	406	546	700	367	207	332	302	211	295	346	220	160
6	430	538	691	361	208	441	302	215	254	376	224	152
7	428	538	691	351	191	595	302	219	254	380	224	142
8	434	538	700	424	260	744	307	215	248	373	220	130
9	434	516	691	490	320	883	302	215	250	384	220	146
10	447	516	691	494	315	930	302	215	266	312	216	138
11	460	491	683	494	280	940	302	214	305	317	212	130
12	416	406	657	494	260	902	302	186	396	310	216	128
13	350	462	649	474	265	864	293	231	391	292	216	128
14	365	504	640	481	265	845	306	215	390	292	212	128
15	413	546	624	481	255	774	289	215	384	282	208	122
16	414	538	599	474	275	683	311	219	378	280	216	116
17	415	538	546	354	246	640	320	223	384	280	228	104
18	415	553	520	368	232	649	314	223	391	280	220	108
19	400	560	440	361	260	583	317	202	390	280	232	104
20	384	576	428	355	255	480	322	220	403	280	228	104
21	384	583	428	310	255	440	328	230	397	270	228	110
22	393	633	421	345	268	437	304	223	390	260	228	104
23	406	665	404	337	257	419	223	227	359	260	224	99
24	424	679	403	180	245	397	239	227	370	250	216	130
25	420	665	397	316	222	428	223	230	378	260	202	118
26	419	657	385	333	252	429	254	236	338	250	190	102
27	453	649	397	385	262	421	254	245	303	232	184	108
28	444	665	390	400	267	421	195	232	293	202	180	104
29	456	718	377	367	-	433	221	223	276	228	170	124
30	478	718	378	364	-	434	230	223	258	240	162	130
31	464	-	360	357	-	385	-	227	-	236	160	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	12,466	478	240	402	-	-
November	16,897	718	406	563	-	-
December	17,117	718	360	552	-	-
Calendar year 1945	160,044	1,860	87	438	2.11	28.61
January	12,014	494	180	388	-	-
February	7,149	356	170	255	-	-
March	17,001	940	252	548	-	-
April	8,712	379	195	290	-	-
May	6,849	245	186	221	-	-
June	9,840	403	219	328	-	-
July	9,047	384	202	292	-	-
August	6,546	240	160	211	-	-
September	3,801	162	99	127	-	-
Water year 1945-46	127,439	940	99	349	168	22.79

Note.- Increase in contents in Owasco Lake during calendar year 1945, about 330,200,000 cubic feet (equivalent mean discharge, 10.5 sec.-ft.; runoff, 0.68 inch); increase in elevation, 1.15 feet; decrease in contents during water year 1945-46, about 261,300,000 cubic feet (equivalent mean discharge, 8.29 sec.-ft.; runoff, 0.54 inch); decrease in elevation, 0.91 foot.

Onondaga Creek at Syracuse, N. Y.

Location.- Water-stage recorder and steel plate weir, lat. 43°00'35", long. 76°09'00", 75 feet upstream from end of channel improvement, 300 feet upstream from Ballantyne Road Bridge, and 2 miles south of center of Syracuse, Onondaga County. Datum of gage is 401.25 feet above mean sea level, datum of 1929.

Drainage area.- 98.2 square miles.

Records available.- November 1939 to September 1946.

Extremes.- Maximum discharge during year, 1,830 second-feet Oct. 2 (gage height, 6.95 feet); minimum, 3.8 second-feet (regulated) Sept. 16 (gage height, 1.945 feet); minimum daily, 17 second-feet (regulated) Sept. 20.

1939-46: Maximum discharge, 3,980 second-feet Dec. 30, 1942 (gage height, 9.58 feet); minimum, 1.2 second-feet (regulated) Sept. 12, 1941 (gage height, 1.85 feet); minimum daily, 8.5 second-feet (regulated) Sept. 6, 1942.

Remarks.- Records excellent except those for periods of backwater from debris, or fragmentary gage-height record, which are good, and those for periods of ice effect, which are fair. Diurnal fluctuation at low and medium flow caused by mills.

Rating tables, water year 1945-46, except periods of ice effect or backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1, 2

3.7	304	5.5	978
4.0	392	6.0	1,220
4.5	562	6.3	1,400
5.0	755		

Oct. 3 to Sept. 30

2.1	11	2.8	91	4.5	547
2.2	18	3.0	127	5.0	737
2.3	26	3.2	170	5.5	952
2.4	37	3.6	268	5.8	1,100
2.6	62	4.0	382		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	310	184	261	180	180	b125	94	77	209	59	47	22
2	1,350	229	215	b125	134	197	100	69	294	276	42	21
3	1,070	f370	231	b120	b96	274	93	65	170	121	31	21
4	466	f335	278	144	b88	358	90	63	128	69	28	20
5	295	f248	*241	161	b84	654	90	65	108	56	30	20
6	240	f212	219	296	103	565	98	66	94	50	27	19
7	224	f192	277	316	178	791	100	63	94	47	26	20
8	220	180	337	*223	127	775	88	80	90	44	26	19
9	380	168	301	189	119	*640	102	71	98	43	24	28
10	374	167	265	205	110	578	104	70	79	41	24	18
11	c260	157	b215	182	b90	346	90	66	90	38	25	24
12	c210	239	b180	172	b94	271	82	146	214	50	25	23
13	222	210	b170	172	98	265	79	94	109	49	22	22
14	272	258	b180	b135	321	243	c76	76	85	42	34	20
15	320	210	b170	b145	292	246	c74	75	c74	41	27	19
16	290	176	b150	b116	b140	256	84	70	c66	40	24	19
17	237	166	b114	b120	b150	217	74	72	c62	36	27	18
18	201	235	b135	138	b124	196	70	83	78	32	30	18
19	178	263	b124	121	b92	180	70	88	79	31	26	18
20	168	455	b118	b102	b102	166	73	76	64	30	36	17
21	161	344	b112	b108	*b88	157	70	109	63	31	28	19
22	147	350	b108	b108	b94	149	66	118	60	33	25	22
23	172	362	b104	b104	b104	149	63	81	57	37	23	23
24	350	251	b100	b106	103	140	89	69	52	42	25	c24
25	332	224	b110	110	102	134	72	64	47	35	25	c38
26	292	212	b175	107	88	129	66	73	43	29	c23	c25
27	347	193	b190	b84	103	122	107	104	72	28	c22	23
28	340	218	158	b90	131	112	110	183	62	26	21	21
29	256	347	145	b92	-	107	106	125	52	25	22	22
30	218	321	147	b92	-	101	88	93	49	24	22	74
31	200	-	221	134	-	94	-	81	-	25	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,102	1,350	147	326	3.32	3.83
November	7,476	455	157	249	2.54	2.83
December	5,751	337	100	186	1.89	2.18
Calendar year 1945	71,721	1,510	21	196	2.00	27.16
January	4,497	316	84	145	1.48	1.70
February	3,535	321	84	126	1.28	1.34
March	8,737	791	94	282	2.87	3.31
April	2,568	110	63	85.6	.872	.97
May	2,635	183	63	85.0	.866	1.00
June	2,842	294	43	94.7	.964	1.08
July	1,530	276	24	49.4	.503	.58
August	840	47	21	27.1	.276	.32
September	697	74	17	23.2	.236	.26
Water year 1945-46	51,210	1,350	17	140	1.43	19.40

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
c Backwater from debris.
f Fragmentary gage-height record; discharge computed from reconstructed gage-height graph.

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East Branch Fish Creek at Taberg, N. Y.

Location.- Water-stage recorder, lat. 43°18'05", long. 75°37'10", at highway bridge in Taberg, Oneida County, just downstream from Furnace Creek. Datum of gage is 491.12 feet above mean sea level, datum of 1929.

Drainage area.- 189 square miles.

Records available.- April 1923 to September 1946.

Average discharge.- 23 years, 533 second-feet.

Extremes.- Maximum discharge during year, 13,600 second-feet Oct. 2 (gage height, 10.90 feet); minimum, 12 second-feet (regulated) Sept. 7 (gage height, -0.40 foot).

1923-46: Maximum discharge, that of Oct. 2, 1945; minimum, 5.4 second-feet (regulated) June 28, 1941 (gage height, -0.10 foot).

Revisions.- The figures of maximum and peak discharge for the water years 1923-45 have been revised as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (sec.-ft.)	Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (sec.-ft.)
564.....	1923†	Apr. 8	5.66	4,320	874....	1938-39	Apr. 26	5.31	4,280
584,604.	1923-24	Apr. 6	8.2	9,860	894....	1939-40	Apr. 18	6.63	6,470
604.....	1924-25	Oct. 1	5.5	5,260			May 2	-	4,860
624.....	1925-26	Apr. 25	7.6	8,190	924....	1940-41	Dec. 30	7.52	7,780
644.....	1926-27	Nov. 16	6.15	5,800	954....	1941-42	Dec. 25	7.58	7,730
664.....	1927-28	Apr. 8	7.7	8,360			Apr. 7	-	5,930
684.....	1928-29	Mar. 16	6.0	5,540	974....	1942-43	Apr. 26	-	5,480
699.....	1929-30	Jan. 8	8.1	9,040			Apr. 28	-	4,620
714.....	1930-31	Apr. 11	5.53	4,800			May 1	6.74	6,220
729.....	1931-32	Jan. 18	5.48	4,550	1004,	1943-44	Nov. 9	-	5,100
744,847.	1932-33	Oct. 6	9.18	10,700	1034..		Apr. 10	-	5,720
759.....	1933-34	Nov. 30	6.52	6,130			Apr. 24	6.58	5,930
784.....	1934-35	Jan. 10	6.30	5,760	1034...	1944-45	Mar. 18	-	5,990
799,804.	1935-36	Mar. 18	6.35	6,050			Mar. 22	7.18	7,100
824.....	1936-37	Jan. 15	5.70	4,900			Apr. 5	-	4,830
854.....	1937-38	Mar. 24	††6.80	5,910					
		Sept.22	-	4,500					

† April to September.
†† Backwater from ice.

Remarks.- Records good except those for periods of ice effect, which are fair. The city of Rome diverts water above the station for water supply. Diversion dam at Rome occasionally caused diurnal fluctuation during low flow.

Revisions.- Revised figures of discharge for high-water periods in the water years 1923-30, 1933-36, and 1938 are given herewith:

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1923		1927-28	
Apr. 6.....	3,800	Apr. 5.....	2,900
7.....	3,400	6.....	4,060
8.....	4,000	7.....	5,780
10.....	2,400	8.....	7,020
11.....	2,400	9.....	3,390
12.....	2,600		
21.....	3,200	1928-29	
22.....	3,600	Mar. 15.....	3,870
23.....	3,400	16.....	4,970
24.....	2,200	17.....	3,160
		Apr. 6.....	4,620
1923-24		7.....	3,890
Nov. 30.....	2,700	8.....	3,400
Dec. 1.....	3,510		
Apr. 6.....	4,560	1929-30	
7.....	6,410	Jan. 8.....	5,390
8.....	3,700	9.....	5,640
14.....	4,190	10.....	2,970
15.....	3,320	Apr. 7.....	4,920
Sept.29.....	848		
30.....	6,400	1932-33	
		Oct. 5.....	2,150
1924-25		6.....	9,240
Oct. 1.....	3,410	7.....	4,390
1925-26		1933-34	
Nov. 13.....	4,960	Nov. 30.....	4,490
14.....	6,890		
15.....	3,500	1934-35	
Apr. 22.....	3,170	Jan. 10.....	5,500
23.....	4,820		
24.....	5,420	1935-36	
25.....	7,570	Mar. 27.....	4,630
26.....	4,230	28.....	4,340
27.....	2,840		
		1937-38	
1926-27		Mar. 24.....	5,000
Nov. 16.....	2,130		
17.....	3,960		

Discharge, in second-feet, of East Branch Fish Creek at Taberg, N. Y., water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,110	464	469	200	160	220	773	280	638	133	103	33
2	10,400	1,030	393	190	155	230	882	238	719	1,250	100	33
3	3,890	1,640	432	180	150	250	924	205	411	588	80	47
4	1,550	1,250	410	175	145	277	780	188	284	269	86	45
5	928	810	345	170	150	373	982	225	229	160	175	22
6	676	607	415	376	170	643	866	292	208	116	100	46
7	613	512	624	1,200	250	1,360	728	238	232	93	24	16
8	659	450	682	1,320	320	1,560	565	213	371	75	31	18
9	783	410	563	885	350	3,380	571	199	538	68	37	26
10	601	393	483	1,140	340	2,810	547	202	310	56	86	123
11	478	365	357	892	310	*2,120	454	412	270	46	90	366
12	498	586	264	*659	280	1,660	422	1,290	296	93	84	202
13	961	671	220	484	270	1,540	378	625	205	89	38	120
14	823	1,050	210	357	450	1,910	364	383	159	62	61	87
15	694	688	205	310	580	2,790	641	364	133	49	24	47
16	764	563	200	280	700	2,940	1,430	346	121	40	91	42
17	732	539	*190	260	680	2,730	802	747	105	35	506	59
18	569	1,400	180	250	600	2,530	578	692	312	32	306	53
19	469	1,450	170	230	500	2,320	547	1,020	319	30	146	24
20	450	1,580	160	210	440	2,080	540	866	188	145	103	27
21	415	878	155	210	380	1,980	493	1,500	205	125	97	38
22	369	1,420	150	205	330	2,030	407	1,290	208	161	89	55
23	440	1,440	145	200	300	1,980	368	691	163	300	93	83
24	596	833	145	195	270	1,520	470	465	125	196	53	95
25	776	682	145	205	250	1,480	392	373	101	110	60	240
26	1,050	590	150	185	240	1,420	337	566	86	74	60	147
27	1,290	517	170	175	230	1,920	383	482	128	56	70	99
28	885	537	185	170	225	1,850	378	355	103	48	34	86
29	635	664	185	165	-	1,910	392	273	78	38	61	58
30	522	552	180	160	-	1,700	333	226	103	33	31	602
31	469	-	200	170	-	1,110	-	202	-	34	37	-

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 5, Jan. 15 to Mar. 3.

Monthly discharge, in second-feet, 1923-46

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October								
November								
December								
Calendar year								
January	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-
April 30, 1923	57,600	4,000	220	1,920	+13.2	-	-	-
May	20,560	1,700	200	663	+12.7	-	-	-
June	8,040	1,200	80	268	+13.8	-	-	-
July	2,670	260	44	86.1	+14.3	-	-	-
August	1,598	95	30	51.5	+12.9	-	-	-
September	3,469	420	46	116	+13.0	-	-	-
Water year	-	-	-	-	-	-	-	-
October 1923	7,019	1,520	53	226	+13.0	-	-	
November	10,724	2,700	147	357	+12.8	-	-	-
December	20,337	3,510	154	656	+12.3	-	-	-
Calendar year	-	-	-	-	-	-	-	-
January 1924	26,179	4,340	180	844	+13.4	-	-	-
February	6,960	-	-	240	+14.4	-	-	-
March	12,144	1,090	-	392	+13.9	-	-	-
April	66,143	6,410	517	2,200	+12.9	-	-	-
May	32,107	2,850	364	1,040	+12.2	-	-	-
June	6,600	382	112	220	+12.6	-	-	-
July	3,720	290	58	120	+13.3	-	-	-
August	3,889	324	50	125	+13.3	-	-	-
September	13,738	6,400	44	458	+13.1	-	-	-
Water year 1923-24	209,560	6,410	44	573	+13.1	586	3.10	42.18
October 1924	10,886	3,410	100	351	+13.0	-	-	-
November	9,300	2,310	65	310	+12.9	-	-	-
December	9,491	1,880	130	306	+13.3	-	-	-
Calendar year 1924	201,157	6,410	44	550	+13.2	563	2.98	40.53
January 1925	4,910	180	140	158	+14.1	-	-	-
February	30,851	4,270	140	1,100	+14.4	-	-	-
March	45,886	2,990	591	1,480	+13.5	-	-	-
April	40,861	2,160	722	1,360	+13.2	-	-	-
May	14,880	1,170	185	480	+13.4	-	-	-
June	5,830	529	79	194	+14.1	-	-	-
July	7,254	1,480	71	234	+13.9	-	-	-
August	5,437	1,340	53	175	+13.7	-	-	-
September	11,922	2,000	55	397	+14.0	-	-	-
Water year 1924-25	197,508	4,270	53	541	+13.6	555	2.94	39.84

* Diversion by city of Rome for water supply (figures furnished by city of Rome).

Monthly discharge, in second-feet, of East Branch Fish Creek at Taberg, N. Y., 1923-46--Continued

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1925	23,782	3,440	200	761	+13.3	-	-	-
November	39,672	6,890	386	1,320	+13.1	-	-	-
December	19,856	3,020	300	641	+13.4	-	-	-
Calendar year 1925	250,941	6,890	53	688	+13.7	701	3.71	50.36
January 1926	11,354	830	233	366	+15.6	-	-	-
February	5,870	280	180	210	+15.8	-	-	-
March	9,807	619	200	316	+14.4	-	-	-
April	62,927	7,570	337	2,100	+13.3	-	-	-
May	39,536	4,130	239	1,280	+13.0	-	-	-
June	14,230	2,050	189	474	+13.2	-	-	-
July	5,435	1,000	59	175	+14.0	-	-	-
August	10,382	2,370	68	335	+14.0	-	-	-
September	11,486	1,460	83	383	+14.1	-	-	-
Water year 1925-26	254,137	7,570	59	696	+13.9	710	3.76	51.00
October 1926	22,711	2,190	177	733	+14.1	-	-	-
November	36,459	3,960	535	1,220	+13.6	-	-	-
December	9,385	1,040	220	303	+14.1	-	-	-
Calendar year 1926	239,582	7,570	59	656	+14.1	670	3.54	48.16
January 1927	9,632	750	180	311	+14.3	-	-	-
February	10,597	638	220	378	+14.2	-	-	-
March	40,752	4,030	200	1,310	+13.7	-	-	-
April	28,176	1,800	492	939	+13.1	-	-	-
May	21,489	1,420	304	693	+12.7	-	-	-
June	6,031	550	98	201	+12.8	-	-	-
July	6,092	1,130	70	197	+12.7	-	-	-
August	4,254	576	58	137	+13.9	-	-	-
September	4,255	528	56	142	+12.1	-	-	-
Water year 1926-27	199,833	4,030	56	547	+13.4	561	2.97	40.28
October 1927	15,871	3,840	57	512	+10.3	-	-	-
November	32,027	3,070	155	1,070	+12.0	-	-	-
December	34,114	4,150	260	1,100	+13.2	-	-	-
Calendar year 1927	213,290	4,150	56	584	+12.9	597	3.16	42.90
January 1928	20,702	3,680	260	668	+13.2	-	-	-
February	12,703	854	240	438	+13.0	-	-	-
March	22,293	2,930	240	719	+12.0	-	-	-
April	54,435	7,020	727	1,810	+13.0	-	-	-
May	31,160	3,060	241	1,010	+13.7	-	-	-
June	12,382	2,810	145	413	+13.8	-	-	-
July	11,239	1,320	108	363	+14.7	-	-	-
August	10,624	1,350	86	343	+14.3	-	-	-
September	6,937	1,040	89	231	+14.0	-	-	-
Water year 1927-28	264,487	7,020	57	723	+13.1	736	3.89	52.99
October 1928	16,198	1,820	140	523	+13.5	-	-	-
November	17,578	2,630	270	586	+13.4	-	-	-
December	22,755	3,820	260	734	+13.5	-	-	-
Calendar year 1928	239,006	7,020	86	653	+13.5	667	3.53	48.00
January 1929	21,392	4,340	200	690	+13.9	-	-	-
February	5,823	280	170	208	+13.7	-	-	-
March	45,716	4,970	200	1,470	+13.9	-	-	-
April	45,163	4,620	637	1,510	+13.2	-	-	-
May	29,450	3,560	202	950	+13.3	-	-	-
June	6,816	738	104	227	+13.7	-	-	-
July	6,454	462	62	208	+13.5	-	-	-
August	9,293	3,500	48	300	+13.2	-	-	-
September	5,601	865	47	187	+13.1	-	-	-
Water year 1928-29	232,239	4,970	47	636	+13.5	650	3.44	46.67
October 1929	10,352	1,220	135	334	+13.0	-	-	-
November	15,298	1,660	183	510	+13.0	-	-	-
December	14,243	1,370	220	459	+13.3	-	-	-
Calendar year 1929	215,601	4,970	47	591	+13.4	604	3.20	43.39
January 1930	32,691	5,640	240	1,050	+13.8	-	-	-
February	15,132	2,440	150	540	+13.9	-	-	-
March	23,011	2,990	312	742	+14.1	-	-	-
April	43,686	4,920	625	1,460	+13.4	-	-	-
May	16,028	1,610	187	517	+13.5	-	-	-
June	13,937	2,610	108	465	+14.2	-	-	-
July	5,898	718	46	190	+14.6	-	-	-
August	2,114	292	25	68.2	+15.3	-	-	-
September	3,068	274	30	102	+14.7	-	-	-
Water year 1929-30	195,458	5,640	25	536	+13.9	549	2.90	39.46

* Diversion by city of Rome for water supply (figures furnished by city of Rome).

Monthly discharge, in second-feet, of East Branch Fish Creek at Taberg, N. Y., 1923-46--Continued

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1930	3,419	275	55	110	+13.7	-	-	-
November	3,784	264	67	126	+12.8	-	-	-
December	6,144	603	100	198	+12.6	-	-	-
Calendar year 1930	168,912	5,640	25	463	+13.9	477	2.52	34.24
January 1931	3,340	130	100	108	+12.3	-	-	-
February	4,210	240	95	150	+11.9	-	-	-
March	12,429	1,270	142	401	+11.8	-	-	-
April	43,960	4,420	456	1,470	+11.6	-	-	-
May	20,610	1,660	239	665	+10.9	-	-	-
June	5,417	658	54	181	+12.9	-	-	-
July	8,858	1,960	47	286	+14.2	-	-	-
August	5,018	677	21	162	+13.9	-	-	-
September	12,939	1,090	68	431	+13.2	-	-	-
Water year 1930-31	130,128	4,420	21	357	+12.7	369	1.95	26.52
October 1931	13,445	1,310	119	434	+13.1	-	-	-
November	22,338	2,100	338	745	+12.4	-	-	-
December	24,102	2,700	233	777	+11.6	-	-	-
Calendar year 1931	176,666	4,420	21	484	+12.5	497	2.63	35.66
January 1932	32,892	3,900	240	1,060	+12.1	-	-	-
February	16,691	1,870	240	576	+12.9	-	-	-
March	11,214	923	200	362	+12.8	-	-	-
April	53,863	3,710	670	1,800	+12.1	-	-	-
May	19,915	3,160	161	642	+12.4	-	-	-
June	5,458	438	85	182	+13.7	-	-	-
July	11,461	3,020	80	370	+13.2	-	-	-
August	9,270	3,150	58	299	+13.1	-	-	-
September	6,561	1,620	80	219	+12.8	-	-	-
Water year 1931-32	227,210	3,900	58	621	+12.7	633	3.35	45.62
October 1932	32,100	9,240	224	1,040	+12.5	-	-	-
November	27,201	2,830	230	907	+12.3	-	-	-
December	16,829	2,830	170	543	+12.4	-	-	-
Calendar year 1932	243,455	9,240	58	665	+12.7	678	3.59	48.82
January 1933	16,978	2,260	230	548	+12.5	-	-	-
February	7,151	480	170	255	+12.7	-	-	-
March	13,245	766	160	427	+12.7	-	-	-
April	56,592	4,260	475	1,890	+12.5	-	-	-
May	11,988	1,480	127	387	+12.9	-	-	-
June	2,447	332	33	81.6	+15.4	-	-	-
July	1,025	193	13	33.1	+15.5	-	-	-
August	1,876	320	13	60.5	+13.9	-	-	-
September	1,839	182	15	61.3	+13.7	-	-	-
Water year 1932-33	169,271	9,240	13	519	+13.2	532	2.81	38.19
October 1933	4,229	368	34	136	+13.6	-	-	-
November	14,254	4,490	114	475	+13.2	-	-	-
December	14,348	2,700	110	463	+13.8	-	-	-
Calendar year 1933	145,972	4,490	13	400	+13.5	413	2.19	29.69
January 1934	14,027	1,330	130	452	+16.9	-	-	-
February	2,845	170	80	102	+18.3	-	-	-
March	17,846	1,200	80	576	+19.4	-	-	-
April	49,476	4,110	465	1,649	+18.2	-	-	-
May	7,300	468	92	235	+16.5	-	-	-
June	3,886	385	44	130	+17.5	-	-	-
July	2,264	370	18	73.0	+18.8	-	-	-
August	1,179	63	21	38.0	+16.9	-	-	-
September	3,872	684	20	129	+15.6	-	-	-
Water year 1933-34	135,526	4,490	18	371	+16.5	388	2.05	27.85
October 1934	6,624	617	80	214	+15.1	-	-	-
November	16,747	1,300	247	558	+14.6	-	-	-
December	13,096	2,220	170	422	+15.7	-	-	-
Calendar year 1934	139,162	4,110	18	381	+17.0	398	2.11	28.60
January 1935	27,207	5,500	170	878	+16.8	-	-	-
February	7,854	644	160	280	+18.2	-	-	-
March	27,077	1,900	240	873	+17.6	-	-	-
April	29,517	2,340	553	984	+14.7	-	-	-
May	21,010	2,140	175	678	+14.5	-	-	-
June	14,622	2,520	106	487	+15.2	-	-	-
July	9,482	1,960	87	306	+16.3	-	-	-
August	1,769	116	18	57.1	+15.6	-	-	-
September	4,041	651	40	135	+13.9	-	-	-
Water year 1934-35	179,046	5,500	18	491	+15.7	506	2.68	36.36

* Diversion by city of Rome for water supply (figures furnished by city of Rome).

Monthly discharge, in second-feet, of East Branch Fish River at Taberg, N. Y., 1923-46--Continued

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1935	12,172	2,970	96	393	+14.1	-	-	-
November	18,245	1,290	231	608	+13.4	-	-	-
December	9,509	868	100	307	+14.5	-	-	-
Calendar year 1935	182,505	5,500	18	500	+15.4	515	2.72	37.02
January 1936	7,017	569	100	226	+15.7	-	-	-
February	3,740	220	100	129	+17.5	-	-	-
March	61,510	5,060	170	1,980	+17.9	-	-	-
April	46,955	4,000	801	1,565	+14.7	-	-	-
May	16,457	1,810	196	531	+14.3	-	-	-
June	3,164	242	47	105	+17.1	-	-	-
July	1,456	175	22	47.0	+17.7	-	-	-
August	2,174	453	16	70.1	+16.5	-	-	-
September	4,568	333	35	152	+14.8	-	-	-
Water year 1935-36	186,967	5,060	16	511	+15.7	527	2.79	37.92
October 1936	17,368	2,020	149	560	+14.4	-	-	-
November	19,691	1,700	220	656	+13.9	-	-	-
December	18,937	2,800	190	611	+15.3	-	-	-
Calendar year 1936	203,037	5,060	16	555	+15.8	571	3.02	41.09
January 1937	44,131	4,400	380	1,424	+15.1	-	-	-
February	17,653	2,260	200	630	+15.5	-	-	-
March	6,840	360	160	221	+15.2	-	-	-
April	48,370	3,100	200	1,612	+14.5	-	-	-
May	20,557	2,100	200	663	+14.4	-	-	-
June	6,580	540	82	219	+15.4	-	-	-
July	2,687	262	33	86.7	+17.2	-	-	-
August	2,408	390	23	77.7	+16.7	-	-	-
September	1,790	188	16	59.7	+15.8	-	-	-
Water year 1936-37	207,012	4,400	16	567	+15.3	582	3.08	41.83
October 1937	18,930	3,260	25	611	+14.9	-	-	-
November	23,355	2,980	295	778	+13.6	-	-	-
December	10,506	1,140	130	339	+14.6	-	-	-
Calendar year 1937	203,807	4,400	16	558	+15.3	574	3.04	41.20
January 1938	8,954	700	160	289	+14.9	-	-	-
February	30,318	2,900	341	1,083	+15.1	-	-	-
March	46,085	5,000	340	1,487	+14.9	-	-	-
April	31,131	2,280	337	1,038	+13.2	-	-	-
May	10,369	957	165	334	+12.9	-	-	-
June	3,513	270	41	117	+14.4	-	-	-
July	5,063	704	40	163	+15.3	-	-	-
August	6,331	1,050	38	204	+15.0	-	-	-
September	19,426	3,960	68	648	+13.4	-	-	-
Water year 1937-38	213,981	5,000	25	586	+14.4	601	3.18	43.14
October 1938	6,952	920	99	224	+14.0	-	-	-
November	13,316	1,970	140	444	+13.3	-	-	-
December	14,252	1,660	150	460	+13.7	-	-	-
Calendar year 1938	195,710	5,000	38	536	+14.2	550	2.91	39.53
January 1939	8,996	837	140	290	+13.8	-	-	-
February	10,123	1,070	110	362	+14.7	-	-	-
March	22,382	2,120	259	722	+14.6	-	-	-
April	52,960	3,820	666	1,765	+13.5	-	-	-
May	16,171	1,540	147	522	+13.1	-	-	-
June	4,744	335	68	158	+13.8	-	-	-
July	1,500	116	15	48.4	+16.7	-	-	-
August	1,867	211	22	60.2	+15.6	-	-	-
September	1,381	139	15	46.0	+14.5	-	-	-
Water year 1938-39	154,644	3,820	15	424	+14.7	438	2.32	31.49
October 1939	4,919	413	45	159	+13.2	-	-	-
November	6,145	578	64	205	+12.8	-	-	-
December	10,559	929	86	341	+13.2	-	-	-
Calendar year 1939	141,747	3,820	15	388	+14.1	402	2.13	28.90
January 1940	3,760	182	92	121	+14.8	-	-	-
February	4,925	330	88	170	+14.6	-	-	-
March	6,724	573	116	217	+14.6	-	-	-
April	63,279	5,480	756	2,109	+14.0	-	-	-
May	29,897	4,230	290	964	+12.6	-	-	-
June	9,272	1,320	116	309	+12.6	-	-	-
July	4,427	485	57	143	+13.7	-	-	-
August	1,210	80	21	39.0	+15.0	-	-	-
September	3,612	924	30	120	+13.2	-	-	-
Water year 1939-40	148,729	5,480	21	406	+13.7	420	2.22	30.25

* Diversion by city of Rome for water supply (figures furnished by city of Rome).

Monthly discharge, in second-feet, of East Branch Fish Creek at Taberg, N. Y., 1923-46--Continued

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1940	3,622	341	50	117	+12.8	-	-	-
November	17,924	1,310	173	597	+12.6	-	-	-
December	31,822	6,250	215	1,027	+14.3	-	-	-
Calendar year 1940	180,474	6,250	21	493	+13.7	507	2.68	36.50
January 1941	12,105	1,440	200	390	+15.3	-	-	-
February	8,134	550	175	290	+15.9	-	-	-
March	7,724	340	195	249	+16.8	-	-	-
April	47,737	3,750	266	1,591	+16.6	-	-	-
May	5,096	335	76	164	+18.1	-	-	-
June	1,588	118	12	52.9	+19.8	-	-	-
July	2,665	312	10	86.0	+21.0	-	-	-
August	1,901.8	371	8.8	61.3	+19.2	-	-	-
September	9,734	2,990	34	324	+17.7	-	-	-
Water year 1940-41	150,052.8	6,250	8.8	411	+16.7	428	2.26	30.73
October 1941	15,680	1,630	78	506	+17.1	-	-	-
November	19,905	1,180	396	664	+16.5	-	-	-
December	23,481	5,540	195	757	+17.0	-	-	-
Calendar year 1941	155,750.8	5,540	8.8	427	+17.6	444	2.35	31.91
January 1942	12,428	952	181	401	+18.0	-	-	-
February	8,952	978	124	320	+18.0	-	-	-
March	31,600	2,490	237	1,019	+17.3	-	-	-
April	49,975	5,120	543	1,666	+16.4	-	-	-
May	11,720	750	153	378	+16.4	-	-	-
June	5,077	694	46	169	+17.9	-	-	-
July	1,936	242	24	62.5	+20.6	-	-	-
August	4,238	991	28	137	+19.9	-	-	-
September	10,200	2,510	16	340	+19.1	-	-	-
Water year 1941-42	195,192	5,540	16	535	+17.9	553	2.93	39.69
October 1942	8,995	900	114	290	+18.5	-	-	-
November	23,462	1,950	251	782	+18.6	-	-	-
December	17,206	3,200	250	555	+19.0	-	-	-
Calendar year 1942	185,789	5,120	16	509	+18.3	527	2.79	37.87
January 1943	17,962	2,450	289	579	+20.2	-	-	-
February	13,466	1,120	237	481	+20.4	-	-	-
March	40,786	3,210	313	1,316	+20.7	-	-	-
April	52,831	4,690	483	1,761	+19.8	-	-	-
May	56,006	4,720	468	1,807	+20.1	-	-	-
June	11,279	1,190	108	376	+21.6	-	-	-
July	5,129	912	61	165	+23.9	-	-	-
August	6,292	811	49	203	+22.7	-	-	-
September	2,862	254	40	95.4	+22.2	-	-	-
Water year 1942-43	256,276	4,720	40	702	+20.7	723	3.83	51.91
October 1943	11,594	2,210	42	374	+22.2	-	-	-
November	18,684	4,120	238	623	+21.1	-	-	-
December	6,203	354	125	200	+21.4	-	-	-
Calendar year 1943	243,094	4,720	40	666	+21.4	687	3.63	49.37
January 1944	5,143	520	113	166	+22.2	-	-	-
February	5,458	320	135	188	+23.3	-	-	-
March	16,676	1,420	140	538	+23.7	-	-	-
April	58,957	4,530	508	1,965	+22.7	-	-	-
May	22,113	2,550	119	713	+22.5	-	-	-
June	8,868	936	87	296	+23.5	-	-	-
July	2,205	214	24	71.1	+26.2	-	-	-
August	978	80	14	31.5	+26.1	-	-	-
September	4,620	673	21	154	+24.0	-	-	-
Water year 1943-44	161,499	4,530	14	441	+23.2	464	2.46	33.45

*Diversion by city of Rome for water supply (figures furnished by city of Rome).

Monthly discharge, in second-feet, of East Branch Fish Creek at Taberg, N. Y., 1923-46--Continued

Month	Observed				Diversion (second-feet)*	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October 1944	4,642	536	76	150	+23.2	-	-	-
November	3,956	318	77	132	+22.5	-	-	-
December	6,520	667	33	210	+22.6	-	-	-
Calendar year 1944	140,136	4,530	14	383	+23.5	406	2.15	29.27
January 1945	8,385	600	135	270	+23.4	-	-	-
February	6,992	794	112	250	+23.8	-	-	-
March	66,906	5,520	637	2,158	+23.8	-	-	-
April	36,450	4,150	368	1,215	+22.9	-	-	-
May	24,282	1,390	469	783	+22.3	-	-	-
June	11,298	715	103	377	+22.6	-	-	-
July	8,412	987	82	271	+23.6	-	-	-
August	3,707	634	28	120	+23.2	-	-	-
September	14,171	2,580	36	472	+22.0	-	-	-
Water year 1944-45	195,721	5,520	28	536	+23.0	559	2.96	40.16
October 1945	36,095	10,400	369	1,164	+21.6	-	-	-
November	24,551	1,640	365	818	+20.3	-	-	-
December	8,782	682	145	283	+20.7	-	-	-
Calendar year 1945	250,031	10,400	28	685	+22.5	708	3.75	50.82
January 1946	11,808	1,320	160	381	+22.1	-	-	-
February	9,225	700	145	329	+22.7	-	-	-
March	52,623	3,380	220	1,698	+22.7	-	-	-
April	17,727	1,430	333	591	+21.9	-	-	-
May	15,448	1,500	188	498	+21.2	-	-	-
June	7,348	719	78	245	+22.9	-	-	-
July	4,604	1,250	30	149	+25.8	-	-	-
August	2,956	506	24	95.4	+24.4	-	-	-
September	2,939	602	16	98.0	+23.3	-	-	-
Water year 1945-46	194,106	10,400	16	532	+22.5	554	2.93	39.81

* Diversion by city of Rome for water supply (figures furnished by city of Rome).

Limestone Creek at Fayetteville, N. Y.

Location.- Water-stage recorder, lat. 43°01'45", long. 76°00'50", 100 feet downstream from Genesee Street Bridge in Fayetteville, Onondaga County, and about 8 miles upstream from mouth. Datum of gage is 427.62 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 85.7 square miles, not including 15.7 square miles of Middle Branch Tioughnioga Creek Basin, flow from which may be completely diverted into Limestone Creek Basin through DeRuyter Reservoir.

Records available.- November 1939 to September 1946.

Extremes.- Maximum discharge during year, 4,070 second-feet Oct. 2 (gage height, 6.30 feet); minimum, 34 second-feet Sept. 20; minimum gage height, 1.465 feet Sept. 10, 13, 14 (result of temporary removal of stop logs from control).

1939-46: Maximum discharge, 6,260 second-feet Dec. 30, 1942 (gage height, 7.18 feet), from rating curve extended above 4,930 second-feet by logarithmic plotting; minimum, 14 second-feet (regulated) Aug. 10, 1940, Aug. 17, 1941; minimum gage height, 1.365 feet Aug. 17, 1941.

Remarks.- Records excellent except those for periods of fragmentary gage-height record or shifting control, which are good, and those for periods of ice effect, which are fair. Flow affected by canal diverting from Limestone Creek about 3 miles above station and returning water to creek about 400 feet above station, and by regulation of DeRuyter Reservoir.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Sept. 10-14)

1.5	32	2.2	143	3.0	360	4.2	1,040
1.6	44	2.4	186	3.3	480	4.5	1,300
1.8	73	2.6	234	3.6	627	5.0	1,870
2.0	106	2.8	292	3.9	810	5.6	2,770

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	713	154	232	162	160	134	91	84	317	87	64	39
2	2,630	300	188	b130	134	194	103	75	f326	370	58	38
3	771	f406	219	b122	b104	305	94	68	195	150	52	39
4	372	289	256	137	b94	f446	94	67	154	103	48	39
5	265	216	*202	171	b88	f761	98	68	132	87	52	39
6	219	186	b200	418	99	759	103	70	113	79	48	39
7	222	f168	328	356	186	1,010	97	67	111	73	48	39
8	230	156	356	232	b140	690	87	86	110	68	47	39
9	468	f149	259	*204	124	*802	101	75	139	67	44	40
10	272	f156	234	251	115	466	106	75	96	64	45	68
11	209	f145	b185	191	b96	292	92	75	130	61	47	57
12	200	f254	b170	182	103	230	87	157	215	72	45	44
13	224	198	b165	177	110	240	84	98	119	67	45	42
14	259	240	b170	135	492	219	79	83	96	60	47	40
15	277	177	b165	b150	330	249	76	96	86	62	43	40
16	251	160	b150	b122	b145	240	86	86	78	58	43	39
17	195	164	b120	b125	154	193	75	84	79	55	45	38
18	171	288	b130	b135	134	175	72	130	103	52	45	37
19	158	261	b122	b118	b100	162	70	126	94	51	43	36
20	156	552	b116	b98	108	147	73	96	79	51	45	36
21	143	286	b112	b104	*b96	139	70	167	83	52	43	37
22	137	413	b108	b100	101	132	67	147	78	55	42	40
23	219	333	b106	b98	104	137	67	104	73	54	42	39
24	336	219	b104	b100	103	122	102	89	67	62	43	43
25	280	209	b118	b106	99	132	79	83	64	47	43	60
26	262	198	186	b102	94	126	73	103	60	43	42	44
27	277	175	198	b82	92	115	101	147	85	42	40	40
28	219	249	160	b88	119	106	116	237	152	40	40	39
29	186	339	149	b88	-	101	132	158	104	39	41	42
30	173	271	154	89	-	98	99	119	83	39	42	77
31	162	-	216	115	-	91	-	103	-	42	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	10,656	2,630	137	344	-	-
November	7,311	552	145	244	-	-
December	5,578	356	104	180	-	-
Calendar year 1945	75,372	2,630	40	206	2.40	32.69
January	4,688	418	82	151	-	-
February	3,824	492	88	137	-	-
March	9,013	1,010	91	291	-	-
April	2,674	132	67	89.1	-	-
May	3,223	237	67	104	-	-
June	3,621	326	60	121	-	-
July	2,252	370	39	72.6	-	-
August	1,412	64	40	45.5	-	-
September	1,289	77	36	43.0	-	-
Water year 1945-46	55,541	2,630	36	152	1.77	24.09

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
f Fragmentary gage-height record; discharge computed on basis of reconstructed gage-height graph based on existing gage-height record, recorded range in stage, and records for Onondaga Creek at Syracuse.

Black River near Boonville, N. Y.

Location.- Water-stage recorder, lat. 43°30'35", long. 75°18'25", at highway bridge, three-quarters of a mile upstream from Sugar River and 2 miles northeast of Boonville, Oneida County.

Drainage area.- 295 square miles.

Records available.- February 1911 to September 1946.

Average discharge.- 35 years, 667 second-feet (unadjusted).

Extremes.- Maximum discharge during year, 10,400 second-feet Oct. 3 (gage height, 11.25 feet); minimum, 108 second-feet (regulated) Sept. 6 (gage height, 3.69 feet).
1911-46: Maximum discharge, that of Oct. 3, 1945; maximum gage height, about 12.5 feet, former site, Mar. 28, 1913 (discharge not determined, figure of 10,000 second-feet, previously published, believed to be too low); minimum discharge, about 5 second-feet (regulated) Aug. 26, 1918 (gage height, 2.40 feet).

Remarks.- Records excellent except those for periods of ice effect, which are good. Flow partly regulated by several headwater reservoirs. Forestport feeder diverts water from State Pond at Forestport. That portion of diverted water which does not pass down Black River Canal (flowing south) returns to Black River below station through Mill Creek sluiceway.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 2)

Oct. 1, 2		Oct. 3 to Sept. 30							
6.8	1,750	3.7	110	4.4	270	5.5	750	8.0	3,200
7.0	1,950	3.8	127	4.6	336	6.0	1,080	9.0	4,900
8.0	3,130	4.0	165	4.8	410	6.5	1,490	10.0	7,070
9.0	4,650	4.2	212	5.0	493	7.0	1,970	10.3	7,810
9.9	6,300								

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,810	810	600	420	370	400	982	568	850	321	232	149
2	6,160	894	500	370	400	400	968	525	1,340	1,010	258	143
3	7,780	1,710	540	350	390	410	1,030	484	1,020	1,100	261	138
4	3,660	1,960	560	350	340	420	968	467	804	646	258	138
5	2,200	1,500	490	360	350	490	982	454	693	442	283	131
6	1,570	1,180	470	450	360	660	947	507	573	343	246	124
7	1,370	1,020	540	660	480	1,220	875	498	530	289	212	129
8	1,380	920	600	900	*520	*1,900	792	476	530	264	204	140
9	1,510	792	580	840	520	3,100	739	472	816	252	192	147
10	1,680	727	540	960	540	3,800	727	467	730	229	343	226
11	1,360	682	480	980	490	3,220	677	536	578	215	493	276
12	1,210	750	350	880	440	2,270	666	1,090	573	212	450	215
13	1,360	823	*330	740	420	1,880	608	1,100	498	212	399	180
14	1,360	1,000	350	580	600	1,790	573	810	438	197	372	165
15	1,320	940	400	*480	880	2,080	588	768	383	183	376	157
16	1,290	810	430	420	820	2,360	750	823	358	174	428	153
17	1,210	768	400	410	780	2,460	722	975	326	165	913	149
18	1,100	1,250	390	410	720	2,410	650	1,090	418	161	716	147
19	947	2,120	380	400	620	2,350	671	1,320	516	172	516	145
20	786	2,090	370	380	580	2,200	716	1,440	414	276	472	143
21	710	1,800	360	370	500	2,080	722	1,740	365	283	395	145
22	666	1,590	350	360	450	2,060	661	2,410	350	387	316	153
23	704	1,710	340	370	440	2,100	614	1,680	322	438	267	149
24	927	1,340	340	380	440	1,840	722	1,180	292	442	232	195
25	1,100	1,140	350	400	430	1,630	744	908	264	347	218	346
26	1,340	982	370	430	420	1,570	639	1,230	240	280	194	258
27	1,590	823	390	400	410	1,700	639	1,320	226	237	180	212
28	1,420	733	400	380	410	1,760	624	1,110	232	210	165	178
29	1,150	710	390	370	-	1,650	650	868	229	190	159	176
30	989	666	390	360	-	1,500	608	677	212	178	157	399
31	894	-	430	360	-	1,180	-	603	-	176	153	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	52,553	7,780	666	1,695	5.75	6.63
November	34,240	2,120	666	1,141	3.87	4.32
December	13,410	600	330	433	1.47	1.69
Calendar year 1945	346,447	7,780	108	949	3.22	43.68
January	15,520	980	350	501	1.70	1.96
February	14,120	880	340	504	1.71	1.78
March	54,890	3,800	400	1,771	6.00	6.92
April	22,254	1,030	573	742	2.52	2.81
May	28,596	2,410	454	922	3.13	3.61
June	15,120	1,340	212	504	1.71	1.91
July	10,031	1,100	161	324	1.10	1.26
August	10,060	913	153	325	1.10	1.27
September	5,406	399	124	180	.610	.68
Water year 1945-46	276,200	7,780	124	757	2.57	34.84

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 1 to Mar. 10 (doubtful gage-height record Dec. 14, 22-26, Feb. 16).

Black River at Watertown, N. Y.

Location.- Water-stage recorder, lat. 43°59'05", long. 75°55'30", at Vanduzee Street Bridge, in Watertown, Jefferson County.

Drainage area.- 1,876 square miles.

Records available.- July 1920 to September 1946.

Average discharge.- 26 years, 3,854 second-feet.

Extremes.- Maximum discharge during year, 29,500 second-feet Oct. 4 (gage height, 9.43 feet); minimum, 55 second-feet (regulated) Aug. 4 (gage height, 0.00 foot); minimum daily, 246 second-feet (regulated) Sept. 2.

1920-46: Maximum discharge, 33,900 second-feet Apr. 9, 1928 (gage height, 10.6 feet); minimum, 10 second-feet (estimated, regulated) Sept. 2, 1934 (gage height, -0.19 foot); minimum daily, 137 second-feet (regulated) Sept. 4, 1939.

Maximum discharge known, about 39,700 second-feet in April 1869.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Flow partly regulated by Stillwater Reservoir, Fulton Chain of Lakes, and other reservoirs. During canal season water is diverted out of basin through Forestport feeder and Black River Canal (flowing south). Large diurnal fluctuation at low and medium flow caused by mills and power plants in and above Watertown.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-3		Oct. 4 to Sept. 30							
4.6	7,750	0.4	208	1.2	830	3.0	3,760	6.0	12,600
5.0	8,990	.6	324	1.6	1,270	3.5	4,810	7.0	16,800
6.0	12,600	.8	467	2.0	1,850	4.0	5,930	8.0	21,600
7.5	19,100	1.0	637	2.5	2,730	5.0	8,880	9.2	28,200

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,750	5,930	5,320	3,200	2,540	2,560	5,860	3,380	3,670	1,630	1,270	830
2	12,000	5,790	4,770	3,290	2,630	2,470	5,350	3,060	4,880	2,770	1,470	246
3	18,800	7,020	4,120	2,940	2,700	2,600	4,890	2,800	5,200	4,960	2,130	1,270
4	28,200	8,380	4,370	2,810	2,700	*2,640	4,790	2,650	4,820	4,970	705	1,100
5	22,900	8,150	4,090	3,020	2,600	3,070	4,660	2,290	4,120	4,310	1,630	1,080
6	16,800	7,920	3,860	4,530	2,590	3,860	4,770	2,200	3,590	3,140	1,510	962
7	12,500	7,430	3,970	11,800	2,680	8,000	4,810	2,510	3,100	1,960	1,500	1,140
8	10,000	6,490	4,790	11,300	3,100	10,100	4,430	2,380	3,160	1,820	1,310	1,290
9	8,410	5,690	5,210	9,830	3,540	13,000	4,050	2,440	3,770	1,700	1,350	1,410
10	7,640	5,170	4,960	9,760	3,470	15,100	3,820	2,390	4,120	1,570	1,260	1,530
11	7,250	4,830	4,410	8,950	3,750	18,700	a3,720	2,530	4,020	1,480	1,150	1,530
12	6,990	4,410	2,850	8,340	3,250	17,100	a3,400	2,800	3,580	1,510	1,410	1,970
13	6,990	4,560	2,800	7,050	3,110	14,600	a3,200	3,990	3,200	1,470	1,660	2,020
14	7,020	4,850	2,700	5,710	*3,500	15,000	a3,000	4,620	2,850	1,280	1,540	1,740
15	7,140	5,090	*2,750	4,000	4,640	15,300	a2,800	4,200	2,490	1,240	1,550	1,440
16	7,830	4,980	2,650	3,000	5,330	14,400	a3,700	3,780	2,200	1,360	1,500	1,370
17	7,890	4,790	2,600	3,100	5,280	14,200	a4,000	4,100	1,860	1,320	1,590	1,280
18	7,370	4,750	2,500	3,510	5,360	13,900	a3,800	4,670	1,990	1,270	2,140	1,480
19	7,050	6,060	2,500	3,000	5,160	13,000	a3,700	4,680	2,000	1,360	1,860	1,380
20	6,360	7,340	2,600	2,930	4,490	12,100	a3,700	5,220	2,290	1,440	1,780	1,260
21	5,530	7,990	2,600	*2,790	4,000	11,300	a3,800	5,710	2,440	1,490	1,590	1,280
22	4,730	9,230	2,700	2,660	3,700	10,500	a3,550	6,550	2,730	1,470	1,570	1,170
23	4,280	10,700	2,500	2,600	3,400	9,650	3,630	6,770	2,220	1,680	1,540	1,030
24	4,500	10,100	2,700	2,570	3,300	8,980	3,340	6,790	1,640	2,190	1,910	1,160
25	5,020	8,980	2,500	2,890	2,900	8,110	3,490	6,080	1,760	1,890	1,120	1,310
26	5,690	7,890	2,600	2,690	2,700	7,580	3,850	5,640	1,760	1,720	1,140	1,560
27	6,990	6,880	2,700	2,500	2,600	6,960	3,800	5,540	1,640	1,550	1,330	1,670
28	7,310	6,210	2,700	2,600	2,470	6,600	3,590	5,470	1,570	1,410	1,460	2,070
29	7,050	5,930	2,800	2,500	-	6,550	3,250	5,380	1,590	1,230	1,750	978
30	6,630	5,690	2,800	2,600	-	6,360	3,630	4,840	1,490	1,130	1,440	1,370
31	6,180	-	2,790	2,540	-	6,180	-	3,870	-	1,330	1,380	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	280,800	28,200	4,280	9,058	-	-
November	199,230	10,700	4,410	6,641	-	-
December	103,210	5,320	2,500	3,329	-	-
Calendar year 1945	1,867,096	28,200	548	5,115	2.73	37.03
January	141,010	11,800	2,500	4,549	-	-
February	97,490	5,360	2,470	3,482	-	-
March	300,470	18,700	2,470	9,693	-	-
April	118,380	5,860	2,800	3,946	-	-
May	129,330	6,790	2,200	4,172	-	-
June	85,750	5,200	1,490	2,858	-	-
July	59,650	4,970	1,130	1,924	-	-
August	46,545	2,140	705	1,501	-	-
September	39,926	2,070	246	1,331	-	-
Water year 1945-46	1,601,791	28,200	246	4,388	2.34	31.75

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of power-plant records.
Note.- Stage-discharge relation affected by ice Dec. 13, 14, 17-30, Jan. 15-17, 23, 27-30, Feb. 3-5, 21-27.

Black River Canal (flowing south) near Boonville, N. Y.

Location.- Two water-stage recorders and concrete controls, lat. 43°27'20", long. 75°19'25", gage 1 at lock 69, 2 miles south of Boonville, Oneida County, and gage 2 on Lansingkill spillway, 100 feet downstream from spillway head gates, 600 feet upstream from lock 70, and ½ mile upstream from lock 69. Datum of gage 1 is 1,105.56 feet above mean sea level, datum of 1929.

Records available.- September 1915 to September 1942 (canal seasons only), October 1942 to September 1946.

Extremes.- Maximum daily discharge during year, 222 second-feet Oct. 2; minimum daily, 2.0 second-feet May 7.

1915-46: Maximum daily discharge recorded, 323 second-feet Nov. 30, 1915; practically no flow at times when no water is being diverted.

Remarks.- Records good except those for periods of ice effect or no gage-height record at gage 1, which are fair. Record shows combined flow at gages 1 and 2 and represents total diversion from Black River at Forestport, through Forestport feeder, into Mohawk River Basin. Discharge during periods Oct. 1 to June 3, June 5-13, when no water was diverted, made up of leakage through head gates and runoff from area draining into canal above station.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	5.4	6.0	3.8	3.9	3.2	4.3	7.7	19	26	23	28
2	222	11	5.8	3.6	3.8	3.5	5.1	6.1	27	27	22	28
3	71	19	5.7	3.2	3.5	4.0	5.5	3.8	16	19	22	28
4	24	13	5.8	3.0	3.2	4.3	4.8	2.6	10	28	22	28
5	19	9.2	5.4	3.1	3.0	*7.3	5.4	2.7	9.7	26	24	28
6	17	7.1	5.7	20	4.0	14	5.2	2.4	9.4	24	23	28
7	17	6.2	7.0	16	6.8	35	5.0	2.0	7.2	23	21	28
8	19	5.8	7.0	8.2	6.8	29	4.5	2.2	7.2	23	20	28
9	23	5.4	6.4	6.8	*6.6	81	4.5	2.1	13	24	20	28
10	19	5.1	5.8	12	4.8	22	4.5	2.2	11	23	24	29
11	14	5.1	5.0	7.0	4.8	12	4.1	2.4	9.7	22	20	28
12	15	7.6	*4.8	6.4	4.0	10	4.0	4.4	8.5	23	16	30
13	23	8.2	4.5	5.4	3.8	11	3.2	9.2	6.9	23	22	29
14	17	12	4.2	*5.4	11	13	3.1	8.5	5.4	22	22	29
15	15	7.1	4.0	5.2	13	12	3.3	8.3	9.6	22	21	29
16	14	6.8	3.8	5.0	12	11	5.0	8.6	14	21	25	26
17	12	7.4	3.7	4.8	7.8	10	4.0	9.5	17	20	30	28
18	6.8	17	3.6	4.8	6.8	9.4	3.4	9.7	23	21	18	29
19	5.6	12	3.6	4.7	6.6	8.6	3.6	10	27	22	19	28
20	5.7	19	3.5	4.5	5.6	7.9	3.8	8.7	31	26	26	29
21	5.1	9.3	3.4	4.5	5.0	7.2	3.3	16	31	23	28	30
22	4.1	19	3.3	4.4	4.4	7.2	2.8	37	30	24	28	31
23	4.9	14	3.2	4.3	4.2	7.1	2.8	21	30	25	28	31
24	6.4	8.6	3.2	4.2	4.0	6.1	3.2	8.0	28	23	28	33
25	9.4	7.1	3.6	4.1	3.8	5.9	3.1	4.7	28	23	28	26
26	12	6.7	6.8	4.0	3.6	5.8	3.0	6.6	27	22	27	25
27	13	6.0	6.6	4.0	3.4	6.1	3.2	5.2	26	22	26	34
28	8.2	6.2	6.2	3.8	3.2	5.9	6.2	4.5	24	21	26	34
29	6.1	7.0	5.0	3.8	-	5.2	7.2	6.4	25	20	27	36
30	5.6	6.2	3.9	3.2	-	4.8	7.7	5.8	25	20	26	46
31	5.7	-	4.2	3.9	-	4.8	-	4.1	-	20	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	700.6	222	4.1	22.6		
November	279.5	19	5.1	9.32		
December	150.7	7.0	3.2	4.86		
Calendar year 1945	8,587.6	222	1.4	23.5		
January	177.1	20	3.0	5.71		
February	153.4	13	3.0	5.48		
March	374.3	81	3.2	12.1		
April	128.8	7.7	2.8	4.29		
May	232.4	37	2.0	7.50		
June	555.6	31	5.4	18.5		
July	708	28	19	22.8		
August	738	30	16	23.8		
September	894	46	25	29.8		
Water year 1945-46	5,092.4	222	2.0	14.0		

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 30, Dec. 2, 11-15, 17-30, Jan. 3-5, 14-26, Feb. 8, 9, 14-17, 20, 21, 24, Feb. 26 to Mar. 1. No gage-height record at gage 1 Apr. 18-22; discharge computed on basis of recorded range in stage and records for nearby stations. No gage-height record at gage 2 Oct. 1-4, May 21, 22; discharge computed on basis of high-water mark and record at gage 1.

Moose River at McKeever, N. Y.

Location.- Water-stage recorder, lat. 43°36'40", long. 75°06'35", half a mile west of McKeever, Herkimer County, and 2 miles downstream from South Branch. Datum of gage is 1,479.92 feet above mean sea level, datum of 1929.
Drainage area.- 365 square miles.
Records available.- May 1922 to September 1946. June 1900 to December 1922 at site at Moose River, 2½ miles downstream.
Average discharge.- 38 years (1907-13, 1914-46), 831 second-feet (unadjusted).
Extremes.- Maximum discharge during year, 11,400 second-feet Oct. 2 (gage height, 13.37 feet); minimum, 107 second-feet (regulated) Sept. 5 (gage height, 1.63 feet).
1900-1946: Maximum discharge recorded, about 16,500 second-feet Mar. 27, 1913 (gage height, 16.2 feet, from floodmarks, site and datum then in use); minimum, about 42 second-feet (regulated) July 21, 23, 25-27, 1913.
Remarks.- Records excellent except those for periods of ice effect, backwater from logs, or doubtful or no gage-height record, which are fair. Flow regulated to some extent by Fulton Chain of Lakes. Occasional diurnal fluctuation during low and medium flow caused by paper mill at McKeever.

Rating table, water year 1945-46, except periods of ice effect or backwater from logs (gage height, in feet, and discharge, in second-feet)

1.6	101	3.0	566	6.0	2,470
1.7	122	3.5	800	7.0	3,320
2.0	198	4.0	1,070	8.0	4,300
2.3	293	4.7	1,490	9.5	6,070
2.6	403	5.3	1,910	11.5	8,780

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,230	1,290	760	470	540	540	1,250	620	720	281	152	116
2	8,560	1,210	620	560	540	540	1,140	560	1,270	980	173	112
3	7,750	1,950	606	560	560	560	1,250	520	1,080	1,120	184	204
4	4,430	2,250	557	540	600	580	1,250	470	857	821	190	215
5	3,290	1,880	470	540	600	660	1,250	460	750	588	198	190
6	2,650	1,610	480	760	620	*780	1,200	520	655	478	195	296
7	2,300	1,430	532	a1,370	680	1,200	1,060	540	619	415	184	332
8	2,210	1,320	a570	d2,210	700	2,600	920	500	650	322	188	332
9	2,220	1,150	a527	1,620	760	4,000	860	540	998	296	155	335
10	2,420	954	a482	1,460	*760	5,000	800	540	993	250	152	411
11	1,870	842	440	1,410	720	3,800	680	580	814	228	160	557
12	1,370	816	400	1,240	680	3,000	600	1,250	780	222	160	502
13	1,590	852	390	1,020	660	2,450	560	1,610	707	219	158	430
14	2,020	993	400	800	740	2,300	540	1,210	657	207	148	386
15	1,950	1,030	*380	640	960	2,700	560	1,070	582	192	140	385
16	1,790	944	370	*580	1,000	3,100	880	1,120	466	184	124	354
17	1,740	857	360	580	1,020	2,900	820	1,350	403	155	116	321
18	1,510	1,190	350	560	920	2,600	740	1,530	403	158	116	314
19	1,280	2,310	340	540	860	2,450	780	1,550	450	145	136	314
20	1,140	2,050	400	540	820	2,300	860	1,750	407	150	136	314
21	949	1,620	420	540	760	2,100	880	1,980	373	155	127	314
22	842	1,490	420	520	700	2,100	780	2,850	385	227	143	318
23	889	1,600	410	540	680	2,200	720	1,760	361	304	138	314
24	1,020	1,380	410	600	640	1,900	960	1,280	332	324	129	383
25	1,210	1,240	420	580	620	1,600	1,120	1,080	307	283	127	495
26	1,410	1,120	430	580	580	1,450	860	1,190	280	225	129	523
27	1,620	1,000	460	560	580	1,900	760	1,410	257	192	128	442
28	1,550	971	470	560	560	2,100	700	1,220	273	170	127	395
29	1,400	922	470	540	-	2,100	680	1,040	254	158	124	384
30	1,470	863	450	540	-	2,150	660	868	244	152	124	478
31	1,500	-	430	540	-	1,600	-	693	-	143	120	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	68,180	8,560	842	2,199	-	-
November	39,134	2,310	816	1,304	-	-
December	14,224	760	340	459	-	-
Calendar year 1945	393,346	8,560	90	1,078	2.95	40.09
January	24,100	2,210	470	777	-	-
February	19,840	1,020	540	709	-	-
March	65,260	5,000	540	2,105	-	-
April	26,100	1,250	540	870	-	-
May	33,861	2,850	460	1,086	-	-
June	17,247	1,270	244	575	-	-
July	9,744	1,120	143	314	-	-
August	4,559	198	116	147	-	-
September	10,428	557	112	348	-	-
Water year 1945-46	332,477	8,560	112	911	2.50	33.88

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage and records for Middle Branch Moose River at Old Forge and near McKeever.
d Doubtful gage-height record; discharge computed on basis of reconstructed gage-height graph.
Note.- Stage-discharge relation affected by ice Dec. 2, 5, 6, Dec. 11 to Jan. 6, Jan. 13 to Mar. 6 (no gage-height record Dec. 11, Jan. 3-6, Mar. 2-5). Backwater from logs Mar. 9 to May 12.

Middle Branch Moose River at Old Forge, N. Y.

Location.- Staff gage, lat. 43°42'50", long. 74°58'10", at Old Forge, Herkimer County, 400 feet downstream from State dam. Datum of gage is 1,690.63 feet above mean sea level, datum of 1929.
Drainage area.- 52 square miles.
Records available.- November 1911 to September 1946.
Average discharge.- 34 years (1912-46), 104 second-feet (unadjusted).
Extremes (regulated).- Maximum discharge observed during year, 610 second-feet Oct. 3; maximum gage height observed, 5.96 feet Oct. 3 (backwater from North Branch); maximum daily discharge, 600 second-feet Oct. 3; minimum daily, 4.8 second-feet July 9-20; minimum gage height observed, 1.64 feet July 18-21.

1911-46: Maximum daily discharge, 862 second-feet Mar. 23, 1921, from rating curve extended above 450 second-feet by logarithmic plotting; minimum daily, about 0.1 second-foot many times during 1938-39, 1944, 1945 when gates in dam were closed.

Remarks.- Records good except those for periods of ice effect, backwater from North Branch or debris, or doubtful gage-height record, which are fair. On days when gate openings are changed, discharge is averaged for intervals of a day from graph based on gage readings and record of gate operations. Gage read twice daily. Flow regulated by Fulton Chain of Lakes.

Rating tables, water year 1945-46, except periods of ice effect or backwater (gage height, in feet, and discharge, in second-feet)

Oct. 1-3		Oct. 4 to Sept. 30					
3.5	340	1.6	3.3	2.0	28	3.0	204
3.9	472	1.7	7.1	2.2	52	3.4	310
4.3	622	1.8	12	2.4	81	3.8	437
		1.9	19	2.6	116	4.2	583

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	340	120	112	229	216	157	116	13	69	11	46	11
2	541	122	85	229	249	157	116	13	72	101	46	127
3	c600	130	11	229	296	157	116	13	72	136	46	180
4	c580	218	11	216	296	157	116	13	72	132	46	203
5	c560	340	b11	216	296	157	116	13	73	128	46	255
6	c540	325	b11	216	296	157	116	13	72	128	46	255
7	c520	310	11	216	296	*146	116	13	72	128	36	255
8	495	290	11	169	296	157	116	14	152	43	11	255
9	436	163	11	116	296	157	116	14	180	d4.8	11	255
10	271	120	*11	116	282	d157	47	14	180	d4.8	11	255
11	77	120	11	116	282	157	9.2	58	180	d4.8	11	255
12	18	120	18	116	282	157	9.2	192	180	d4.8	11	255
13	178	90	37	116	282	157	9.2	192	180	d4.8	11	255
14	340	72	37	116	242	157	9.2	180	180	d4.8	11	255
15	340	72	37	116	157	157	9.2	180	122	d4.8	11	255
16	340	72	37	116	157	157	9.2	180	61	d4.8	11	242
17	291	72	37	*118	157	157	10	180	42	d4.8	11	242
18	180	165	39	d118	157	168	9.8	180	35	d4.8	11	242
19	180	229	96	118	157	168	9.8	180	35	4.8	11	229
20	128	229	128	120	157	168	10	173	35	4.8	11	229
21	72	216	128	120	157	137	10	136	35	8.2	11	229
22	72	216	128	145	157	60	10	136	35	12	11	229
23	75	229	128	216	157	60	10	136	35	12	11	229
24	110	229	128	216	157	60	11	136	35	12	11	229
25	128	229	128	216	157	60	12	136	27	12	11	229
26	128	229	128	216	157	46	12	205	11	12	11	229
27	179	229	128	216	157	8.2	12	229	11	12	11	229
28	242	229	128	216	157	37	12	229	11	12	11	229
29	229	229	115	216	-	116	12	184	11	12	11	229
30	229	197	81	216	-	116	13	92	11	34	11	229
31	165	-	120	216	-	116	-	69	-	46	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	8,584	600	18	277	-	-
November	5,611	340	72	187	-	-
December	2,102	128	11	67.8	-	-
Calendar year 1945	40,195.2	600	.1	110	2.12	28.74
January	5,331	229	116	172	-	-
February	6,105	296	157	218	-	-
March	3,978.2	168	8.2	128	-	-
April	1,299.8	116	9.2	43.3	-	-
May	3,516	229	13	113	-	-
June	2,286	180	11	76.2	-	-
July	1,048.8	136	4.8	33.8	-	-
August	576	46	11	18.6	-	-
September	6,800	255	11	227	-	-
Water year 1945-46	47,237.8	600	4.8	129	2.48	33.77

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
c Backwater from North Branch Moose River.
d Doubtful gage-height record; discharge computed on basis of record of reservoir elevations and record of gate operation at Old Forge Dam.

Note.- Backwater from debris Apr. 26 to May 7. Increase in combined storage in Old Forge and Sixth Lake Reservoirs during calendar year 1945, about 1,127,000,000 cubic feet (equivalent mean discharge, 35.7 sec.-ft.; runoff, 9.33 inches); decrease during water year 1945-46, about 448,700,000 cubic feet (equivalent mean discharge, 14.2 sec.-ft.; runoff, 3.71 inches).

Middle Branch Moose River near McKeever, N. Y.

Location.- Water-stage recorder, lat. 43°37'45", long. 75°04'55", half a mile upstream from confluence with South Branch and 1½ miles northeast of McKeever, Herkimer County. Datum of gage is 1,530.29 feet above mean sea level, datum of 1929.

Drainage area.- 148 square miles.

Records available.- October 1925 to September 1946.

Average discharge.- 21 years, 324 second-feet (unadjusted).

Extremes.- Maximum discharge during year, 2,070 second-feet Oct. 4; maximum gage height, 7.00 feet Feb. 5 (ice jam); minimum discharge, 27 second-feet (regulated) Aug. 18 (gage height, 1.73 feet).

1925-46: Maximum discharge, 2,100 second-feet Apr. 27, 1926; maximum gage height, 7.15 feet Jan. 18, 1938 (ice jam); minimum discharge, that of Aug. 18, 1946.

Remarks.- Records good except those for periods of ice effect, backwater from logs, or no gage-height record, which are fair. Flow partly regulated by Fulton Chain of Lakes.

Rating table, water year 1945-46, except periods of ice effect or backwater from logs (gage height, in feet, and discharge, in second-feet)

1.7	25	2.4	88	4.6	767
1.8	31	2.7	131	5.6	1,370
1.9	38	3.0	187	6.6	2,110
2.0	46	3.4	290		
2.2	65	3.9	462		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	930	525	417	250	340	310	520	226	256	149	83	50
2	1,450	521	310	350	340	300	500	216	331	302	86	54
3	1,750	562	278	350	370	310	500	205	341	371	88	142
4	2,040	a596	a237	340	410	320	500	194	331	378	88	198
5	1,890	733	a200	330	410	340	500	189	315	318	92	253
6	1,640	777	a205	420	410	410	480	187	293	281	94	287
7	1,440	757	a225	620	410	*490	450	185	284	264	93	290
8	1,290	723	a245	908	420	560	420	183	302	242	86	290
9	1,180	630	a225	733	420	660	380	177	399	165	80	290
10	1,050	493	*a207	613	430	752	340	181	432	134	81	321
11	837	a435	180	517	*410	828	260	196	424	125	76	347
12	596	a430	160	395	410	908	210	342	410	128	73	324
13	570	a430	150	392	400	914	195	420	392	123	68	309
14	752	a450	155	370	450	908	190	443	374	114	65	299
15	849	a460	150	360	400	876	195	451	328	108	56	293
16	a834	a420	145	330	380	914	280	466	256	100	33	290
17	a840	a390	140	*330	370	985	266	482	214	93	31	287
18	a760	a430	140	320	360	985	235	474	200	82	27	284
19	a620	a660	140	300	360	973	250	497	187	78	35	278
20	a583	a658	185	300	350	943	280	493	175	83	44	276
21	470	648	215	300	340	914	280	583	167	81	49	276
22	417	676	215	290	340	823	240	575	173	77	50	281
23	410	662	210	310	330	747	220	521	181	81	49	278
24	410	640	210	370	330	690	310	509	169	81	50	284
25	447	622	215	360	330	662	350	489	159	78	50	284
26	478	592	220	360	320	604	270	529	143	76	50	281
27	505	568	225	350	320	583	253	554	134	74	49	281
28	583	545	230	350	320	549	245	545	131	72	47	281
29	613	521	230	340	-	622	245	517	125	70	47	284
30	613	501	215	340	-	704	234	424	118	69	47	328
31	596	-	190	340	-	a658	-	288	-	69	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	27,443	2,040	410	885	-	-
November	17,053	777	390	568	-	-
December	6,469	417	140	209	-	-
Calendar year 1945	153,285	2,040	30	420	2.84	38.52
January	12,238	908	250	395	-	-
February	10,480	450	320	374	-	-
March	21,242	985	300	685	-	-
April	9,598	520	190	320	-	-
May	11,741	583	177	379	-	-
June	7,744	432	118	258	-	-
July	4,466	378	69	144	-	-
August	1,916	94	27	61.8	-	-
September	8,020	347	50	267	-	-
Water year 1945-46	138,410	2,040	27	379	2.56	34.80

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Middle Branch Moose River at Old Forge and Moose River at McKeever.

Note.- Stage-discharge relation affected by ice Dec. 2, Dec. 11 to Jan. 7, Jan. 14 to Mar. 9 (no gage-height record Feb. 8-11, 24-28). Backwater from logs Apr. 1-16, 18-26.

Independence River at Donnattsburg, N. Y.

Location.- Wire-weight gage, lat. 43°44'50", long. 75°20'05", at highway bridge at Donnattsburg, Lewis County, 1¼ miles downstream from Chase Lake Outlet, and 5 miles upstream from mouth.

Drainage area.- 91.7 square miles.

Records available.- July 1942 to September 1946. December 1927 to June 1942 at site 3½ miles upstream, published as Independence River at Sperryville.

Extremes.- Maximum discharge during year, 3,410 second-feet Oct. 2 (gage height, 8.8 feet, from graph based on gage readings); minimum observed, 22 second-feet Aug. 24, 26, 27 (gage height, 2.93 feet).

1942-46: Maximum discharge, that of Oct. 2, 1945; minimum discharge observed, 19 second-feet Aug. 24, 1945.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.9	20	3.8	137	6.0	1,050
3.0	27	4.1	210	7.0	1,740
3.1	36	4.5	338	8.0	2,570
3.3	57	5.0	537		
3.5	83	5.5	775		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	415	320	171	94	82	90	210	183	171	62	44	33
2	2,220	320	137	90	80	*93	224	159	320	745	59	32
3	2,500	473	159	88	78	97	270	141	254	880	62	29
4	1,050	581	150	86	76	99	239	117	171	356	59	27
5	537	452	129	86	74	127	254	121	139	183	61	27
6	338	338	157	187	88	171	254	137	121	121	57	24
7	286	254	196	540	110	437	239	129	110	89	48	26
8	338	210	210	725	140	935	196	121	159	73	41	27
9	393	171	210	516	160	1,460	183	119	303	67	37	27
10	374	159	196	432	150	1,390	183	123	254	59	41	33
11	303	159	146	412	120	1,110	159	139	171	53	47	53
12	286	157	121	303	*98	990	155	255	155	52	48	61
13	452	183	116	210	88	990	148	303	121	49	41	48
14	559	210	*110	171	120	1,110	155	210	99	46	37	44
15	432	239	102	159	200	1,050	198	171	80	46	34	34
16	412	196	98	155	300	990	286	183	72	44	36	32
17	393	183	94	145	290	880	270	183	67	40	40	31
18	356	283	90	140	240	725	210	224	77	35	40	29
19	286	633	86	*130	200	676	196	239	86	36	39	29
20	239	537	82	120	180	676	210	270	76	38	39	27
21	196	412	80	114	160	581	210	286	154	37	37	26
22	183	432	78	108	140	537	183	412	210	37	38	26
23	210	537	76	104	130	537	171	303	141	48	34	25
24	239	412	76	100	120	432	196	210	99	57	26	31
25	270	338	76	96	98	356	224	171	72	53	38	38
26	412	254	82	92	102	338	183	239	67	42	24	38
27	494	224	88	88	100	356	183	254	57	38	23	35
28	473	210	92	86	94	393	171	183	55	36	24	32
29	393	210	92	84	-	356	210	148	48	34	34	32
30	356	196	88	82	-	303	196	121	47	32	36	66
31	374	-	94	82	-	254	-	119	-	32	34	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,769	2,500	183	509	5.55	6.40
November	9,283	633	157	309	3.37	3.76
December	3,682	210	76	119	1.30	1.49
Calendar year 1945	98,033	2,500	21	269	2.93	39.76
January	5,825	725	82	188	2.05	2.36
February	3,818	300	74	136	1.48	1.55
March	18,539	1,460	90	598	6.52	7.52
April	6,164	286	148	205	2.24	2.50
May	5,973	412	117	193	2.10	2.42
June	3,956	320	47	132	1.44	1.60
July	3,520	880	32	114	1.24	1.43
August	1,258	62	23	40.6	.443	.51
September	1,022	66	24	34.1	.372	.41
Water year 1945-46	78,809	2,500	23	216	2.36	31.95

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 5, Jan. 17 to Mar. 1.

Stillwater Reservoir near Beaver River, N. Y.

Location.- Float-tape gage, lat. 43°53'50", long. 75°03'05", at Stillwater Dam, 7½ miles west of Beaver River post office, Herkimer County. Datum of gage is at mean sea level, adjustment of 1912.

Drainage area.- 172 square miles.

Records available.- February 1925 to September 1946.

Extremes.- Maximum elevation during year, 1,679.44 feet Apr. 19, May 27 (contents, 4,664,000,000 cubic feet); minimum, 1,664.92 feet Sept. 30 (contents, 1,415,000,000 cubic feet).

1925-46: Maximum elevation, 1,679.51 feet Apr. 27, 1945 (contents, 4,684,000,000 cubic feet); minimum since first filling, 1,644.80 feet Mar. 25-27, 1940 (reservoir empty).

Remarks.- Records good. Reservoir originally formed about 1885; enlarged at various times and in 1924 enlarged to a usable capacity of 4,623,000,000 cubic feet between elevations 1,650.3 and 1,679.3 feet (high-flow line) above mean sea level. Elevation of gate sill of lowest outlet, 1,642.3 feet. Capacity below elevation 1,650.3 feet, about 90,000,000 cubic feet. Reservoir is used to regulate flow of Beaver and Black Rivers for control of floods, for power development, and for general welfare of the public. Records of contents given herein represent those above elevation 1,650.3 feet. Daily observations made about 8 a.m.

Cooperation.- Records furnished by Board of Black River Regulating District.

Elevation, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73.97	78.84	78.50	74.81	72.65	69.29	77.51	79.41	79.41	77.64	75.61	70.44
2	74.90	78.86	78.39	74.66	72.48	69.11	77.65	79.38	79.39	78.03	75.47	70.24
3	76.21	79.01	78.25	74.50	72.41	68.94	77.89	79.37	79.38	78.45	75.34	70.04
4	76.77	79.15	78.15	74.34	72.20	68.77	78.06	79.34	79.39	78.69	75.19	69.83
5	77.12	79.24	78.05	74.18	72.13	68.62	78.19	79.33	79.40	78.79	75.08	69.60
6	77.38	79.27	77.90	74.06	72.05	68.48	78.39	79.30	79.39	78.85	74.91	69.36
7	77.62	79.27	77.85	74.06	72.01	68.51	78.53	79.29	79.39	78.90	74.77	69.04
8	77.88	79.25	77.78	74.21	71.59	68.78	78.65	79.28	79.41	78.94	74.61	68.92
9	78.07	79.23	77.70	74.29	71.42	69.39	78.71	79.25	79.36	78.82	74.43	68.70
10	78.22	79.18	77.62	74.40	71.25	70.27	78.79	79.25	79.34	78.71	74.30	68.53
11	78.33	79.14	77.52	74.51	71.09	70.88	78.85	79.23	79.32	78.57	74.16	68.38
12	78.39	79.10	77.43	74.59	70.91	71.30	78.90	79.29	79.25	78.44	74.00	69.26
13	78.55	79.05	77.31	74.64	70.73	71.61	78.95	79.32	79.23	78.30	73.83	68.08
14	78.68	79.06	77.21	74.65	70.62	71.94	79.00	79.32	79.20	78.16	73.67	67.89
15	78.74	79.01	77.07	74.67	70.69	72.33	79.03	79.30	79.16	78.04	73.49	67.70
16	78.77	79.00	76.95	74.59	70.71	72.77	79.21	79.28	79.11	77.88	73.30	67.50
17	78.84	78.93	76.84	74.48	70.73	73.18	79.36	79.31	79.05	77.73	73.14	67.31
18	78.86	78.92	76.73	74.38	70.73	73.53	79.38	79.33	79.01	77.57	72.98	67.12
19	78.87	78.99	76.56	74.30	70.72	73.87	79.44	79.34	78.96	77.43	72.81	66.93
20	78.85	79.05	76.48	74.18	70.73	74.18	79.41	79.31	78.90	77.31	72.61	66.73
21	78.82	79.08	76.33	74.07	70.62	74.46	79.41	79.36	78.88	77.18	72.44	66.53
22	78.78	79.01	76.20	73.99	70.46	74.80	79.39	79.39	78.73	77.04	72.26	66.35
23	78.79	79.08	76.06	73.90	70.29	75.18	79.35	79.41	78.63	76.94	72.07	66.19
24	78.77	79.05	75.90	73.73	70.12	75.50	79.39	79.37	78.49	76.81	71.89	66.00
25	78.75	79.02	75.74	73.60	69.94	75.77	79.41	79.32	78.37	76.66	71.72	65.85
26	78.74	78.96	75.66	73.49	69.77	76.03	79.41	79.43	78.24	76.52	71.54	65.65
27	78.84	78.86	75.52	73.35	69.62	76.31	79.42	79.44	78.09	76.36	71.37	65.45
28	78.88	78.79	75.42	73.20	69.48	76.61	79.41	79.40	77.96	76.21	71.18	65.24
29	78.88	78.72	75.23	73.05	-	76.89	79.41	79.34	77.82	76.04	70.99	65.02
30	78.87	78.62	75.08	72.97	-	77.15	79.41	79.30	77.68	75.88	70.83	64.95
31	78.83	-	74.95	72.76	-	77.35	-	79.30	-	75.72	70.64	-

Note.- Add 1,600 feet to obtain elevations above mean sea level.

Monthly elevation and contents, water year October 1945 to September 1946

Date	Elevation (feet)†	Contents (millions of cubic feet)	Change in contents during month (equivalent mean second-feet)
Sept.30	1,673.91	3,202	-
Oct. 31	1,678.84	4,490	+481
Nov. 30	1,678.54	4,405	-32.8
Dec. 31	1,674.86	3,431	-364
Calendar year 1945	-	-	+81.5
Jan. 31	1,672.69	2,919	-191
Feb. 28	1,669.35	2,210	-293
Mar. 31	1,677.46	4,105	+708
Apr. 30	1,679.41	4,655	+212
May 31	1,679.37	4,643	-4.48
June 30	1,677.65	4,156	-188
July 31	1,675.65	3,629	-197
Aug. 31	1,670.51	2,446	-442
Sept.30	1,664.92	1,415	-398
Water year 1945-46	-	-	-56.7

† Elevation at 12 p.m., obtained by interpolation.

Beaver River below Stillwater Dam, near Beaver River, N. Y

Location.- Float-tape gage, lat. 43°53'50", long. 75°03'05", at outlet of Stillwater Reservoir, 7½ miles west of Beaver River post office, Herkimer County.

Drainage area.- 172 square miles.

Records available.- May 1908 to September 1946.

Average discharge.- 38 years, 362 second-feet (unadjusted).

Extremes (regulated).- Maximum daily discharge during year, 683 second-feet Nov. 22-25; minimum daily, 15 second-feet Mar. 9-13.
1908-46: Maximum discharge, 3,700 second-feet May 3, 1926; practically no flow at times when gates in dam are closed.

Remarks.- Records good. Flow regulated by Stillwater Reservoir (see preceding page). Discharge determined from ratings for gates and spillway of Stillwater Dam. Gage read once daily.

Cooperation.- Records of gate openings and reservoir elevations furnished by Board of Black River Regulating District.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	489	674	618	643	604	18	313	648	588	613	561
2	16	489	673	616	640	600	19	302	614	265	612	559
3	16	490	672	614	640	600	20	292	418	23	612	596
4	17	490	668	614	639	597	21	284	367	24	608	620
5	17	492	667	612	636	595	21	281	367	24	608	616
6	17	492	623	610	636	593	22	275	367	25	608	614
7	19	492	592	480	636	472	23	275	417	25	606	610
8	176	492	590	388	631	211	48	275	572	371	604	610
9	314	492	589	390	629	15	123	275	566	605	601	572
10	353	491	589	390	627	15	124	275	415	601	601	506
11	463	490	588	391	624	15	125	275	335	600	597	502
12	463	490	585	391	624	15	125	275	335	598	597	502
13	522	490	584	391	620	15	125	346	334	597	597	499
14	560	490	619	391	442	155	126	380	334	593	594	499
15	561	533	641	541	316	285	126	377	333	593	592	496
16	563	566	641	616	316	288	127	377	333	592	592	496
17	542	565	641	614	316	288	242	378	333	588	589	492
18	489	565	637	614	316	291	307	383	333	587	589	489
19	489	565	637	614	316	292	446	462	332	585	589	489
20	489	566	635	612	461	292	487	420	495	584	585	484
21	488	625	635	610	596	148	480	473	605	581	584	484
22	487	683	633	610	617	16	469	528	601	581	584	482
23	487	683	631	610	616	16	348	534	601	581	580	479
24	487	683	631	606	612	16	307	513	598	579	580	477
25	487	683	627	605	612	16	320	509	597	579	575	477
26	485	682	627	604	609	16	320	624	594	579	575	474
27	489	681	626	603	607	16	327	658	593	574	573	470
28	489	680	625	630	605	17	320	630	592	574	570	469
29	489	677	622	647	-	17	320	482	592	602	568	467
30	489	676	620	647	-	17	320	394	588	617	566	467
31	489	-	620	644	-	17	-	364	-	613	564	-

Month	Observed					Adjusted†		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	11,468	563	16	370		851	4.95	5.70
November	16,982	683	489	566		533	3.10	3.46
December	19,442	674	584	627		264	1.53	1.77
Calendar year 1945	149,007	1,470	11	408		490	2.85	38.65
January	17,323	647	388	559		368	2.14	2.46
February	15,582	643	316	556		263	1.53	1.59
March	6,550	604	15	211		919	5.34	6.16
April	6,206	487	18	207		419	2.44	2.72
May	12,229	658	275	394		390	2.27	2.61
June	14,209	648	332	474		286	1.66	1.85
July	14,928	617	23	482		285	1.66	1.91
August	18,313	613	564	591		149	.866	1.00
September	15,558	620	467	519		121	.703	.78
Water year 1945-46	168,790	683	15	462		406	2.36	32.01

† Adjusted for change in contents in Stillwater Reservoir.

Beaver River at Croghan, N. Y.

Location.- Water-stage recorder, lat. 43°53'50", long. 75°24'15", about 1,000 feet upstream from Black Creek and half a mile west of Croghan, Lewis County.

Drainage area.- 294 square miles.

Records available.- September 1930 to September 1946.

Average discharge.- 16 years, 559 second-feet.

Extremes (regulated).- Maximum discharge during year, 2,490 second-feet Oct. 3 (gage height, 5.07 feet); minimum, 100 second-feet Apr. 14 (gage height, 1.42 feet); minimum daily, 116 second-feet Apr. 14.

1930-46: Maximum discharge, 4,310 second-feet May 13, 1943 (gage height, 6.47 feet); minimum, about 18 second-feet Feb. 24, 1936 (gage height, 0.89 foot); minimum daily, 35 second-feet May 13, 1934.

Remarks.- Records excellent except those for periods of fragmentary gage-height record, which are good. Flow almost completely regulated by Stillwater Reservoir (see p. 233). Between Stillwater Dam and this station flow is further regulated by nine power-plant ponds. Diurnal fluctuation at low and medium flow.

Rating tables, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

Oct. 1-3				Oct. 4 to Sept. 30			
2.7	531	4.0	1,400	1.5	115	2.6	466
3.0	693	4.5	1,870	1.7	159	3.0	664
3.5	1,020	5.0	2,410	2.0	243	3.5	979
				2.3	345	4.2	1,560

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	542	859	1,080	735	746	620	366	682	877	688	639	273
2	1,340	937	1,010	684	746	718	404	649	887	779	667	513
3	2,320	1,070	906	709	760	550	359	640	768	606	476	568
4	1,530	1,110	873	729	718	750	327	534	662	483	728	517
5	1,280	950	845	742	734	680	354	290	681	674	521	494
6	857	938	845	1,090	720	910	341	486	732	403	642	647
7	522	924	869	1,110	711	1,250	160	458	682	298	556	646
8	581	913	897	930	728	1,140	323	456	801	498	609	648
9	680	919	836	894	759	1,440	331	459	685	563	600	588
10	681	991	768	1,020	751	1,120	333	484	746	568	639	517
11	750	996	595	1,200	741	1,030	331	453	652	578	574	550
12	671	908	f640	1,120	697	972	328	179	662	640	626	671
13	748	880	f660	900	730	1,000	312	489	594	503	638	623
14	732	847	728	586	877	1,050	116	439	598	134	667	660
15	781	847	727	633	848	1,040	310	438	595	441	724	410
16	905	816	724	688	934	995	329	559	427	488	655	522
17	942	748	722	663	952	958	367	707	548	576	688	625
18	1,300	698	679	644	901	802	480	540	528	551	233	684
19	1,350	781	756	662	801	909	640	349	540	614	748	505
20	1,090	1,000	849	660	791	893	650	720	613	658	571	520
21	744	1,080	873	614	765	823	383	690	698	546	606	493
22	574	1,320	1,020	720	817	556	613	850	669	645	660	137
23	669	1,070	1,130	676	782	511	627	801	192	551	737	389
24	813	995	962	722	760	175	652	642	470	591	402	435
25	905	994	660	648	726	509	652	691	630	586	687	439
26	1,250	1,040	754	728	637	419	673	849	614	585	533	465
27	1,110	969	661	682	589	414	666	801	636	661	632	494
28	902	1,130	724	674	637	408	212	1,240	621	498	825	478
29	925	1,210	692	703	-	334	630	1,270	602	462	668	158
30	893	1,170	586	780	-	257	664	916	529	633	478	632
31	869	-	712	746	-	124	-	696	-	524	346	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	29,256	2,320	522	944	-	-
November	29,110	1,320	698	970	-	-
December	24,783	1,130	586	799	-	-
Calendar year 1945	256,837	2,320	96	704	2.39	32.50
January	24,092	1,200	586	777	-	-
February	21,358	952	589	763	-	-
March	23,357	1,440	124	753	-	-
April	12,933	673	116	431	-	-
May	19,457	1,270	179	628	-	-
June	18,939	887	192	631	-	-
July	17,025	779	134	549	-	-
August	18,775	825	233	606	-	-
September	15,301	684	137	510	-	-
Water year 1945-46	254,386	2,320	116	697	2.37	32.19

f Fragmentary gage-height record; discharge computed on basis of power-plant records and reconstructed gage-height graph.

Deer River at Copenhagen, N. Y.

Location.- Water-stage recorder, lat. 43°53'55", long. 75°39'40", at power plant half a mile northeast of Copenhagen, Lewis County. Datum of gage is 963.41 feet above mean sea level, datum of 1929.
Drainage area.- 89 Square miles.
Records available.- September 1929 to September 1946.
Average discharge.- 17 years, 214 second-feet.
Extremes.- Maximum discharge during year, 4,400 second-feet Oct. 2 (gage height, 7.29 feet); minimum, 3.0 second-feet (regulated) July 30,31 (gage height, 0.34 foot); minimum daily, 4.9 second-feet (regulated) July 31.
1929-46: Maximum discharge, 14,400 second-feet Sept. 1, 1941 (gage height, 12.08 feet), by computation of flow over dam; minimum, 0.7 second-foot (regulated) Aug. 12, 1940 (gage height, 0.17 foot); minimum daily, 0.8 second-foot (regulated) July 22 to Aug. 2, 1933.
Remarks.- Records excellent except those for periods of doubtful or no gage-height record or those below 35 second-feet, which are good, and those for periods of ice effect, which are fair. Diurnal fluctuation at low and medium flow caused by power plant.

Rating table, water year 1945-46, except periods of ice effect or indeterminate stage-discharge relation (gage height, in feet, and discharge, in second-feet)

0.4	4.3	1.0	36	2.6	384	5.0	1,850
.5	7.2	1.2	56	3.0	542	5.5	2,310
.6	11	1.5	104	3.5	787	6.0	2,820
.7	16	1.8	162	4.0	1,080	6.4	3,260
.8	22	2.2	257	4.5	1,440		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	998	280	272	64	66	83	225	132	547	41	19	12
2	3,230	672	237	62	64	86	238	100	386	510	18	11
3	1,720	1,230	230	60	60	93	246	78	195	a250	17	10
4	616	797	215	58	58	*102	225	69	125	a94	16	10
5	343	428	186	58	56	160	289	80	88	a48	23	12
6	239	295	196	500	80	450	292	100	67	a33	19	8.3
7	228	230	364	1,250	130	1,900	266	86	73	28	13	5.6
8	249	190	409	620	165	1,540	190	81	162	28	12	6.1
9	208	168	343	390	200	2,240	185	78	322	26	9.5	10
10	172	187	302	540	190	1,220	181	88	168	24	12	22
11	142	158	201	400	170	917	158	105	114	22	13	54
12	229	179	146	320	150	678	148	317	127	20	20	36
13	478	262	d136	254	*145	918	131	188	83	16	14	24
14	360	409	*d146	195	200	1,800	125	121	57	19	9.4	20
15	428	254	129	183	320	1,750	296	88	46	22	8.7	14
16	953	194	93	154	410	1,440	494	84	39	18	8.6	13
17	492	194	76	130	360	1,180	274	347	35	13	13	11
18	311	679	68	116	250	1,030	192	220	61	12	28	12
19	225	525	62	102	210	870	210	356	112	11	21	8.2
20	225	495	58	95	185	729	183	322	84	18	16	8.6
21	181	320	56	*88	165	673	166	734	282	20	34	12
22	166	1,190	54	73	145	719	144	544	194	17	35	17
23	238	680	54	82	129	724	119	249	101	17	27	20
24	286	343	52	80	117	495	97	152	59	17	18	17
25	343	289	52	83	102	458	95	123	42	16	17	44
26	570	330	56	73	97	462	99	396	33	13	17	39
27	938	308	62	70	95	560	142	259	29	13	16	30
28	485	308	62	75	86	529	178	150	27	14	14	23
29	302	289	62	69	-	520	241	104	22	10	13	25
30	225	277	58	63	-	439	175	80	19	5.4	21	158
31	286	-	64	64	-	314	-	69	-	4.9	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,866	3,230	142	512	5.75	6.63
November	12,160	1,230	158	405	4.55	5.08
December	4,501	409	52	145	1.63	1.88
Calendar year 1945	111,411.6	3,230	5.6	305	3.43	46.57
January	6,371	1,250	58	206	2.31	2.66
February	4,405	410	56	157	1.76	1.84
March	25,079	2,240	83	809	9.09	10.48
April	6,004	494	95	200	2.25	2.51
May	5,900	734	69	190	2.13	2.47
June	3,699	547	19	123	1.38	1.55
July	1,400.3	510	4.9	45.2	.508	.59
August	539.2	35	8.6	17.4	.196	.23
September	692.8	158	5.6	23.1	.260	.29
Water year 1945-46	86,617.3	3,230	4.9	237	2.66	36.21

Peak discharge.- Oct. 2 (7:15 a.m.) 4,400 sec.-ft.; Mar. 9 (6 a.m.) 2,860 sec.-ft.; Mar. 14 (6:45 p.m.) 2,590 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage and pattern for normal recession.
d Doubtful gage-height record; discharge computed on basis of discharge measurement, weather records, and records for adjacent days.
Note.- Stage-discharge relation affected by ice Nov. 23, Dec. 18 to Jan. 12, Jan. 17, 18, Feb. 3-22, Mar. 6, 7. Stage-discharge relation indeterminate June 26-30, July 7-12, Aug. 23-26; discharge computed on basis of 2 discharge measurements and records for adjacent days.

East Branch Oswegatchie River at Cranberry Lake, N. Y.

Location.- Water-stage recorder, lat. 44°13'15", long. 74°51'00", in village of Cranberry Lake, St. Lawrence County, 900 feet downstream from dam at outlet of Cranberry Lake. Datum of gage is 1,458.23 feet (corrected) above mean sea level, datum of 1929

Drainage area.- 144 square miles.

Records available.- May 1923 to September 1946.

Average discharge.- 23 years, 290 second-feet (unadjusted).

Extremes (regulated).- Maximum discharge during year, 657 second-feet Nov. 4 (gage height, 5.83 feet); minimum, 78 second-feet Jan. 16 (gage height, 3.85 feet); minimum daily, 100 second-feet Jan. 12.

1923-46: Maximum daily discharge, 1,910 second-feet May 13, 1943; minimum daily, about 3 second-feet Apr. 9-16, 1931.

Remarks.- Records excellent except those for period of no gage-height record, which are good. Flow completely regulated by Cranberry Lake Dam.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

4.0	97	5.1	349
4.2	128	5.5	505
4.5	185	5.8	642
4.8	258		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	147	371	412	459	501	431	138	250	509	298	266	240
2	112	389	404	459	497	431	138	250	492	289	266	240
3	115	471	404	455	497	427	140	248	371	230	264	240
4	117	590	404	451	492	423	140	248	329	143	264	240
5	118	642	404	447	488	419	140	248	316	143	264	240
6	120	633	400	443	484	415	140	248	280	143	264	240
7	122	618	400	443	484	364	140	248	240	143	261	237
8	123	586	400	443	480	242	140	250	230	212	258	237
9	125	505	400	439	480	205	140	250	230	250	258	237
10	126	400	439	443	480	179	140	250	232	250	255	237
11	193	356	492	276	480	181	140	248	232	248	255	240
12	222	349	492	100	476	185	164	248	232	248	255	237
13	275	342	492	102	471	187	248	248	232	245	255	237
14	329	339	492	102	467	190	248	248	230	245	255	237
15	339	336	492	286	467	194	248	248	230	245	253	237
16	356	332	492	427	467	196	248	248	230	242	248	235
17	374	332	488	480	463	199	248	250	230	242	248	232
18	385	332	488	492	463	199	248	250	213	242	248	232
19	393	339	484	488	459	201	250	248	203	242	248	230
20	400	353	480	484	455	203	250	248	203	242	248	227
21	396	360	476	484	455	206	250	250	257	242	245	227
22	389	378	476	484	451	206	250	443	307	242	245	a225
23	374	378	476	484	447	174	250	505	307	245	245	a222
24	367	381	471	497	443	140	253	488	307	245	242	a222
25	363	378	471	523	443	142	253	393	304	245	242	a222
26	363	400	467	523	443	186	250	319	304	245	242	a220
27	367	451	471	518	439	208	248	323	304	242	242	a220
28	371	435	467	514	435	208	248	432	301	242	242	220
29	378	423	467	514	-	208	248	509	301	250	242	220
30	371	415	463	509	-	172	250	518	298	266	242	193
31	381	-	459	505	-	138	-	514	-	266	240	-

Month	Observed					Adjusted†		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	8,611	400	112	278		489	3.40	3.91
November	12,614	642	332	420		411	2.85	3.19
December	14,123	492	400	456		230	1.60	1.85
Calendar year 1945	120,921	967	48	331		349	2.42	32.93
January	13,274	523	100	428		283	1.97	2.27
February	13,107	501	435	468		255	1.77	1.85
March	7,459	431	138	241		651	4.52	5.21
April	6,188	253	138	206		339	2.35	2.63
May	9,658	518	248	312		350	2.43	2.80
June	8,454	509	203	282		177	1.23	1.37
July	7,272	298	143	235		119	.826	.95
August	7,802	266	240	252		94.5	.656	.76
September	6,923	240	193	231		106	.736	.82
Water year 1945-46	115,485	642	100	316		293	2.03	27.61

† Adjusted for change in contents in Cranberry Lake Reservoir.
a No gage-height record; discharge computed on basis of daily record of gate openings and reservoir elevations.

Note.- Elevation of surface of Cranberry Lake Reservoir, 1,484.57 feet at 12 p.m. Sept. 30, 1945; 1,481.57 feet at 12 p.m. Sept. 30, 1946; 1,482.07 feet at 12 p.m. Dec. 31, 1944; 1,484.33 feet at 12 p.m. Dec. 31, 1945.

East Branch Oswegatchie River near Oswegatchie, N. Y.

Location.- Water-stage recorder, lat. 44°13'25", long. 75°04'35", at Flat Rock hydro-electric plant of Central New York Power Co., 2¾ miles north of Oswegatchie, St. Lawrence County.

Drainage area.- 263 square miles.

Records available.- October 1924 to September 1946.

Average discharge.- 21 years (1925-46), 516 second-feet (unadjusted).

Extremes (regulated).- Maximum discharge during year, 2,520 second-feet Mar. 9 (gage height, 5.80 feet); minimum, 4.3 second-feet June 21 (gage height, 0.82 foot); minimum daily, 203 second-feet July 12.

1924-46: Maximum discharge, 4,010 second-feet Apr. 6, 1928 (gage height, 7.1 feet), from rating curve extended above 1,900 second-feet by logarithmic plotting; minimum, probably less than 1 second-foot during complete shut-down of power plant; minimum daily, 1 second-foot July 25, 1926.

Remarks.- Records excellent. Large diurnal fluctuation at low and medium flow caused by power plant; seasonal flow partly regulated by Cranberry Lake (see preceding page).

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.5	213	4.0	870
2.8	300	4.6	1,300
3.1	405	5.3	1,950
3.5	583		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	330	870	767	437	688	710	461	435	591	320	293	299
2	1,150	901	295	649	657	670	447	496	784	601	389	274
3	1,160	1,160	700	694	258	498	384	444	574	593	356	308
4	952	1,020	459	842	555	458	515	489	824	283	241	312
5	721	908	603	510	*512	559	485	464	671	350	316	311
6	675	922	519	580	653	513	515	516	605	352	332	304
7	428	885	741	1,200	794	*1,220	386	523	282	319	330	304
8	332	832	671	1,540	742	1,440	507	369	228	300	346	291
9	408	1,030	587	1,270	725	1,980	547	449	315	287	335	321
10	565	969	669	1,050	385	1,730	449	496	389	295	318	311
11	549	605	725	1,100	512	1,450	525	518	463	237	289	300
12	578	831	679	1,260	600	1,430	544	448	532	203	312	386
13	687	948	744	862	902	1,280	414	397	655	266	312	441
14	401	433	662	536	831	826	237	497	526	234	346	332
15	554	444	667	674	1,000	1,260	299	536	518	406	309	321
16	886	731	555	*864	824	1,510	390	678	321	336	362	344
17	988	813	663	739	b445	889	406	954	331	336	250	305
18	1,280	642	784	354	552	1,130	560	1,120	216	325	308	348
19	879	902	697	525	736	902	466	410	394	322	293	283
20	420	1,310	*693	438	728	918	524	830	296	354	316	311
21	466	1,180	768	648	762	829	454	844	329	438	271	231
22	475	336	685	835	696	587	379	1,060	509	307	330	229
23	718	577	400	846	836	705	440	1,010	352	313	330	237
24	591	574	411	687	491	584	525	886	445	338	280	208
25	780	843	425	505	541	577	507	434	331	334	294	267
26	1,100	680	456	482	576	496	631	626	256	334	266	244
27	802	841	632	313	545	522	514	719	342	285	304	239
28	342	834	792	562	670	328	364	1,110	319	271	310	269
29	480	879	769	547	-	434	492	1,040	298	277	411	258
30	829	868	354	630	-	339	432	430	266	242	296	317
31	721	-	445	738	-	344	-	540	-	314	324	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	21,247	1,280	330	685	-	-
November	24,778	1,310	336	826	-	-
December	19,017	792	295	613	-	-
Calendar year 1945	232,401	2,210	116	637	2.42	32.84
January	22,917	1,540	313	739	-	-
February	18,216	1,000	258	651	-	-
March	27,218	1,980	328	878	-	-
April	13,799	631	237	460	-	-
May	19,768	1,120	369	638	-	-
June	12,962	824	216	432	-	-
July	10,172	601	203	328	-	-
August	9,769	411	241	315	-	-
September	8,905	441	208	297	-	-
Water year 1945-46	208,768	1,980	203	572	2.17	29.52

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

Oswegatchie River near Heuvelton, N. Y.

Location.- Water-stage recorder, lat. 44°36'00", long. 75°22'45", 2½ miles upstream from Heuvelton, St. Lawrence County.

Drainage area.- 973 square miles.

Records available.- June 1916 to September 1946.

Average discharge.- 30 years, 1,664 second-feet (unadjusted).

Extremes.- Maximum discharge during year, 8,340 second-feet Mar. 15 (gage height, 6.43 feet); minimum, 308 second-feet (regulated) Sept. 3 (gage height, 0.91 foot).
1916-46: Maximum discharge, 15,600 second-feet Jan. 11, 1930 (gage height, 9.1 feet); minimum, 200 second-feet (regulated) Aug. 18, 1934 (gage height, 0.65 foot).

Remarks.- Records excellent except those for periods of ice effect, which are good. Seasonal flow slightly regulated by Cranberry Lake; slight diurnal fluctuation at low and medium flow caused by power plants. During high stages on Grass River, part of flow of that stream may pass through Upper Lake, Indian Creek, and Lower Lake and enter Oswegatchie River at Rensselaer Falls, 4½ miles above station.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 8				Mar. 9 to Sept. 30			
1.7	853	3.0	2,280	0.9	302	2.5	1,680
2.1	1,210	4.0	3,760	1.1	420	3.0	2,300
2.5	1,660	5.2	5,950	1.3	552	4.0	3,750
				1.6	780	5.0	5,450
				2.0	1,150	6.3	8,050

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,120	1,890	1,900	1,100	1,130	1,130	1,420	1,370	1,560	446	359	446
2	2,950	1,960	1,800	1,200	1,250	1,180	1,460	1,310	1,440	511	371	433
3	4,050	2,290	1,750	1,300	1,190	1,400	1,570	1,180	1,550	670	446	330
4	4,650	3,200	1,450	1,480	1,100	1,480	1,460	1,190	1,750	814	433	348
5	4,990	3,900	1,550	1,660	900	1,770	1,460	1,090	1,610	974	465	402
6	4,830	3,930	1,500	3,190	886	2,080	1,640	1,130	1,580	822	538	458
7	4,120	3,630	1,600	5,220	1,090	4,270	1,660	1,210	1,470	670	511	402
8	3,300	3,140	1,950	5,910	*1,350	5,710	1,520	1,160	1,330	716	504	348
9	2,610	2,680	2,340	5,750	1,580	6,600	1,500	1,130	1,150	574	511	359
10	2,070	2,330	2,680	5,770	1,560	*7,250	1,590	1,060	1,180	504	511	359
11	1,790	2,250	2,600	5,500	1,520	*8,070	1,490	1,140	1,210	574	452	439
12	1,780	1,950	2,350	5,010	1,240	8,030	1,330	1,250	1,120	559	408	511
13	1,960	1,680	2,000	4,490	1,200	7,590	1,420	1,440	1,150	504	396	478
14	2,230	1,820	1,770	3,790	1,900	7,320	1,350	1,480	1,210	458	439	545
15	2,470	1,950	1,720	*2,830	3,250	7,550	1,250	1,400	1,180	377	465	545
16	2,560	1,670	1,550	2,140	3,220	6,880	1,360	1,590	1,080	408	408	471
17	2,790	1,560	1,400	1,680	2,750	6,070	1,550	3,520	883	525	396	478
16	2,940	1,700	1,300	1,840	2,320	5,340	1,580	4,430	716	446	452	478
19	3,130	1,880	*1,350	1,650	1,950	4,550	1,590	4,260	724	420	465	478
20	2,900	2,520	1,400	1,400	1,700	4,050	1,680	3,890	654	396	371	433
21	2,490	3,620	1,500	1,200	1,710	3,480	1,620	3,460	602	396	414	458
22	1,960	4,340	1,310	1,140	1,650	3,140	1,390	3,650	581	433	390	402
23	1,720	4,990	1,270	1,320	1,540	2,880	1,450	3,590	602	545	336	371
24	1,580	4,760	1,000	1,430	1,500	2,580	1,370	3,240	780	662	377	330
25	1,730	4,320	980	1,350	1,490	2,380	1,160	2,780	740	595	408	336
26	1,780	3,700	1,010	1,200	1,260	2,270	1,150	2,380	624	581	491	325
27	2,120	3,140	1,140	1,100	1,240	2,170	1,300	1,940	624	471	402	319
28	2,310	2,690	1,280	1,000	1,130	1,970	1,400	1,960	602	465	359	330
29	2,150	2,250	1,320	940	-	1,760	1,310	2,170	574	446	336	365
30	1,860	2,000	1,400	978	-	1,590	1,260	2,310	518	414	353	408
31	1,780	-	1,250	1,060	-	1,530	-	2,000	-	414	471	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	81,720	4,990	1,580	2,636	2.71	3.12
November	83,740	4,990	1,560	2,791	2.87	3.20
December	49,420	2,680	980	1,594	1.64	1.89
Calendar year 1945	760,494	8,340	286	2,084	2.14	29.07
January	75,628	5,910	940	2,440	2.51	2.89
February	44,806	3,250	886	1,593	1.64	1.70
March	124,070	8,070	1,130	4,002	4.11	4.74
April	43,290	1,680	1,150	1,443	1.48	1.65
May	65,710	4,430	1,080	2,120	2.18	2.51
June	30,794	1,750	518	1,026	1.05	1.18
July	16,790	974	377	542	.557	.64
August	13,238	538	336	427	.439	.51
September	12,385	545	319	413	.424	.47
Water year 1945-46	641,391	8,070	319	1,757	1.81	24.50

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 29 to Dec. 7, Dec. 11-13, 16-21, 24, 25, Dec. 30 to Jan. 3, Jan. 19, 20, 25-29, Feb. 4, 5.

West Branch Oswegatchie River near Harrisville, N. Y.

Location.- Water-stage recorder, lat. 44°11'10", long. 75°19'55", at highway bridge, half a mile northeast of Gears Corners and 4 miles downstream from Harrisville, Lewis County. Datum of gage is 738.51 feet above mean sea level, datum of 1929.

Drainage area.- 258 square miles.

Records available.- July 1916 to September 1946.

Average discharge.- 30 years, 508 second-feet.

Extremes.- Maximum discharge during year, 3,690 second-feet Mar. 10 (gage height, 6.93 feet); minimum, 49 second-feet (regulated) Aug. 24 (gage height, 1.17 feet).
1916-46: Maximum discharge, 6,920 second-feet Jan. 9, 1930 (gage height, 9.6 feet), from rating curve extended above 3,000 second-feet; minimum, 25 second-feet Sept. 1, 1934 (gage height, 0.86 foot).

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are good. Diurnal fluctuations, principally during low flow, caused by pondage for pulp mill at Harrisville.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 10				Mar. 11 to Sept. 30					
2.2	212	4.5	1,500	1.1	43	2.0	165	4.5	1,440
2.6	327	5.0	1,910	1.2	52	2.5	286	5.0	1,840
3.0	492	5.5	2,340	1.4	74	3.0	476	5.5	2,270
3.5	776	6.0	2,790	1.6	100	3.5	740	6.0	2,730
4.0	1,120	6.7	3,460	1.8	129	4.0	1,070	6.4	3,130

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	880	603	600	360	283	245	543	436	504	113	83	78
2	1,140	614	500	340	270	260	509	395	682	180	143	75
3	2,230	896	512	330	250	294	514	350	728	309	175	72
4	2,940	1,470	487	323	235	337	518	322	608	374	164	67
5	2,390	1,750	415	310	*230	373	548	308	505	324	168	61
6	1,750	1,480	411	533	253	485	589	345	432	254	150	58
7	1,260	1,210	523	1,400	303	*1,000	584	323	377	163	120	55
8	1,000	960	637	1,900	343	2,000	553	322	418	171	100	57
9	873	751	666	1,300	380	2,780	504	307	581	127	100	56
10	770	631	660	1,250	380	*3,370	490	315	572	136	70	77
11	690	518	565	1,250	357	3,060	476	328	462	119	100	126
12	637	478	480	1,000	331	*2,270	441	454	432	112	85	163
13	745	454	390	820	314	1,780	412	594	376	108	89	139
14	940	512	367	680	414	1,580	380	553	313	108	79	118
15	1,040	548	342	*560	575	1,800	399	472	258	102	80	107
16	1,080	518	326	500	678	1,980	543	432	226	106	78	95
17	1,170	478	320	460	733	1,850	711	609	212	89	56	86
18	1,260	487	310	420	696	1,660	717	758	184	84	65	75
19	1,160	705	316	390	570	1,460	643	777	185	85	76	69
20	988	974	*312	370	487	1,310	584	777	178	81	78	63
21	795	1,120	298	350	428	1,180	533	801	175	178	76	58
22	660	1,200	a290	330	390	1,060	518	917	217	170	72	57
23	586	1,430	a280	320	350	1,010	458	917	201	152	70	58
24	570	1,530	a280	310	318	978	424	783	215	135	51	63
25	592	1,300	a280	323	290	923	403	610	182	144	53	99
26	631	1,120	a300	310	270	814	380	688	160	127	55	120
27	708	954	a340	288	260	740	376	910	157	95	70	106
28	776	782	a350	308	250	717	380	958	130	94	63	92
29	808	714	342	278	-	705	436	807	104	80	63	87
30	726	654	332	270	-	665	458	621	130	85	72	163
31	648	-	350	275	-	605	-	477	-	84	79	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	32,443	2,940	570	1,047	4.06	4.68
November	26,841	1,750	454	895	3.47	3.87
December	12,581	666	280	406	1.57	1.81
Calendar year 1945	237,893	3,910	46	652	2.53	34.29
January	17,858	1,900	270	576	2.23	2.57
February	10,638	733	230	380	1.47	1.53
March	39,291	3,370	245	1,267	4.91	5.66
April	15,024	717	376	501	1.94	2.17
May	17,666	958	307	570	2.21	2.55
June	9,904	728	104	330	1.28	1.43
July	4,489	374	80	145	.562	.65
August	2,783	175	51	89.8	.348	.40
September	2,600	163	55	86.7	.336	.37
Water year 1945-46	192,118	3,370	51	526	2.04	27.69

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for nearby stations.
Note.- Stage-discharge relation affected by ice Dec. 1, 2, 12, 13, 17, Dec. 31 to Jan. 3, Jan. 7-24, 30, Feb. 3-5, 22, 23, Feb. 25 to Mar. 2, Mar. 7, 8.

Grass River at Pyrites, N. Y.

Location.- Water-stage recorder, lat. 44°31'30", long. 75°11'50", 1,000 feet downstream from lower bridge in Pyrites, St. Lawrence County, and half a mile upstream from Harrison Creek.

Drainage area.- 335 square miles.

Records available.- August 1924 to September 1946.

Average discharge.- 22 years, 576 second-feet.

Extremes.- Maximum discharge during year, 3,800 second-feet Mar. 10 (gage height, 10.06 feet, backwater from ice); minimum, 87 second-feet Sept. 8 (gage height, 1.27 feet).
1924-46: Maximum discharge, about 8,300 second-feet Nov. 18, 1927 (gage height, 13.0 feet), from rating curve extended above 2,100 second-feet by logarithmic plotting; minimum, 37 second-feet (regulated) July 15, 1933; minimum daily, 59 second-feet Aug. 29 to Sept. 1, 1934.

Remarks.- Records good except those for period of ice effect, which are fair.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 9

1.9	244	4.5	1,480
2.1	312	5.5	2,090
2.5	472	6.5	2,790
3.0	702	7.3	3,420
3.7	1,050		

Mar. 10 to Sept. 30

1.2	74	2.1	317
1.4	114	2.5	477
1.6	162	3.0	705
1.8	218	3.7	1,050

Note.- Same as preceding table above 3.7 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	873	593	520	340	310	370	575	584	490	222	97	128
2	1,490	695	500	290	310	400	612	503	672	548	116	121
3	2,210	1,260	480	290	280	470	724	438	626	635	154	114
4	1,980	1,970	470	280	280	500	729	397	499	464	170	112
5	1,480	1,870	460	280	300	540	734	434	430	328	178	106
6	1,130	1,360	480	800	350	620	802	621	389	224	154	97
7	890	1,020	560	1,600	460	1,850	773	667	350	181	130	93
8	830	815	660	1,500	*520	*2,150	677	603	358	160	114	89
9	785	683	640	1,120	500	3,400	640	544	426	150	106	91
10	702	602	600	1,200	450	*3,300	696	598	418	144	101	114
11	640	534	480	1,080	400	2,500	677	667	347	142	104	363
12	607	498	450	860	370	*1,950	612	773	321	144	112	443
13	865	503	430	680	370	1,700	566	831	300	140	114	317
14	1,060	612	410	*520	500	2,000	548	696	266	135	112	218
15	1,000	630	400	470	620	3,100	598	575	240	128	108	170
16	1,060	556	380	440	560	3,040	895	726	218	126	104	142
17	1,160	507	370	410	520	2,300	975	2,200	204	126	101	126
18	1,120	593	350	410	480	1,830	812	2,110	221	116	99	114
19	915	850	*340	360	460	1,540	705	1,700	289	112	101	108
20	741	1,470	320	310	450	1,330	672	1,400	279	126	97	101
21	630	1,410	310	330	430	1,160	653	1,280	252	144	91	97
22	543	1,530	290	320	410	1,060	603	1,360	262	160	91	95
23	516	1,730	290	280	400	1,080	544	1,130	243	150	93	97
24	534	1,420	290	300	390	1,040	517	861	215	150	98	106
25	593	1,080	290	300	380	935	503	686	189	154	113	131
26	692	766	310	300	380	846	490	686	170	140	256	201
27	815	692	320	260	370	797	530	836	154	123	227	176
28	850	683	310	280	370	778	571	748	147	114	195	144
29	756	640	310	270	-	743	640	612	140	108	165	130
30	645	580	320	270	-	700	653	508	132	99	144	195
31	584	-	360	290	-	644	-	456	-	95	140	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	28,696	2,210	516	926	2.76	3.19
November	28,152	1,970	498	938	2.80	3.13
December	12,700	660	290	410	1.22	1.41
Calendar year 1945	264,422	4,320	77	724	2.16	29.37
January	16,440	1,600	260	530	1.58	1.83
February	11,620	620	280	415	1.24	1.29
March	44,673	3,400	370	1,441	4.30	4.96
April	19,726	975	490	658	1.96	2.19
May	26,230	2,200	397	846	2.53	2.91
June	9,247	672	132	308	.919	1.03
July	5,788	635	95	187	.558	.64
August	3,982	256	91	128	.382	.44
September	4,539	443	89	151	.451	.50
Water year 1945-46	211,793	3,400	89	580	1.73	23.52

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 30 to Mar. 15 (doubtful gage-height record Dec. 13-16, 22-24, Jan. 14, Feb. 16-20).

Raquette River at Piercefield, N. Y.

Location.- Water-stage recorder, lat. 44°14'05", long. 74°34'20", half a mile downstream from dam of International Paper Co. and Piercefield, St. Lawrence County.

Drainage area.- 722 square miles.

Records available.- August 1908 to September 1946.

Average discharge.- 38 years, 1,278 second-feet.

Extremes.- Maximum discharge during year, 4,230 second-feet Oct. 10 (gage height, 9.25 feet); minimum, 341 second-feet (regulated) Aug. 15 (gage height, 3.52 feet); minimum daily, 359 second-feet (regulated) Aug. 15, 16.

1908-46: Maximum discharge, 8,240 second-feet May 16, 1943 (gage height, 12.09 feet); minimum, about 10 second-feet (regulated) Sept. 2, 1913 (gage height, 0.85 foot); minimum daily, 11 second-feet (regulated) Sept. 2, 1913.

Remarks.- Records excellent. Seasonal distribution of flow appreciably modified by natural storage in lakes and ponds above station. Some regulation at low flow caused by operation of dam at outlet of Raquette Pond above station.

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

3.5	336	5.2	916
3.8	417	6.0	1,330
4.0	474	7.0	2,010
4.3	564	8.0	2,880
4.7	706	9.3	4,290

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,060	2,020	1,410	722	885	1,220	3,050	1,750	2,230	738	442	397
2	2,550	2,080	1,270	663	872	1,250	3,020	1,690	2,230	863	564	400
3	2,900	2,150	1,290	512	863	1,260	2,920	1,660	2,230	1,080	614	403
4	3,260	2,250	1,280	515	846	1,280	2,890	1,630	2,220	1,370	600	400
5	3,560	2,390	1,270	563	833	1,290	2,790	1,590	2,190	1,500	587	409
6	3,790	2,380	1,280	758	829	*1,280	2,740	1,510	2,170	1,100	574	397
7	3,950	2,360	1,310	850	*825	1,280	2,640	1,480	2,030	1,010	558	395
8	4,040	2,310	1,320	925	829	1,280	2,570	1,460	1,800	974	542	395
9	4,110	2,240	1,320	1,110	872	1,440	2,470	1,380	1,780	929	527	397
10	4,190	2,120	1,310	1,450	850	* 1,540	2,340	1,230	1,800	806	521	406
11	4,180	2,080	1,290	1,440	821	1,630	2,260	944	1,950	622	512	417
12	4,170	1,960	1,260	1,440	866	1,710	2,100	1,080	2,070	612	506	420
13	4,150	1,760	1,180	1,390	992	1,820	1,920	1,240	1,760	590	474	417
14	4,100	1,580	1,060	1,330	974	2,020	1,870	1,760	1,640	584	417	409
15	4,000	1,540	978	1,210	951	2,280	1,850	1,730	1,490	571	359	417
16	3,900	1,590	960	1,080	912	2,520	1,670	1,500	1,320	558	359	392
17	3,780	1,610	964	*1,050	872	2,710	1,540	1,740	1,230	542	381	386
18	3,650	1,640	960	1,050	846	2,870	1,660	2,010	1,170	528	414	384
19	3,500	1,820	947	1,040	821	3,000	1,700	2,360	982	503	403	389
20	3,340	1,900	929	1,030	812	3,080	1,540	2,150	880	512	384	397
21	3,170	1,970	*907	1,020	795	3,120	1,540	2,120	746	506	378	411
22	3,030	2,100	890	1,010	808	3,150	1,480	2,120	804	500	395	445
23	2,880	2,020	863	1,000	885	3,160	1,370	2,050	890	521	411	420
24	2,750	2,000	829	982	960	3,180	1,400	2,050	885	509	437	431
25	2,670	1,960	791	974	1,040	3,170	1,430	2,060	876	494	434	442
26	2,570	1,910	795	969	1,100	3,150	1,460	2,340	859	483	428	445
27	2,510	1,820	787	956	1,160	3,120	1,520	2,580	812	468	425	445
28	2,440	1,660	766	934	1,200	3,130	1,590	2,550	730	454	420	442
29	f2,380	1,520	750	925	-	3,120	1,710	2,520	698	439	417	462
30	2,290	1,470	738	912	-	3,050	1,800	2,440	691	425	409	471
31	2,180	-	722	b880	-	3,030	-	2,340	-	417	397	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	102,050	4,190	2,060	3,292	4.56	5.26
November	58,210	2,390	1,470	1,940	2.69	3.00
December	32,426	1,410	722	1,046	1.45	1.67
Calendar year 1945	654,489	6,840	292	1,793	2.48	33.71
January	30,690	1,450	512	990	1.37	1.58
February	25,319	1,200	795	904	1.25	1.30
March	71,140	3,180	1,220	2,295	3.18	3.66
April	60,840	3,050	1,370	2,028	2.81	3.13
May	57,064	2,580	944	1,841	2.55	2.94
June	43,163	2,230	691	1,439	1.99	2.22
July	21,208	1,500	417	684	.947	1.09
August	14,289	614	359	461	.639	.74
September	12,441	471	384	415	.575	.64
Water year 1945-46	528,840	4,190	359	1,449	2.01	27.23

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
f Fragmentary gage-height record; discharge computed on basis of reconstructed gage-height graph.

Raquette River at Raymondville, N. Y.

Location.- Water-stage recorder, lat. 44°50'20", long. 74°58'45", 250 feet upstream from old highway bridge at Raymondville, St. Lawrence County, 0.3 mile downstream from Trout Brook, 0.4 mile downstream from power plant of Central New York Power Corp. and 18 miles upstream from mouth. Datum of gage is 183.33 feet above mean sea level, datum of 1929.

Drainage area.- 1,131 square miles.

Records available.- November 1943 to September 1946. September to October 1903, April 1904 to November 1916 at site at Massena Springs, 8 miles downstream (drainage area, 1,197 square miles), published as Raquette River at Massena Springs; records not comparable.

Extremes.- Maximum discharge during year, 7,060 second-feet Mar. 10 (gage height, 6.14 feet); minimum, 26 second-feet (regulated) Sept. 29 (gage height, 0.65 foot); minimum daily, 230 second-feet Aug. 4.

1943-46: Maximum discharge, 9,860 second-feet Apr. 2, 1945 (gage height, 7.37 feet); minimum, 20 second-feet (regulated) Jan. 21, Feb. 20, 24, 1944 (gage height, 0.54 foot); minimum daily, 40 second-feet Jan. 1, 28, 1945.

Remarks.- Records good except those for periods of ice effect, which are fair. Large diurnal fluctuation in flow caused by power and industrial operations. Seasonal distribution of flow appreciably modified by natural storage in lakes and ponds above station.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 10				Mar. 10 to Sept. 30					
2.4	818	4.0	2,750	1.4	215	2.5	935	4.5	3,660
2.6	993	4.6	3,800	1.6	305	3.0	1,450	5.0	4,600
3.0	1,400	4.9	4,390	1.8	411	3.5	2,080	5.6	5,870
3.5	2,010			2.0	535	4.0	2,820		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,220	3,910	2,400	1,120	1,300	1,600	3,620	2,300	2,980	1,060	688	346
2	4,210	3,500	2,000	1,300	1,550	1,500	3,700	2,320	2,980	1,110	730	544
3	5,070	2,370	1,650	1,400	1,300	1,800	3,820	2,260	2,950	1,560	556	547
4	5,200	4,090	1,600	1,200	1,200	1,500	3,890	2,180	2,740	1,540	230	558
5	4,970	4,090	1,700	1,250	1,700	1,900	3,700	2,150	2,560	1,530	617	550
6	4,760	3,880	1,840	1,500	1,550	2,700	3,710	2,190	2,520	1,490	626	481
7	4,840	3,360	1,760	3,630	1,400	3,400	3,700	2,220	2,540	1,260	657	446
8	4,950	2,290	2,080	2,320	1,400	*3,200	3,450	2,240	2,540	1,400	627	378
9	5,240	1,650	2,410	1,920	1,400	4,200	3,220	2,090	2,490	1,110	630	521
10	5,180	1,730	2,480	2,440	1,060	5,780	3,310	2,160	2,480	1,310	383	543
11	5,140	2,540	2,150	2,620	1,200	4,660	3,120	2,000	2,160	1,190	270	498
12	5,140	2,340	2,250	2,860	1,300	3,730	2,920	1,950	1,390	1,130	841	655
13	5,260	2,480	2,200	2,300	1,350	3,980	2,760	2,020	1,940	1,130	566	842
14	5,410	2,580	2,050	*1,900	1,400	4,860	2,660	1,920	2,510	1,110	461	727
15	5,430	2,440	1,800	1,700	1,750	5,070	2,540	2,000	2,040	1,090	484	368
16	5,390	2,190	1,700	1,400	1,450	5,470	2,680	1,900	1,780	826	452	544
17	5,350	2,010	1,750	1,500	1,400	4,780	2,820	4,650	1,650	846	467	614
18	5,160	2,150	*1,450	1,700	1,300	4,780	2,710	4,160	1,640	825	493	608
19	4,900	2,540	1,500	1,600	1,450	4,740	2,160	3,480	1,700	828	675	627
20	4,650	3,540	1,140	1,350	1,450	4,600	2,230	3,570	1,610	749	604	621
21	4,550	3,690	920	1,400	1,450	4,500	2,320	3,970	1,570	282	646	429
22	4,070	3,720	960	1,450	1,500	4,380	2,250	3,890	1,160	783	615	291
23	3,730	4,150	860	1,400	1,700	4,100	2,160	3,360	1,230	748	634	542
24	2,830	3,780	1,350	1,450	1,100	4,170	2,120	2,880	1,320	731	398	595
25	2,940	3,290	1,100	1,400	1,350	4,210	2,000	2,760	1,120	645	380	578
26	3,190	2,830	1,140	1,450	1,400	4,060	1,780	2,740	1,170	626	255	614
27	3,410	2,650	1,140	1,100	1,350	3,880	1,960	2,620	1,150	735	554	797
28	3,360	2,560	1,140	1,300	1,700	3,800	2,230	3,170	1,130	324	559	563
29	3,500	2,410	1,350	1,220	-	3,910	2,120	3,310	1,150	630	554	384
30	4,470	2,230	1,160	1,250	-	3,950	2,260	2,960	1,090	642	651	683
31	4,630	-	1,400	1,200	-	3,910	-	2,960	-	711	646	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	140,150	5,430	2,830	4,521	4.00	4.61
November	86,990	4,150	1,650	2,900	2.56	2.86
December	50,430	2,480	860	1,627	1.44	1.66
Calendar year 1945	953,963	9,580	40	2,614	2.31	31.37
January	51,630	3,630	1,100	1,665	1.47	1.70
February	39,460	1,750	1,060	1,409	1.25	1.30
March	119,120	5,780	1,500	3,843	3.40	3.92
April	83,920	3,890	1,780	2,797	2.47	2.76
May	84,380	4,650	1,900	2,722	2.41	2.77
June	57,490	2,980	1,090	1,916	1.69	1.89
July	29,931	1,560	282	966	.854	.98
August	16,949	841	230	547	.484	.56
September	16,494	842	291	550	.486	.54
Water year 1945-46	776,944	5,780	230	2,129	1.88	25.55

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 1, 2, Dec. 11 to Jan. 6, Jan. 13 to Mar. 9 (doubtful gage-height record Jan. 31 to Feb. 7).

St. Regis River at Brasher Center, N. Y.

Location.- Water-stage recorder, lat. 44°51'50", long. 74°46'45", 600 feet upstream from highway bridge at Brasher Center, St. Lawrence County, and 6½ miles downstream from confluence of East and West Branches at Winthrop. Datum of gage is 217.23 feet above mean sea level, datum of 1929.

Drainage area.- 616 square miles.

Records available.- August 1910 to November 1917, January 1919 to September 1946.

Average discharge.- 33 years (1910-13, 1914-17, 1919-46), 1,048 second-feet.

Extremes.- Maximum discharge during year, 6,990 second-feet (release from ice jam upstream) Mar. 15 (gage height, 9.81 feet); minimum, 162 second-feet (regulated) Sept. 8 (gage height, 5.75 feet).

1910-17, 1919-46: Maximum discharge, 16,800 second-feet Apr. 6, 1937, from rating curve extended above 8,300 second-feet by logarithmic plotting; maximum gage height recorded, about 15.3 feet Apr. 6, 1937 (ice jam); minimum discharge observed, about 34 second-feet Aug. 8, 1917 (gage height, 5.25 feet).

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Slight diurnal fluctuation caused by power operations above station.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 6				Jan. 7 to Sept. 30			
6.1	392	7.0	1,390	6.2	469	7.5	2,050
6.3	569	7.5	2,130	6.4	650	8.0	2,910
6.6	885	8.1	3,150	6.6	857	8.5	3,900
				7.0	1,340	9.2	5,460

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a1,420	981	860	540	520	600	1,240	1,040	1,020	366	212	235
2	2,730	1,040	800	470	520	620	1,290	925	1,070	602	218	241
3	3,100	1,660	760	460	480	700	1,430	846	1,080	746	267	229
4	2,640	2,640	740	450	480	800	1,500	a804	982	947	301	223
5	2,290	2,240	720	600	00	980	1,470	a836	914	771	329	218
6	2,050	1,840	780	1,850	540	1,060	1,470	1,030	846	622	301	212
7	1,970	1,560	900	2,910	600	2,300	1,390	1,300	761	420	274	188
8	1,970	1,360	1,060	2,500	700	2,800	1,250	1,240	771	a412	267	178
9	1,860	1,200	1,020	1,820	*680	4,200	1,200	1,160	730	a351	223	206
10	1,740	1,080	960	2,480	660	3,680	1,240	1,280	720	a329	280	241
11	1,560	957	880	2,380	600	*3,060	1,140	1,280	660	329	247	338
12	1,450	909	800	1,880	580	2,590	1,040	1,480	565	336	235	478
13	1,820	885	740	*1,550	580	2,680	936	1,470	504	344	254	420
14	1,970	a909	680	1,100	920	3,750	925	1,280	469	321	241	329
15	1,850	a933	640	920	1,200	5,250	994	1,100	461	294	229	280
16	a1,860	a885	620	820	1,000	4,660	1,440	1,110	453	287	223	260
17	a1,900	a874	580	740	900	3,940	1,550	3,350	437	254	206	247
18	a1,820	a1,100	*560	700	840	3,250	a1,280	2,870	504	260	223	229
19	a1,540	1,520	540	640	780	2,750	a1,130	2,500	740	254	223	223
20	1,380	2,460	520	600	740	2,450	1,090	2,210	650	267	223	226
21	1,230	2,160	500	580	700	2,190	1,030	1,960	575	280	229	206
22	1,080	2,180	480	560	680	2,050	982	1,920	530	307	235	223
23	981	2,620	470	540	660	2,130	914	1,620	495	404	241	206
24	957	1,940	470	520	640	1,980	891	1,370	428	388	241	218
25	1,040	1,610	480	500	620	a1,780	902	1,140	396	358	314	310
26	1,200	1,120	500	490	620	a1,650	914	1,020	336	336	344	244
27	1,310	1,000	520	480	600	a1,570	1,010	1,040	344	274	314	301
28	1,270	980	500	470	600	a1,550	1,070	982	329	267	274	259
29	1,180	940	500	450	-	a1,480	1,150	970	307	229	260	245
30	1,090	900	520	450	-	1,420	1,130	868	329	223	247	422
31	1,000	-	580	490	-	1,340	-	925	-	218	241	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	51,258	3,100	957	1,653	2.88	3.09
November	42,483	2,640	874	1,416	2.30	2.56
December	20,680	1,060	470	667	1.08	1.25
Calendar year 1945	440,888	5,770	206	1,208	1.96	26.60
January	30,940	2,910	450	998	1.62	1.87
February	18,940	1,200	480	676	1.10	1.14
March	71,240	5,250	600	2,298	3.73	4.30
April	34,998	1,550	891	1,167	1.89	2.11
May	42,866	3,350	804	1,383	2.25	2.59
June	18,406	1,080	307	614	.997	1.11
July	11,796	947	218	381	.619	.71
August	7,916	344	206	255	.414	.48
September	7,835	478	178	261	.424	.47
Water year 1945-46	359,358	5,250	178	985	1.60	21.88

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Grass River at Pyrites.

Note.- Stage-discharge relation affected by ice Nov. 26 to Jan. 6, Jan. 13 to Mar. 9 (no gage-height record Dec. 3-9, Dec. 31 to Jan. 4, Jan. 27 to Feb. 3, Feb. 22, 23).

Salmon River at Chasm Falls, N. Y.

Location.- Water-stage recorder, lat. 44°45'20", long. 74°13'10", at Chasm Falls, Franklin County, a quarter of a mile downstream from power plant of Central New York Power Corp.

Drainage area.- 132 square miles.

Records available.- July 1925 to September 1946.

Average discharge.- 21 years, 224 second-feet.

Extremes.- Maximum discharge during year, 1,150 second-feet Mar. 15 (gage height, 3.29 feet); minimum, 29 second-feet (regulated) Sept. 27 (gage height, 0.65 foot); minimum daily, 77 second-feet Sept. 4.

1925-46: Maximum discharge, 2,890 second-feet Apr. 25, 1926 (gage height, 5.0 feet); minimum, 14 second-feet (regulated) Feb. 12, 1943 (gage height, 0.44 foot); minimum daily, 28 second-feet Sept. 4, 1934.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are good. Diurnal fluctuation at low and medium flow caused by power plant. A small diversion from tributary stream above station is used as water supply for village of Malone.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 2)

Oct. 1, 2		Oct. 3 to Sept. 30			
1.6	199	1.0	66	2.0	336
1.8	274	1.2	97	2.4	534
2.0	360	1.4	138	2.6	784
2.2	455	1.6	193	3.2	1,080
		1.8	259		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	215	232	161	156	163	256	249	244	183	84	80
2	442	259	179	140	160	159	308	219	229	248	94	81
3	538	371	205	150	150	171	349	205	209	188	177	83
4	454	365	191	151	146	172	316	199	197	137	150	77
5	404	316	182	157	154	185	332	228	168	122	116	82
6	349	286	205	209	147	203	312	312	194	114	100	81
7	304	245	289	486	165	367	289	340	162	100	92	78
8	304	228	320	464	168	510	270	300	193	102	92	82
9	292	211	274	302	160	*734	266	289	184	111	88	82
10	345	198	252	399	*153	705	266	362	a165	110	92	150
11	289	193	180	371	144	557	245	328	a150	100	106	179
12	256	185	170	*304	150	434	239	433	a165	110	98	121
13	340	190	178	263	142	454	239	354	a145	114	88	135
14	345	200	186	204	198	796	242	304	148	96	91	109
15	296	190	179	212	220	1,070	306	289	135	110	88	110
16	324	178	188	208	200	875	414	296	126	98	89	127
17	367	185	*190	208	199	730	336	512	124	90	86	154
18	316	289	213	208	190	629	292	433	199	91	90	186
19	281	345	212	167	151	557	278	385	178	85	90	214
20	259	340	206	175	160	496	274	345	145	114	89	199
21	235	312	195	185	156	464	266	349	137	100	87	193
22	209	316	191	181	156	412	249	358	136	103	86	181
23	219	404	182	164	153	362	239	304	125	110	89	146
24	215	308	b170	171	150	349	270	270	118	134	90	109
25	239	266	b170	172	147	340	263	249	114	118	107	122
26	245	210	178	167	147	340	245	249	112	103	93	104
27	249	210	181	152	147	376	278	259	104	96	91	95
28	232	217	168	162	163	367	278	220	104	87	83	94
29	203	199	164	156	-	354	292	205	103	87	87	96
30	194	171	167	152	-	340	274	186	97	84	84	233
31	190	-	164	156	-	292	-	206	-	80	87	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	9,135	536	190	295	2.23	2.57
November	7,600	404	171	253	1.92	2.41
December	6,161	320	164	199	1.51	1.74
Calendar year 1945	93,325	1,250	76	256	1.94	26.29
January	6,799	488	140	219	1.66	1.92
February	4,522	220	142	162	1.23	1.27
March	13,963	1,070	159	450	3.41	3.93
April	8,485	414	239	283	2.14	2.39
May	9,237	512	186	298	2.26	2.60
June	4,650	244	97	155	1.17	1.31
July	3,525	248	80	114	.864	.99
August	2,986	177	83	96.3	.730	.84
September	3,783	233	77	126	.955	1.07
Water year 1945-46	80,846	1,070	77	221	1.67	22.77

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records of power-plant operation.
b Stage-discharge relation affected by ice.

Chateaugay River near Chateaugay, N. Y.

Location.- Water-stage recorder, lat. 44°54'35", long. 74°05'10", 150 feet downstream from dam of International Paper Co. and 1 mile south of Chateaugay, Franklin County.
Drainage area.- 112 square miles.
Records available.- September to December 1908, October 1926 to September 1946.
Average discharge.- 20 years,(1926-46), 172 second-feet.
Extremes (regulated).- Maximum discharge during year, 494 second-feet Mar. 9; maximum gage height, 4.49 feet Dec. 22 (ice jam); minimum discharge, 61 second-feet July 11 (gage height, 1.26 feet); minimum daily, 68 second-feet Sept. 27.
1908, 1926-46: Maximum discharge, 2,060 second-feet Apr. 8, 1928 (gage height, 7.3 feet), from rating curve extended above 970 second-feet by logarithmic plotting; minimum, 6 second-feet Nov. 20, 1928 (gage height, 0.23 foot); minimum daily, 26 second-feet July 8, 1934.
Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Upper and Lower Chateaugay Lakes. Large diurnal fluctuation at all stages caused by power operations.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 22		Dec. 22 to Sept. 30			
1.7	110	1.3	65	2.4	222
1.8	123	1.5	86	2.8	300
2.1	165	1.7	111	3.2	394
2.6	250	2.0	156		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	176	a150	174	200	190	218	154	150	112	75	74
2	161	210	a150	170	195	195	226	152	146	116	77	75
3	149	227	a160	165	190	208	229	153	145	116	92	73
4	148	231	a170	165	185	215	225	154	149	131	79	75
5	148	229	a180	170	185	215	226	161	147	108	76	74
6	140	229	180	328	200	220	223	167	147	104	80	73
7	145	227	186	263	210	230	221	161	149	92	80	72
8	157	215	180	220	205	241	219	165	151	92	80	71
9	171	211	180	228	200	358	225	190	148	94	80	71
10	174	199	180	268	*190	235	221	196	134	93	82	79
11	171	196	177	230	185	227	221	220	130	81	80	73
12	177	196	175	*231	180	228	222	266	128	91	76	74
13	188	196	170	224	180	*258	221	278	128	90	76	75
14	193	193	*160	200	230	290	219	285	127	89	75	73
15	196	188	155	190	215	273	241	274	126	85	76	73
16	213	183	160	180	215	270	227	279	125	84	80	74
17	218	171	170	175	210	276	220	297	126	86	77	72
18	227	186	180	175	205	320	220	347	130	86	75	71
19	231	185	185	170	200	373	218	375	126	86	75	71
20	217	217	185	170	195	371	224	355	125	85	76	72
21	211	211	180	180	195	366	222	349	128	85	74	72
22	211	250	180	195	190	372	193	334	129	88	74	72
23	198	226	180	195	190	372	162	306	126	87	73	70
24	194	a230	175	200	190	371	165	275	124	85	73	73
25	203	a250	175	200	185	363	158	272	124	83	74	71
26	203	a200	180	215	185	348	158	259	124	82	73	70
27	186	a170	185	220	185	272	170	185	122	82	74	88
28	185	a160	185	220	185	270	167	184	118	83	75	70
29	191	a160	180	215	-	250	162	178	107	76	74	70
30	178	a155	180	210	-	221	157	147	105	75	75	87
31	185	-	175	205	-	219	-	148	-	75	74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	5,686	231	117	183	-	-
November	6,077	250	155	203	-	-
December	5,408	186	150	174	-	-
Calendar year 1945	76,532	854	91	210	1.88	25.41
January	6,351	328	165	205	-	-
February	5,480	230	180	196	-	-
March	8,617	373	190	278	-	-
April	6,180	241	157	206	-	-
May	7,266	375	147	234	-	-
June	3,944	151	105	131	-	-
July	2,822	131	75	91.0	-	-
August	2,380	92	73	76.8	-	-
September	2,188	87	68	72.9	-	-
Water year 1945-46	62,399	375	68	171	1.53	20.73

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and record of gate openings at Forge Dam.
Note.- Stage-discharge relation affected by ice Dec. 12-31, Jan. 2-5, Jan. 14 to Mar. 2, Mar. 6, 7. Increase in storage in Chateaugay Lakes during calendar year 1945, about 168,200,000 cubic feet (equivalent mean discharge, 5.33 sec.-ft.; runoff 0.65 inch); increase in elevation, 1.27 feet. Decrease during water year 1945-46, about 206,600,000 cubic feet (equivalent mean discharge, 6.55 sec.-ft.; runoff 0.79 inch); decrease in elevation, 1.56 feet.

Richelieu River (Lake Champlain) at Rouses Point, N. Y.

Location.- Water-stage recorder, lat. 44°59'45", long. 73°21'40", in Rouses Point, Clinton County, at outlet of Lake Champlain, 90 feet north of Rutland Railroad bridge and 1 mile south of Fort Montgomery. Datum of gage is 93.00 feet above mean sea level, datum of 1929.

Drainage area.- 8,277 square miles.

Records available.- October 1863 to December (maximum and minimum monthly gage heights at St. Johns, Quebec, published in Water-Supply Paper 97) and March 1871 to September 1946 (daily gage heights; those for 1871-1907 published in Water-Supply Paper 894). January 1875 to September 1916 (monthly discharge) at Chambly, Quebec, published in Water-Supply Paper 424. Gage heights prior to Oct. 1, 1925, published as Richelieu River at Fort Montgomery, Rouses Point.

Extremes.- Maximum gage height during year, 5.92 feet Apr. 2; minimum, 0.45 foot Sept. 30.
1871-1946: Maximum gage height observed, 8.80 feet Mar. 30, 1903; minimum observed, -0.83 foot Oct. 23, 1941.
Observations at St. Johns, Quebec, indicate a maximum gage height of 8.83 feet (computed) during April 1869.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.30	4.34	4.26	3.09	2.92	2.58	5.23	3.90	3.88	2.69	1.42	1.18
2	3.24	4.60	4.33	3.07	2.94	2.56	5.22	3.79	3.92	2.56	1.41	.97
3	3.41	4.32	4.36	3.10	2.89	2.55	5.01	3.80	3.94	2.54	1.48	.97
4	3.89	4.42	4.14	3.03	2.86	3.52	5.18	3.78	3.92	2.52	1.58	.94
5	4.04	4.48	4.14	3.02	2.84	2.50	4.95	3.83	3.90	2.53	1.56	.98
6	4.06	4.52	4.04	3.02	2.85	2.56	4.94	3.68	3.91	2.52	1.53	1.10
7	4.05	4.60	4.03	3.03	2.82	2.68	4.87	3.63	3.84	2.28	1.52	.92
8	4.10	4.55	4.10	3.17	2.79	2.92	4.89	3.61	3.84	2.29	1.52	.81
9	4.21	4.46	4.28	3.38	2.80	3.38	4.82	3.67	3.69	2.23	1.51	.80
10	4.44	4.29	4.20	3.34	2.74	3.84	4.62	3.60	3.66	2.15	1.65	.89
11	4.65	4.28	4.08	3.43	2.71	4.15	4.62	3.69	3.72	2.28	1.39	.83
12	4.86	4.35	4.10	3.51	2.70	4.34	4.59	3.60	3.61	2.20	1.34	.78
13	4.70	4.34	4.12	3.41	2.70	4.38	4.55	3.61	3.51	2.03	1.34	.79
14	4.79	a4.00	4.10	3.45	2.71	4.48	4.48	3.67	3.50	2.03	1.35	.78
15	4.83	a3.97	4.11	3.41	2.78	4.72	4.54	3.61	3.42	1.87	1.40	.79
16	4.81	a3.83	4.01	3.47	2.84	5.00	4.24	3.60	3.41	1.87	1.48	.80
17	4.87	a3.99	3.89	3.50	2.80	5.16	4.33	3.56	3.37	1.87	1.26	.77
18	4.91	3.90	3.83	3.40	2.79	5.24	4.44	3.69	3.17	1.86	1.17	.75
19	4.96	3.97	3.75	3.36	2.78	5.30	4.18	3.78	3.21	1.85	1.40	.73
20	4.88	3.91	3.71	3.34	2.80	5.34	4.14	3.75	3.22	1.70	1.26	.73
21	4.82	4.23	3.66	3.28	2.79	5.34	4.10	3.84	3.16	1.73	1.18	.78
22	4.81	4.37	3.60	3.27	2.77	5.33	4.09	3.94	3.06	1.73	1.11	.72
23	4.58	4.45	3.51	3.30	2.72	5.32	4.03	4.03	3.01	1.76	1.09	.73
24	4.57	4.61	3.46	3.29	2.68	5.37	3.97	4.09	2.96	1.78	1.11	.82
25	4.61	4.50	3.47	3.17	2.63	5.36	3.99	4.04	2.88	1.65	1.11	.77
26	4.63	4.49	3.41	3.13	2.61	5.33	3.87	3.98	2.85	1.61	1.11	.76
27	4.54	4.53	3.33	3.09	2.59	5.25	3.94	3.96	2.77	1.59	1.09	.73
28	4.56	4.43	3.30	3.06	2.59	5.27	3.98	3.95	2.72	1.64	1.16	.85
29	4.72	4.20	3.28	2.96	-	5.20	4.06	4.00	2.68	1.59	1.09	.86
30	4.50	4.10	3.25	2.95	-	5.13	3.98	3.97	2.64	1.46	1.10	.61
31	4.59	-	3.14	2.96	-	5.13	-	3.82	-	1.43	1.12	-

a No recorder record; gage heights determined on basis of daily gage readings and recorded range in stage.

Monthly gage height, in feet, water year October 1945 to September 1946

Month	Maximum	Minimum	Mean
October	4.96	3.24	4.45
November	4.61	3.83	4.30
December	4.36	3.14	3.84
Calendar year 1945	6.65	1.10	3.64
January	3.51	2.95	3.23
February	2.94	2.59	2.77
March	5.37	2.50	4.33
April	5.23	3.87	4.46
May	4.09	3.56	3.79
June	3.94	2.64	3.38
July	2.69	1.43	1.99
August	1.65	1.09	1.32
September	1.18	.61	.83
Water year 1945-46	5.37	.61	3.23

Lake Champlain at Burlington, Vt.

Location.- Water-stage recorder, lat. 44°29'00", long. 73°13'30", in Burlington, Chittenden County, 0.6 mile north of railroad station. Datum of gage is 92.86 feet above mean sea level, datum of 1929.

Records available.- May 1907 to September 1946.

Extremes.- Maximum gage height during year, 5.50 feet Mar. 22, affected by seiche; minimum not determined.

1907-46: Maximum gage height observed, 8.65 feet Mar. 27, 28, 1936; minimum observed, -0.25 foot Dec. 4, 1908.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.90	4.48	4.35	3.17	2.99	2.65	5.22	4.00	3.99	2.57	1.49	1.06
2	3.15	4.46	4.36	3.14	3.02	2.63	5.12	3.97	4.00	2.60	1.54	1.05
3	3.56	4.44	4.32	3.07	2.96	2.62	5.16	3.92	4.00	2.59	1.57	1.04
4	3.82	4.49	4.28	3.04	2.93	2.59	5.10	3.85	3.99	2.55	1.58	1.02
5	4.00	4.51	4.24	2.95	2.91	2.57	5.06	3.76	3.98	2.50	1.59	.98
6	4.06	4.50	4.20	2.93	2.92	2.63	5.05	3.75	3.91	2.40	1.60	.92
7	4.08	4.47	4.19	3.00	2.89	2.75	5.01	3.71	3.89	2.36	1.56	.89
8	4.11	4.44	4.22	3.31	2.86	2.99	4.95	3.72	3.85	2.32	1.56	.90
9	4.35	4.41	4.28	3.36	2.87	3.40	4.85	3.68	3.80	2.29	1.57	.92
10	4.54	4.39	4.27	3.41	2.81	3.90	4.80	3.67	3.76	2.25	1.56	.92
11	4.72	4.33	4.26	3.50	2.78	4.22	4.75	3.65	3.70	2.17	1.53	.91
12	4.83	4.33	4.26	3.51	2.77	4.41	4.70	3.68	3.68	2.10	1.48	.91
13	4.84	4.21	4.23	3.50	2.77	4.43	4.64	3.70	3.62	2.08	1.47	.91
14	4.86	4.18	4.14	3.56	2.79	4.56	4.57	3.68	3.57	2.04	1.42	.90
15	4.90	4.14	4.08	3.58	2.86	4.84	4.45	3.66	3.50	2.00	1.42	.92
16	4.94	4.01	4.03	3.56	2.89	5.10	4.42	3.63	3.42	1.98	1.34	.87
17	4.96	3.98	3.96	3.57	2.87	5.25	4.41	3.68	3.32	1.93	1.28	.84
18	4.95	3.97	3.90	3.47	2.86	5.35	4.31	3.73	3.34	1.86	1.20	.80
19	4.94	3.99	3.87	3.43	2.85	5.39	4.29	3.74	3.27	1.80	1.22	.79
20	4.91	4.09	3.85	3.41	2.87	5.40	4.24	3.81	3.20	1.78	1.21	.78
21	4.84	4.30	3.80	3.35	2.86	5.41	4.21	3.87	3.15	1.77	1.21	.78
22	4.81	4.44	3.67	3.34	2.84	5.41	4.14	3.98	3.10	1.73	1.20	.78
23	4.77	4.57	3.62	3.37	2.79	5.44	4.09	4.05	3.03	1.74	1.19	.78
24	4.78	4.57	3.59	3.36	2.75	5.43	4.07	4.05	2.96	1.74	1.18	.79
25	4.71	4.59	3.50	3.24	2.70	5.41	4.06	4.01	2.91	1.73	1.18	.80
26	4.69	4.56	3.46	3.20	2.68	5.38	4.05	4.07	2.85	1.71	1.17	.81
27	4.66	4.55	3.42	3.16	2.66	5.35	4.05	4.10	2.81	1.66	1.17	.81
28	4.65	4.50	3.37	3.13	2.66	5.35	4.07	4.13	2.75	1.62	1.16	.81
29	4.60	4.36	3.30	3.03	-	5.35	4.04	4.06	2.70	1.61	1.15	.81
30	4.56	4.33	3.27	3.02	-	5.36	4.02	4.00	2.64	1.60	1.15	.81
31	4.48	-	3.21	3.03	-	5.31	-	4.00	-	1.55	1.12	-

Note.- Gage heights for periods Oct. 4 to Feb. 14, Feb. 17 to Mar. 12, July 25 to Aug. 28, Sept. 8, 10, 12, 14-30 computed on basis of records for Richelieu River (Lake Champlain) at Rouses Point, N. Y., adjusted for wind direction and velocity when necessary, and on engineer's occasional gage readings or once-daily reading of float gage in pump house of Burlington Water Department.

Monthly gage height, in feet, water year October 1945 to September 1946

Month	Maximum	Minimum	Mean
October	4.96	2.90	4.48
November	4.59	3.97	4.35
December	4.36	3.21	3.92
Calendar year 1945	6.66	1.15	3.69
January	3.58	2.93	3.28
February	3.02	2.66	2.84
March	5.44	2.57	4.42
April	5.22	4.02	4.53
May	4.13	3.63	3.85
June	4.00	2.64	3.42
July	2.60	1.55	2.02
August	1.60	1.12	1.36
September	1.06	.78	.88
Water year 1945-46	5.44	.78	3.28

Great Chazy River at Perry Mills, N. Y.

Location.- Water-stage recorder, lat. 45°00'00", long. 73°30'05", 500 feet upstream from highway bridge at Perry Mills, Clinton County.

Drainage area.- 247 square miles.

Records available.- September 1928 to September 1946.

Average discharge.- 18 years, 261 second-feet.

Extremes.- Maximum gage height during year, 11.5 feet, from floodmark, Mar. 9 (ice jam; discharge not determined); minimum discharge, 21 second-feet (regulated) July 21 (gage height, 1.81 feet).

1928-46: Maximum discharge, 6,000 second-feet Apr. 7, 1937; maximum gage height, that of Mar. 9, 1946; minimum discharge, about 0.8 second-foot (regulated) Sept. 18, 1932 (gage height, 1.33 feet); minimum daily, 10 second-feet (regulated) Sept. 18, 1932.

Remarks.- Records good except those below 100 second-feet, and those for periods of ice effect, which are fair. Diurnal fluctuation at low and medium flow caused by saw mill. Partial regulation by Chazy Lake. Clinton Prison at Dannemora obtains its water supply from Chazy Lake.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 10

2.7	171	4.5	882
2.9	222	5.0	1,170
3.2	310	5.6	1,580
3.6	457	6.3	2,130
4.0	631		

Mar. 11 to Sept. 30

1.8	20	2.4	99
1.9	28	2.6	143
2.0	38	2.9	221
2.2	64		

Note.- Same as preceding table above 3.0 feet.

Discharge, in second-feet, water year October 1945 to September 1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	308	262	250	215	270	190	252	312	193	66	62	63
2	933	270	270	185	260	210	311	266	217	84	63	46
3	1,190	509	280	185	250	195	449	242	192	75	96	48
4	850	539	290	195	230	220	484	228	174	61	182	82
5	629	458	260	210	235	235	460	249	178	58	101	91
6	501	360	260	310	240	260	431	317	167	53	74	92
7	376	304	280	1,350	240	400	440	370	157	42	77	92
8	401	279	420	1,250	240	820	367	334	159	50	75	94
9	459	261	450	800	235	1,550	348	323	158	50	84	108
10	733	253	400	1,080	225	*2,100	368	381	147	51	64	102
11	498	236	310	*900	*215	1,350	332	362	139	54	34	114
12	375	247	200	560	205	880	258	435	143	46	31	87
13	454	252	190	360	200	*760	245	419	133	32	55	86
14	559	257	*210	290	215	1,900	231	304	136	26	85	93
15	514	250	195	310	350	2,050	246	261	129	27	64	96
16	515	191	185	320	320	1,210	357	262	118	33	67	95
17	586	184	205	330	280	802	330	393	71	31	64	91
18	444	304	200	330	230	683	273	436	93	28	36	92
19	370	379	195	320	200	591	202	471	110	26	26	91
20	318	624	180	300	200	521	202	415	83	24	62	92
21	272	722	170	310	200	479	241	365	118	24	66	93
22	261	669	180	310	195	485	262	429	119	24	65	99
23	264	1,030	170	300	185	520	240	337	84	29	82	99
24	245	629	160	290	175	430	215	264	65	42	84	99
25	282	469	160	280	170	378	247	229	62	60	57	94
26	358	346	170	260	170	370	231	216	61	52	42	97
27	339	298	175	250	170	386	430	247	48	45	62	97
28	288	293	170	245	175	333	472	212	49	38	66	97
29	276	334	165	250	-	344	422	187	52	42	63	103
30	263	285	180	245	-	305	353	166	43	37	63	176
31	267	-	205	250	-	278	-	154	-	33	66	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	14,128	1,190	245	456	1.85	2.13
November	11,494	1,030	184	383	1.55	1.73
December	7,135	450	160	230	.931	1.07
Calendar year 1945	135,747	2,900	43	372	1.51	20.43
January	12,790	1,350	185	413	1.67	1.93
February	6,280	350	170	224	.907	.95
March	21,235	2,100	190	685	2.77	3.20
April	9,699	484	202	323	1.31	1.46
May	9,586	471	154	309	1.25	1.44
June	3,598	217	43	120	.488	.54
July	1,343	84	24	43.3	.175	.20
August	2,058	162	26	68.4	.289	.31
September	2,809	176	46	93.6	.379	.42
Water year 1945-46	102,155	2,100	24	280	1.13	15.38

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 1 to Mar. 15.

Saranac River at Plattsburg, N. Y.

Location.- Water-stage recorder, lat. 44°40'50", long. 73°28'20", in Plattsburg, Clinton County, 600 feet downstream from Imperial Paper & Color Corp. dam and 3 miles upstream from mouth.

Drainage area.- 608 square miles.

Records available.- October 1943 to September 1946. March 1903 to September 1930 at site 1.5 miles upstream, published as Saranac River near Plattsburg.

Average discharge.- 28 years (1905-30, 1943-46), 819 second-feet.

Extremes.- Maximum discharge during year, 5,000 second-feet Mar. 15 (gage height, 7.53 feet); minimum, 2.7 second-feet (regulated) July 12 (gage height, 1.22 feet); minimum daily, 164 second-feet Sept. 1.

1903-30, 1943-46: Maximum daily discharge, 8,600 second-feet Apr. 8, 1928; minimum daily, 15 second-feet (regulated) Aug. 4, 1908.

Remarks.- Records excellent except those for periods of ice effect, which are fair. Flow partly regulated by storage in Lower Saranac Lake and elsewhere. Considerable diurnal fluctuation caused by power and industrial operations.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1, 2		Oct. 3 to Sept. 30					
4.9	1,480	2.5	150	3.2	361	4.5	1,100
5.4	2,020	2.6	174	3.4	444	5.0	1,530
5.9	2,640	2.8	228	3.6	539	6.0	2,650
		3.0	290	4.0	765	7.3	4,600

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,550	1,220	753	651	752	684	1,240	994	1,220	562	343	164
2	2,550	1,280	873	620	784	754	1,360	921	1,220	699	512	234
3	2,620	1,720	978	540	765	781	1,510	898	1,180	602	619	497
4	2,270	1,550	1,010	580	763	815	1,420	805	1,200	404	455	391
5	2,210	1,350	947	590	843	880	1,190	854	1,230	344	705	323
6	2,020	1,080	830	665	810	925	689	1,040	1,190	435	372	350
7	1,770	1,050	927	1,330	853	1,060	884	1,140	1,150	329	401	402
8	1,810	1,040	1,370	1,550	823	1,380	852	1,340	1,090	268	460	235
9	1,800	1,040	1,060	974	795	2,390	716	1,190	1,020	308	556	323
10	1,860	969	1,060	999	766	*2,770	928	996	938	378	422	283
11	1,590	902	927	*1,140	*640	2,280	614	957	944	481	250	250
12	1,490	992	702	974	700	2,040	614	950	912	257	508	345
13	1,460	976	*645	877	717	2,050	568	1,100	859	538	414	394
14	1,550	989	718	731	793	3,360	560	1,060	825	506	445	373
15	1,580	962	756	660	1,130	4,600	656	1,020	673	397	405	262
16	1,600	863	696	660	872	3,330	757	1,030	643	489	466	287
17	1,730	830	788	720	676	3,110	864	1,120	633	652	225	273
18	1,550	916	729	720	575	2,700	854	1,200	799	435	200	281
19	1,450	1,190	738	660	628	2,390	863	1,280	751	367	360	325
20	1,300	1,370	718	546	588	2,100	848	1,250	692	325	506	260
21	1,240	1,340	727	676	486	2,020	848	1,310	690	516	408	267
22	1,190	1,120	655	807	664	2,000	850	1,400	625	380	447	224
23	1,200	1,440	720	821	572	1,840	839	1,160	527	595	383	231
24	1,200	1,270	654	790	743	1,580	868	1,070	681	567	335	285
25	1,210	1,100	753	794	637	1,520	901	1,000	582	449	250	274
26	1,290	1,070	885	804	652	1,490	866	1,130	550	423	457	267
27	1,220	1,060	832	740	682	1,570	1,010	1,340	623	464	488	282
28	1,120	1,060	726	694	719	1,530	1,010	1,330	536	405	412	210
29	1,110	1,020	680	800	-	1,450	970	1,200	449	378	468	189
30	1,080	803	646	781	-	1,420	1,050	1,050	556	458	417	333
31	1,050	-	678	794	-	1,270	-	1,030	-	380	386	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	48,650	2,620	1,050	1,569	2.58	2.98
November	33,572	1,720	803	1,119	1.84	2.05
December	25,181	1,370	645	812	1.34	1.54
Calendar year 1945	388,628	4,080	175	1,085	1.75	23.78
January	24,688	1,550	540	796	1.31	1.51
February	20,428	1,130	486	730	1.20	1.25
March	58,069	4,600	684	1,873	3.08	3.55
April	27,179	1,510	560	906	1.49	1.66
May	34,165	1,400	805	1,102	1.81	2.09
June	24,968	1,230	449	832	1.37	1.53
July	13,789	699	257	445	.732	.84
August	13,075	705	200	422	.694	.80
September	8,814	497	164	294	.484	.54
Water year 1945-46	332,578	4,600	164	911	1.50	20.34

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Jan. 2-4, 15-19, Feb. 11.

West Branch Ausable River near Newman, N. Y.

Location.- Water-stage recorder, lat. 44°18'40", long. 73°55'00", 4 miles northeast of Newman, Essex County, and 4 miles downstream from Lake Placid Outlet.

Drainage area.- 116 square miles.

Records available.- June 1916 to December 1917, July 1919 to September 1946.

Average discharge.- 27 years (1919-46), 217 second-feet.

Extremes.- Maximum discharge during year, 3,350 second-feet Oct. 2 (gage height, 7.60 feet); minimum, 36 second-feet (regulated) July 31 (gage height, 2.38 feet); minimum daily, 46 second-feet Aug. 1.

1916-17, 1919-46: Maximum discharge, 10,800 second-feet Sept. 22, 1938 (gage height, 12.20 feet), from rating curve extended above 3,200 second-feet by logarithmic plotting; practically no flow Sept. 13, 1920 (gage height, 1.60 feet), caused by closing gates in logging dam; minimum daily, 7.2 second-feet (regulated) July 29, 1920.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation at low and medium flow caused by power plants.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.4	38	3.5	261	5.5	1,360
2.5	48	4.0	465	6.0	1,740
2.7	72	4.5	724	6.7	2,390
3.0	125	5.0	1,020		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	500	275	170	60	78	70	249	268	463	103	46	61
2	2,320	294	150	56	74	74	268	268	501	625	58	54
3	1,490	646	154	54	70	80	334	229	330	320	122	53
4	793	584	152	56	66	96	296	199	261	167	145	54
5	558	354	129	60	66	120	292	229	229	119	103	48
6	447	268	133	125	72	160	258	315	214	98	78	49
7	1,010	226	310	740	102	460	223	289	194	82	64	50
8	732	205	375	560	96	840	194	275	220	75	58	51
9	682	188	258	*290	88	1,140	188	258	251	80	56	48
10	696	172	205	354	86	960	172	323	196	75	62	59
11	a479	157	*135	300	84	520	160	353	170	68	71	155
12	a390	154	100	235	*86	330	150	821	180	69	67	106
13	a600	160	88	188	88	320	143	442	150	69	62	76
14	a420	312	90	112	108	760	138	330	134	66	58	64
15	a350	242	98	94	140	1,160	164	480	123	66	57	57
16	a320	194	92	88	108	686	339	484	117	60	54	56
17	a310	172	86	92	100	513	229	733	109	57	57	54
18	a340	264	80	88	90	442	191	594	119	56	58	50
19	a400	428	74	86	82	406	196	594	121	53	58	50
20	a300	354	70	84	78	354	202	451	107	69	63	49
21	a240	272	66	84	76	342	202	882	109	68	63	48
22	a200	296	62	82	76	384	191	693	107	66	56	58
23	a220	384	60	80	78	447	244	419	96	82	57	56
24	a250	278	58	78	74	334	699	323	91	100	73	59
25	a240	229	58	76	72	300	490	282	81	78	101	128
26	a270	190	66	74	70	323	397	563	80	67	96	100
27	a330	185	68	74	68	489	470	475	75	58	87	80
28	261	172	64	72	68	479	326	342	72	54	76	66
29	223	145	60	72	-	708	289	268	69	53	72	59
30	251	114	60	70	-	636	261	229	82	59	69	223
31	235	-	62	72	-	354	-	217	-	56	67	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,857	2,320	200	512	4.41	5.08
November	7,914	646	114	264	2.28	2.54
December	3,633	375	58	117	1.01	1.16
Calendar year 1945	111,705	3,120	46	306	2.64	35.81
January	4,556	740	54	147	1.27	1.46
February	2,344	140	66	83.7	.722	.75
March	14,287	1,160	70	461	3.97	4.58
April	7,955	699	138	265	2.28	2.55
May	16,628	882	199	407	3.51	4.05
June	5,051	501	69	168	1.45	1.62
July	3,118	625	53	101	.871	1.00
August	2,214	145	46	71.4	.616	.71
September	2,121	223	48	70.7	.609	.68
Water year 1945-46	81,678	2,320	46	224	1.93	26.18

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, precipitation records, and records for nearby stations.

Note.- Stage-discharge relation affected by ice Nov. 26, 27, Nov. 29 to Dec. 2, Dec. 10 to Jan. 8, Jan. 14 to Mar. 15.

Ausable River near Ausable Forks, N. Y.

Location.- Water-stage recorder, lat. 44°27'05", long. 73°38'35", 1¾ miles downstream from confluence of East and West Branches and Ausable Forks, Clinton County. Datum of gage is 505.65 feet above mean sea level, datum of 1929.
Drainage area.- 448 square miles.
Records available.- September 1924 to September 1946. August 1910 to September 1925 at Ausable Forks, 1½ miles upstream.
Average discharge.- 22 years (1924-46), 670 second-feet.
Extremes.- Maximum discharge during year, 8,010 second-feet Oct. 2; maximum gage height, 9.54 feet Jan. 7 (ice jam); minimum discharge, 114 second-feet (regulated) Sept. 16 (gage height, 1.17 feet).
1910-46: Maximum discharge, 24,200 second-feet Sept. 22, 1938, from rating curve extended above 9,100 second-feet by logarithmic plotting; maximum gage height, about 14.0 feet Mar. 27, 1934 (ice jam); practically no flow July 21, 1912.
Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Flow partly regulated, principally by Taylor Pond and Fern Lake. Diurnal fluctuations at low and medium flow caused by power plants above station.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 29)

Oct. 1 to Jan. 7, Mar. 30 to Sept. 30				Jan. 8 to Mar. 29			
1.3	149	3.0	1,100	1.4	178	3.0	1,180
1.5	214	3.5	1,600	1.7	295	3.5	1,690
1.7	291	4.0	2,200	2.0	445	4.0	2,330
2.0	429	5.0	3,750	2.5	769	5.4	4,550
2.5	720	6.1	5,950				

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,510	881	500	200	225	205	847	707	1,210	334	200	214
2	5,740	662	520	185	225	215	914	694	1,520	1,160	207	190
3	4,410	1,460	520	175	215	235	1,120	631	1,030	849	363	194
4	2,250	1,690	500	175	200	280	1,000	571	803	492	390	190
5	1,520	1,080	460	185	195	370	937	606	734	362	279	190
6	1,190	811	430	500	205	520	847	832	694	283	259	180
7	2,410	688	830	2,250	270	1,140	748	811	612	244	229	180
8	2,140	618	1,240	2,210	290	2,100	649	818	655	221	211	180
9	2,310	571	961	*1,180	270	3,400	631	768	720	221	197	251
10	2,230	525	740	1,330	250	*3,040	588	876	582	225	207	251
11	1,490	476	520	1,140	245	1,650	536	854	503	225	244	319
12	1,160	465	*360	905	*245	1,180	508	1,770	503	221	229	321
13	1,570	476	300	734	250	1,250	486	1,220	425	229	214	232
14	1,380	726	300	429	290	*2,960	476	907	371	211	207	204
15	1,110	700	310	300	380	4,370	498	1,050	366	211	200	174
16	1,000	577	310	260	340	2,480	796	1,200	334	207	194	158
17	977	514	280	270	300	1,830	688	1,770	317	197	194	155
18	1,020	642	260	260	280	1,560	594	1,780	362	190	200	155
19	a1,100	1,050	250	250	250	1,410	582	1,750	400	180	200	168
20	a880	1,070	235	245	235	1,270	600	1,350	343	180	236	174
21	a720	861	225	245	225	1,190	606	2,150	339	214	236	177
22	a620	890	210	240	220	1,320	588	2,220	334	221	225	187
23	a680	1,120	200	235	225	1,550	612	1,330	312	259	229	203
24	a720	854	195	230	225	1,210	1,520	977	287	317	255	224
25	a700	714	190	225	215	1,080	1,340	818	271	259	267	279
26	a780	618	200	220	210	1,090	1,070	1,470	275	232	317	283
27	a920	548	215	215	205	1,570	1,300	1,350	259	211	295	200
28	775	577	210	215	200	1,580	977	977	251	194	279	198
29	649	525	200	210	-	2,100	825	775	247	177	247	214
30	643	350	195	205	-	1,970	754	649	304	180	236	343
31	631	-	200	210	-	1,180	-	631	-	180	229	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	45,235	5,740	620	1,459	3.26	3.75
November	22,539	1,690	350	751	1.68	1.87
December	12,066	1,240	190	389	.868	1.00
Calendar year 1945	339,984	8,200	138	931	2.08	28.22
January	15,633	2,250	175	504	1.12	1.30
February	6,885	380	195	246	.549	.57
March	47,305	4,370	205	1,526	3.41	3.93
April	23,637	1,520	476	788	1.76	1.96
May	34,312	2,220	571	1,107	2.47	2.85
June	15,363	1,520	247	512	1.14	1.28
July	8,886	1,160	177	287	.641	.74
August	7,475	390	194	241	.538	.62
September	6,388	343	155	213	.475	.53
Water year 1945-46	245,724	5,740	155	673	1.50	20.40

Peak discharge.- Oct. 2 (4:45 p.m.) 8,010 sec.-ft.; Mar. 15 (1:45 a.m.) 5,490 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of recorded range in stage and records for East Branch Ausable River at Ausable Forks.
Note.- Stage-discharge relation affected by ice Nov. 30 to Dec. 6, Dec. 10 to Jan. 7, Jan. 15 to Mar. 9.

Black Brook at Black Brook, N. Y.

Location.- Water-stage recorder, lat. 44°26'50", long. 73°44'45", 100 feet downstream from abandoned hydroelectric plant of New York State Electric & Gas Corp. and three-quarters of a mile south of town of Black Brook, Clinton County.

Drainage area.- 49.4 square miles.

Records available.- September 1924 to September 1946.

Average discharge.- 22 years, 48.7 second-feet.

Extremes.- Maximum discharge during year, 498 second-feet Mar. 15 (gage height, 4.94 feet); minimum, 13 second-feet (regulated) Sept. 28 (gage height, 1.66 feet).
1924-46: Maximum discharge, 1,050 second-feet Apr. 6, 1937 (gage height, 6.95 feet), from rating curve extended above 450 second-feet by logarithmic plotting; minimum, 0.8 second-foot (regulated) July 2, Aug. 29, 1931.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Fern Lake and Taylor Pond.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 9)

Oct. 1 to Mar. 9				Mar. 10 to Sept. 30					
1.8	21	3.0	147	1.7	15	2.3	59	3.5	211
2.0	35	3.4	207	1.8	20	2.6	90	4.0	299
2.3	61	3.8	273	2.0	33	3.0	140	4.7	444
2.6	95								

Diacharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	115	37	56	31	25	24	60	31	58	75	52	48
2	133	41	48	29	24	27	64	29	69	78	54	48
3	176	69	50	27	23	32	87	26	57	47	55	47
4	121	81	50	26	22	45	74	25	49	29	22	46
5	83	68	49	27	21	70	68	30	49	28	37	46
6	67	54	48	37	23	110	64	39	51	28	55	46
7	61	47	59	98	32	139	59	41	46	28	54	46
8	62	43	84	154	29	164	51	44	57	28	54	46
9	76	40	85	98	28	260	46	f45	57	31	53	47
10	115	37	75	*100	27	290	43	f51	46	44	54	49
11	100	36	58	94	27	225	41	46	39	57	56	50
12	73	35	*41	75	28	175	37	54	37	57	54	34
13	73	36	39	64	30	156	34	48	33	56	53	24
14	71	37	48	37	*36	*255	33	40	30	55	53	25
15	66	39	48	31	47	*436	35	38	26	56	52	25
16	66	37	45	29	34	266	40	40	24	54	52	25
17	70	36	40	32	32	211	36	46	23	54	52	24
18	66	47	36	30	29	181	32	54	48	54	50	34
19	58	61	34	29	27	168	32	65	62	54	53	47
20	52	75	32	28	26	154	33	54	53	54	54	56
21	47	79	31	28	25	150	33	56	51	54	52	55
22	44	66	30	27	25	153	32	71	49	56	52	58
23	46	79	29	26	27	154	33	56	46	69	52	55
24	50	73	28	25	26	143	35	46	41	63	52	60
25	55	62	28	25	25	131	29	41	50	57	52	63
26	58	62	34	24	24	131	29	70	62	.54	52	33
27	56	60	33	24	23	136	41	74	60	54	51	17
28	51	59	31	23	23	110	37	57	59	52	50	25
29	45	54	30	23	-	75	35	46	58	52	50	52
30	41	49	30	22	-	67	33	40	69	51	48	69
31	40	-	31	23	-	62	-	40	-	51	48	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	2,237	176	40	72.2	-	-
November	1,599	81	35	53.3	-	-
December	1,360	85	28	43.9	-	-
Calendar year 1945	23,193.2	335	8.8	63.5	1.29	17.46
January	1,346	154	22	43.4	-	-
February	768	47	21	27.4	-	-
March	4,700	436	24	152	-	-
April	1,306	87	29	43.5	-	-
May	1,443	74	25	46.5	-	-
June	1,459	69	23	48.6	-	-
July	1,580	78	28	51.0	-	-
August	1,578	56	22	50.9	-	-
September	1,300	69	17	43.3	-	-
Water year 1945-46	20,676	436	17	56.6	1.15	15.56

* Winter discharge measurement made on this day.
f Fragmentary gage-height record; discharge computed on basis of reconstructed gage-height graph, engineer's and observer's gage readings, and records for nearby stations.
Note.- Stage-discharge relation affected by ice Nov. 25, 26, Nov. 30 to Dec. 3, Dec. 5, 6, Dec. 11 to Jan. 4, Jan. 9, Jan. 13 to Mar. 6, Mar. 10-12 (no gage-height record Feb. 7-14). No gage-height record Mar. 28 to Apr. 4, Apr. 9 to May 2; discharge computed on basis of observer's gage readings, weather records, records for nearby stations, and records of gate operation at Fern Lake and Taylor Pond.

East Branch Ausable River at Ausable Forks, N. Y.

Location.- Water-stage recorder, lat. 44°26'20", long. 73°40'55", 700 feet upstream from upper highway bridge in Ausable Forks, Essex County, and half a mile upstream from confluence with West Branch. Datum of gage is 545.37 feet above mean sea level, datum of 1929.

Drainage area.- 198 square miles.

Records available.- September 1924 to September 1946.

Average discharge.- 22 years, 305 second-feet.

Extremes.- Maximum discharge during year, 4,370 second-feet Oct. 2; maximum gage height, 7.56 feet Jan. 7 (ice jam); minimum discharge, 34 second-feet Sept. 21 (gage height, 1.02 feet).

1924-46: Maximum discharge 20,100 second-feet Sept. 22, 1938 (gage height, 12.91 feet), from rating curve extended above 6,500 second-feet on basis of velocity-area studies and logarithmic plotting; minimum observed, 20 second-feet Aug. 11, 14, 28, 1934.

Remarks.- Records excellent except those for periods of ice effect, which are fair. Diurnal fluctuation at low flow caused by power plants above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.0	32	1.8	169	3.6	1,090
1.1	42	2.1	259	4.3	1,680
1.3	68	2.5	421	5.0	2,400
1.5	102	3.0	689	5.5	3,020

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	730	307	240	78	94	82	416	318	631	108	64	65
2	3,020	288	215	70	90	88	440	303	749	560	74	60
3	2,100	755	235	68	86	96	558	270	500	339	147	55
4	1,050	884	230	70	80	116	459	246	380	214	161	54
5	701	558	190	74	80	140	435	263	355	146	98	53
6	542	390	190	330	86	190	376	368	318	114	86	52
7	1,370	314	500	1,450	122	560	326	363	266	97	78	50
8	1,140	277	620	1,000	118	1,020	281	376	284	86	70	49
9	1,390	249	430	*552	108	1,700	273	338	307	86	64	120
10	1,140	223	300	642	102	1,170	249	380	239	81	68	102
11	732	208	180	489	98	630	229	355	211	73	89	118
12	558	208	*130	390	98	464	217	821	205	71	81	98
13	726	211	118	310	*100	515	208	585	177	76	73	78
14	596	365	120	145	122	*1,550	202	431	159	67	70	65
15	489	334	125	116	170	1,890	214	514	142	65	67	49
16	440	270	120	102	118	1,040	342	569	131	62	62	42
17	412	233	110	106	114	801	284	883	122	60	62	40
18	431	294	104	102	106	683	252	956	140	55	64	38
19	474	479	98	98	96	619	252	880	142	54	64	36
20	376	500	94	96	92	547	259	660	116	62	92	35
21	307	380	90	96	88	531	259	1,210	120	67	91	34
22	263	450	86	94	88	630	249	1,180	116	70	88	38
23	288	548	82	92	90	750	279	732	108	86	82	39
24	307	380	80	90	88	536	790	505	97	118	102	41
25	303	318	78	88	84	469	683	398	89	86	93	80
26	334	270	82	86	82	494	574	707	82	79	126	78
27	398	220	86	84	80	782	707	608	78	73	120	54
28	334	250	80	84	80	798	489	435	76	65	108	55
29	288	215	78	82	-	1,160	390	338	73	60	91	61
30	299	130	78	80	-	1,070	342	281	110	55	81	123
31	291	-	80	84	-	630	-	263	-	54	73	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	21,829	3,020	263	704	3.56	4.10
November	10,508	884	130	350	1.77	1.97
December	5,249	620	78	169	.854	.99
Calendar year 1945	158,754	4,980	41	435	2.20	29.83
January	7,248	1,450	68	234	1.18	1.36
February	2,760	170	80	98.6	.498	.52
March	21,751	1,890	82	702	3.55	4.09
April	11,034	790	202	368	1.86	2.07
May	16,536	1,210	246	533	2.69	3.11
June	6,523	749	73	217	1.10	1.23
July	3,289	560	54	106	.535	.62
August	2,689	161	62	86.7	.438	.51
September	1,862	123	34	62.1	.314	.35
Water year 1945-46	111,278	3,020	34	305	1.54	20.92

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 27 to Jan. 7, Jan. 13 to Mar. 9.

Bouquet River at Willsboro, N. Y.

Location.- Water-stage recorder, lat. 44°21'30", long. 73°23'50", half a mile southwest of Willsboro, Essex County.

Drainage area.- 275 square miles.

Records available.- August and September 1904 (gage heights and discharge measurements only), August to November 1908, July 1923 to September 1946.

Average discharge.- 23 years (1923-46), 297 second-feet.

Extremes.- Maximum discharge during year, 2,970 second-feet Mar. 15; maximum gage height, 8.72 feet Mar. 9 (ice jam); minimum discharge, 50 second-feet Sept. 22 (gage height, 2.27 feet).

1923-46: Maximum discharge, about 11,800 second-feet Oct. 1, 1924 (gage height, 10.85 feet), from rating curve extended above 4,600 second-feet by logarithmic plotting; minimum, 10 second-feet Nov. 26, 1941 (gage height, 1.87 feet).

Remarks.- Records good except those for period of ice effect, which are fair. Occasional slight diurnal fluctuation at low flow caused by power plants above station.

Rating table, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

2.3	54	3.5	559
2.4	71	4.0	936
2.6	118	4.5	1,360
2.8	184	5.1	1,940
3.1	319	5.7	2,630

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	502	246	320	104	125	110	408	299	439	92	64	72
2	1,210	264	290	96	120	116	466	279	680	234	79	71
3	1,330	402	310	90	116	130	687	246	368	232	144	68
4	660	566	300	88	112	150	587	246	368	137	174	66
5	468	419	260	90	110	195	513	246	493	118	134	64
6	396	341	250	500	120	280	468	274	431	97	96	62
7	523	299	250	700	175	740	425	274	346	84	79	62
8	1,030	279	420	980	210	1,400	373	289	368	88	78	64
9	1,240	260	270	700	170	2,400	351	304	362	88	78	66
10	1,470	246	210	*580	155	1,600	330	294	269	84	78	71
11	770	228	185	490	145	983	314	284	228	77	79	88
12	573	238	170	400	150	594	294	346	208	79	84	92
13	552	246	160	290	*155	613	284	373	200	86	82	77
14	513	256	165	210	200	1,370	274	289	180	84	75	71
15	450	274	175	155	280	2,570	269	284	160	77	71	68
16	408	251	160	140	190	*1,450	274	341	152	71	71	66
17	390	238	150	145	160	1,020	274	374	149	69	71	64
18	351	289	140	135	145	888	256	506	166	66	71	64
19	341	379	130	130	135	817	256	673	177	64	75	64
20	319	1,010	124	124	124	732	264	493	143	64	105	56
21	284	642	118	122	118	702	289	626	143	69	98	51
22	274	659	116	120	116	748	269	1,090	146	73	84	50
23	294	852	112	118	124	801	260	587	134	102	86	53
24	324	587	110	116	118	636	376	431	121	163	96	54
25	319	468	108	114	114	559	443	362	110	118	113	79
26	335	402	116	112	110	573	346	522	102	90	127	92
27	368	335	122	110	108	710	450	539	97	75	105	73
28	335	362	112	108	108	725	431	390	92	69	88	68
29	294	330	108	110	-	801	362	314	90	66	88	64
30	264	215	104	106	-	778	324	274	88	64	84	116
31	246	-	106	106	-	533	-	256	-	62	84	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	16,833	1,470	246	543	1.97	2.28
November	11,583	1,010	215	386	1.40	1.57
December	5,671	420	104	183	.665	.77
Calendar year 1945	151,646	3,790	64	415	1.51	20.51
January	7,389	980	88	238	.865	1.00
February	4,013	280	108	143	.520	.54
March	25,724	2,570	110	830	3.02	3.48
April	10,917	687	256	364	1.32	1.48
May	12,119	1,090	246	391	1.42	1.64
June	7,085	680	88	236	.858	.96
July	2,942	234	82	94.9	.345	.40
August	2,841	174	64	91.6	.333	.38
September	2,076	116	50	69.2	.252	.28
Water year 1945-46	109,193	2,570	50	299	1.09	14.78

* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 29 to Mar. 10.

Lake George at Rogers Rock, N. Y.

Location.- Water-stage recorder, lat. 43°48'10", long. 73°27'25", about 500 feet north of Hooper's dock, on south side of Stones Bay, Rogers Rock, Essex County. Datum of gage is 315.93 feet above mean sea level, adjustment of 1912.

Records available.- July 1913 to September 1946.

Extremes.- Maximum gage height during year, 4.12 feet June 11; minimum, 2.56 feet Sept. 30. 1913-46: Maximum gage height observed, 5.09 feet Apr. 9, 1936; minimum, 0.64 foot Dec. 20, 1941.

Remarks.- Elevation of lake surface regulated by power plant and floodgates at Ticonderoga. Lake George has been controlled by a dam at its outlet for more than 100 years.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.19	3.68	3.65	3.57	3.47	3.29	3.65	3.63	3.87	3.75	3.41	3.05
2	3.40	3.72	3.71	3.53	3.44	3.27	3.72	3.61	3.92	3.79	3.38	3.01
3	3.47	3.75	3.74	3.52	3.41	3.27	3.72	3.58	3.90	3.76	3.43	2.99
4	3.49	3.76	3.68	3.50	3.39	3.23	3.77	f3.59	3.88	3.77	3.43	2.95
5	3.49	3.76	3.68	3.49	3.39	3.20	3.78	3.59	3.86	3.78	3.42	2.93
6	3.48	3.78	3.65	3.50	3.39	3.21	3.80	3.63	3.89	3.77	3.37	2.95
7	3.49	3.80	3.72	3.50	3.41	3.25	3.80	3.59	3.87	3.66	3.35	2.90
8	3.53	3.79	3.78	3.49	3.37	3.32	3.78	3.58	3.94	3.69	3.34	2.83
9	3.62	3.79	3.79	3.52	3.36	3.51	3.80	3.60	3.96	3.68	3.33	2.85
10	3.69	3.75	3.80	3.57	3.35	3.60	3.78	3.59	3.94	3.63	3.39	2.92
11	3.72	3.73	3.79	3.55	3.32	3.61	3.75	3.58	3.95	3.65	3.38	2.91
12	3.77	3.78	3.78	3.59	3.31	3.60	3.73	3.58	3.92	3.65	3.35	2.79
13	3.74	3.82	3.75	3.61	3.29	3.60	3.74	3.58	3.85	3.58	3.33	2.77
14	3.73	3.78	3.72	3.56	3.31	3.59	3.74	3.59	3.83	3.60	3.30	2.76
15	3.76	3.78	3.74	3.53	3.33	3.64	3.77	3.59	3.81	3.48	3.31	2.75
16	3.76	3.78	3.75	3.56	3.31	3.68	3.73	3.61	3.83	3.50	3.32	2.75
17	3.74	3.78	3.73	3.55	3.31	3.68	3.69	3.56	3.84	3.48	3.30	2.71
18	3.75	3.81	3.69	3.53	3.29	3.69	3.72	3.62	3.74	3.47	3.23	2.70
19	3.74	3.83	3.62	3.57	3.26	3.69	3.67	3.70	3.78	3.47	3.25	2.67
20	3.74	3.95	3.62	3.55	3.33	3.69	3.66	3.69	3.79	3.39	3.28	2.65
21	3.73	3.94	3.62	3.57	3.36	3.68	3.63	3.82	3.78	3.46	3.23	2.64
22	3.73	3.96	3.59	3.59	3.31	3.65	3.64	3.91	3.76	3.53	3.19	2.65
23	3.66	3.98	3.58	3.56	3.28	3.63	3.64	3.94	3.75	3.61	3.17	2.65
24	3.68	3.97	3.53	3.54	3.27	3.63	3.63	3.95	3.74	3.64	3.20	2.69
25	3.73	3.91	3.54	3.53	3.26	3.62	3.64	3.95	3.72	3.60	3.20	2.74
26	3.74	3.86	3.60	3.51	3.24	3.63	3.62	3.94	3.72	3.56	3.17	2.71
27	3.75	3.83	3.59	3.50	3.26	3.65	3.68	3.95	3.72	3.54	3.15	2.67
28	3.72	3.75	3.55	3.50	3.30	3.64	3.67	3.94	3.72	3.55	3.16	2.66
29	3.77	3.64	3.55	3.48	-	3.62	3.67	3.94	3.71	3.53	3.12	2.65
30	3.71	3.62	3.57	3.46	-	3.56	3.67	3.94	3.70	3.46	3.08	2.68
31	3.77	-	3.57	3.48	-	3.58	-	3.82	-	3.41	3.06	-

f Fragmentary gage-height record; mean gage height computed on basis of partial interpolation.

Monthly gage height, in feet, water year October 1945 to September 1946

Month	Maximum	Minimum	Mean
October	3.77	3.19	3.65
November	3.98	3.62	3.80
December	3.80	3.53	3.67
Calendar year 1945	4.09	2.22	3.38
January	3.61	3.46	3.53
February	3.47	3.24	3.33
March	3.69	3.20	3.53
April	3.80	3.62	3.71
May	3.95	3.56	3.72
June	3.96	3.70	3.82
July	3.79	3.39	3.59
August	3.43	3.06	3.28
September	3.05	2.64	2.79
Water year 1945-46	3.98	2.64	3.54

Lake George Outlet at Ticonderoga, N. Y.

Location.- Water-stage recorder and concrete control on river channel, lat. 43°50'55", long. 73°26'00", at Ticonderoga, Essex County, 250 feet downstream from "C" Mill dam of International Paper Co., 250 feet upstream from Trout Brook, and half a mile downstream from upper dam ("A" Mill dam) of International Paper Co. Turbine gate-opening recorder, 250 feet upstream, on tailrace. Datum of gage on river channel is 190.41 feet above mean sea level, datum of 1929.

Drainage area.- 234 square miles.

Records available.- October 1942 to September 1946. August 1904 to December 1905 at site at "B" Mill 2,000 feet upstream.

Extremes (regulated).- Maximum daily discharge during year, 1,030 second-feet Nov. 24; minimum daily, 12 second-feet July 4.
1942-46: Maximum daily discharge, 1,140 second-feet Apr. 29, 1944; minimum daily, that of July 4, 1946.

Remarks.- Records excellent. Discharge in tailrace determined from rating for turbine gates developed from discharge measurements. Records represent total discharge from Lake George and include flow in river channel and in tailrace. Flow regulated by Lake George and three power plants.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	267	274	438	340	329	397	288	283	803	243	283	79
2	286	276	289	337	329	393	360	278	920	274	275	21
3	276	277	397	337	185	423	306	277	927	250	275	183
4	274	150	336	337	262	563	328	276	738	12	78	271
5	274	231	275	337	323	586	331	119	503	228	222	272
6	272	274	274	229	323	593	331	226	407	275	276	267
7	274	275	275	292	326	654	331	267	362	80	273	265
8	264	275	275	336	326	778	339	268	362	234	269	77
9	282	274	275	336	323	902	337	268	330	275	264	229
10	276	304	275	338	172	956	334	266	518	276	268	272
11	275	144	275	336	260	959	331	267	539	280	82	273
12	275	221	274	336	321	968	328	88	539	282	223	272
13	274	299	274	200	321	968	a331	219	427	280	273	272
14	a271	276	292	289	307	968	a341	277	332	75	273	268
15	a271	303	319	333	307	968	a341	237	332	231	271	155
16	a271	271	238	333	318	997	a373	212	220	278	273	235
17	a271	269	295	330	255	973	a413	230	324	274	277	272
18	a271	162	335	330	379	999	a419	227	340	273	77	272
19	a269	276	335	333	404	1,010	a419	90	324	278	233	273
20	a265	701	335	192	409	999	a420	192	297	270	274	273
21	169	960	335	272	413	999	157	218	273	104	276	271
22	224	970	332	330	412	913	222	252	272	226	274	127
23	269	998	352	327	412	840	284	273	196	274	276	230
24	269	1,030	271	327	407	739	285	273	257	272	277	270
25	272	916	158	327	413	641	283	269	276	275	139	274
26	272	959	299	327	409	441	283	147	267	276	241	272
27	270	974	357	194	408	444	283	404	275	275	276	271
28	203	898	361	282	405	444	285	580	277	87	271	271
29	227	661	350	332	-	435	285	580	276	228	270	84
30	270	433	212	329	-	391	283	573	93	275	268	228
31	274	-	285	329	-	152	-	566	-	275	271	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	8,177	286	169	264	-	-
November	14,331	1,030	144	478		
December	9,393	438	158	303		
Calendar year 1945	143,380	1,100	18	393	1.68	22.87
January	9,607	340	192	310	-	-
February	9,458	413	172	338	-	-
March	22,493	1,010	152	728	-	-
April	9,851	420	157	322	-	-
May	8,702	580	88	281	-	-
June	12,008	927	93	400	-	-
July	7,251	282	12	233	-	-
August	7,578	283	77	244	-	-
September	6,799	274	21	227	-	-
Water year 1945-46	125,428	1,030	12	344	1.47	19.92

a No gage-height record for river channel; discharge computed on basis of flow over "C" Mill pond spillway.

Poultney River below Fair Haven, Vt.

Location.- Water-stage recorder, lat. 43°37'40", long. 73°18'50", a third of a mile downstream from Carver Falls, 1.9 miles upstream from Hubbardton River, and 3¼ miles northwest of Fair Haven, Rutland County.

Drainage area.- 187 square miles.

Records available.- October 1928 to September 1946.

Average discharge.- 18 years, 247 second-feet.

Extremes.- Maximum gage height during year, 17.55 feet Mar. 9, ice jam (discharge not determined); minimum discharge, 13 second-feet (regulated) Sept. 9, 19; minimum daily, 16 second-feet (regulated) Sept. 29.

1928-46: Maximum discharge, 14,800 second-feet July 20, 1945 (gage height, 24.36 feet, from high-water mark in gage well), from rating curve extended above 1,900 second-feet on basis of computations of flow over dam at gage heights 16.10, 21.40, and 24.36 feet; minimum, 2.3 second-feet (regulated) July 18, 1937; minimum daily, 2.9 second-feet (regulated) Oct. 13, 1935.

Remarks.- Records good except those for periods of ice effect, which are fair. Flow regulated by power plant above station and by Lake Bomoseen.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 8				Mar. 9 to Sept. 30					
3.0	58	4.3	300	2.3	16	3.3	137	7.0	1,020
3.2	86	6.5	881	2.4	24	3.8	222	9.0	1,650
3.6	153	8.6	1,510	2.6	43	4.5	364	11.2	2,600
				2.8	66	5.3	557		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	251	257	318	170	210	165	244	217	558	96	77	17
2	1,310	265	232	190	110	160	297	200	626	156	61	18
3	1,290	526	276	280	80	210	409	191	425	122	43	54
4	708	549	352	310	110	200	360	162	364	94	32	54
5	595	445	339	130	110	380	371	179	327	91	45	54
6	510	402	361	250	105	800	319	188	309	69	54	54
7	380	357	584	840	170	1,100	296	173	282	41	47	19
8	676	328	*641	489	190	1,500	302	164	270	71	47	17
9	891	306	402	329	150	2,600	300	187	342	72	44	72
10	1,170	249	344	531	120	1,900	282	191	308	60	27	63
11	730	234	335	375	150	*966	270	186	345	76	131	57
12	640	298	370	319	180	614	270	174	242	61	84	60
13	643	338	340	270	170	554	206	181	229	38	54	50
14	425	366	360	220	500	754	191	157	205	23	55	17
15	397	344	206	310	600	876	180	172	181	63	65	17
16	476	305	147	310	250	630	204	174	94	70	52	60
17	442	290	200	290	220	515	213	187	175	56	70	59
18	377	342	250	310	240	461	205	285	187	47	17	42
19	289	427	280	230	150	461	198	331	186	59	43	38
20	327	1,020	290	110	190	495	167	294	162	23	50	38
21	230	930	310	220	220	473	151	456	180	26	48	32
22	232	886	150	280	170	458	141	466	114	69	50	23
23	288	1,020	90	270	110	434	143	368	61	58	48	41
24	306	741	130	260	120	302	173	323	108	92	48	49
25	260	484	70	260	180	340	188	262	90	53	25	83
26	288	417	250	160	160	400	165	288	85	52	50	44
27	370	414	310	100	170	398	209	327	69	36	47	45
28	291	469	260	160	170	317	262	422	83	24	52	38
29	304	450	140	225	-	304	262	398	86	51	51	16
30	295	359	125	220	-	258	237	286	59	48	51	100
31	269	-	140	200	-	224	-	298	-	71	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	15,660	1,310	230	505	2.70	3.11
November	13,818	1,020	234	461	2.47	2.75
December	8,602	641	70	277	1.48	1.71
Calendar year 1945	147,335	5,090	35	404	2.16	29.30
January	8,618	840	100	278	1.49	1.71
February	5,305	600	80	189	1.01	1.06
March	19,249	2,600	160	621	3.32	3.83
April	7,215	409	141	240	1.28	1.43
May	7,887	466	157	254	1.36	1.57
June	6,752	626	59	225	1.20	1.34
July	1,968	156	23	63.5	.340	.39
August	1,603	131	17	51.7	.276	.32
September	1,331	100	16	44.4	.237	.26
Water year 1945-46	98,008	2,600	16	269	1.44	19.48

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 12-14, Dec. 17 to Jan. 7, Jan. 13 to Mar. 10.

Otter Creek at Center Rutland, Vt.

Location.- Water-stage recorder, lat. 43°36'15", long. 73°00'50", at highway bridge in Center Rutland, Rutland County, 200 feet downstream from dam, 1.2 miles downstream from East Creek, and 1½ miles west of Rutland.
Drainage area.- 307 square miles.
Records available.- May 1928 to September 1946.
Average discharge.- 18 years, 548 second-feet.
Extremes.- Maximum discharge during year, 4,920 second-feet Mar. 9 (gage height, 8.17 feet); minimum daily, 70 second-feet (regulated) Sept. 8.
1928-46: Maximum discharge, 13,700 second-feet Sept. 22, 1938 (gage height, 12.45 feet), by computation of flow over dam; minimum daily, 55 second-feet (regulated) July 5, 1941
Remarks.- Records good except those for periods of ice effect, fragmentary or no gage-height record, or partly clogged intakes, which are fair. Flow regulated by power plants and by East Pittsford and Chittenden Reservoirs on East Creek.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 8				Mar. 9 to Sept. 50					
1.3	230	3.0	880	0.5	69	1.4	240	4.0	1,440
1.5	284	4.0	1,440	.6	81	1.7	326	5.0	2,120
2.0	450	5.2	2,260	.7	95	2.0	428	6.0	2,890
2.5	645			.9	127	2.4	590	7.1	3,880
				1.1	167	3.2	975		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	583	561	673	382	370	345	554	480	f1,160	367	f150	73
2	2,040	513	491	360	364	324	576	430	1,470	717	f145	76
3	2,240	840	600	340	260	259	980	390	1,040	512	f145	150
4	1,610	1,380	650	340	360	376	910	360	815	244	a100	140
5	945	890	567	350	300	784	805	340	732	f209	f140	133
6	771	771	573	480	334	f1,450	716	680	850	a145	f133	137
7	671	672	*904	*1,390	566	1,680	630	550	690	a120	f142	121
8	943	635	1,170	1,550	568	2,030	599	570	679	f145	f138	70
9	1,100	581	833	1,300	400	3,790	590	550	1,080	f189	f133	169
10	1,390	542	777	1,290	320	3,850	608	587	707	f253	f351	223
11	963	431	676	1,160	330	2,060	563	484	552	f223	f382	181
12	817	697	417	877	360	*1,320	512	631	514	f197	f226	168
13	895	759	f404	703	320	1,100	454	588	446	f135	f179	130
14	700	780	430	480	704	1,530	410	463	396	a140	f206	113
15	780	786	430	490	f1,160	1,990	470	578	305	f170	f199	73
16	785	698	390	a440	606	1,950	520	623	274	f170	f200	119
17	870	648	410	a410	476	1,490	440	650	298	f150	f221	133
18	730	931	400	a420	490	1,270	400	992	330	f150	156	125
19	617	1,200	580	a400	380	1,170	400	1,060	344	f140	220	124
20	611	1,470	390	a390	370	1,040	390	870	278	a85	265	125
21	450	1,280	340	a410	360	986	370	880	274	f130	208	80
22	510	1,240	310	a420	330	1,000	350	1,020	225	f170	154	154
23	580	1,720	310	a400	330	1,110	370	729	205	f280	165	217
24	610	1,400	320	a380	240	810	460	618	209	268	100	234
25	620	951	280	a410	320	785	430	525	199	f185	87	478
26	694	867	390	a410	320	830	520	712	f190	f167	160	260
27	900	786	493	a310	349	940	780	660	f188	a115	156	177
28	681	768	407	a370	332	925	670	f1,390	f218	a95	168	129
29	585	738	362	a350	-	875	600	1,450	f226	a120	160	103
30	561	699	303	a350	-	790	540	890	219	f150	153	503
31	573	-	407	351	-	604	-	707	-	f150	117	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches	Change in reservoir contents†
October	26,825	2,240	450	865	2.82	3.25	+18.4
November	26,234	1,720	431	874	2.85	3.18	-8.06
December	15,487	1,170	280	500	1.63	1.88	-45.5
Calendar year 1945	266,267	3,200	101	729	2.37	32.25	+7.85
January	17,713	1,550	310	571	1.86	2.15	-32.5
February	11,619	1,160	240	415	1.35	1.41	-46.4
March	39,463	3,850	259	1,273	4.15	4.78	+52.5
April	16,617	980	350	554	1.80	2.01	+27.0
May	21,457	1,450	340	692	2.25	2.60	+47.3
June	15,113	1,470	188	504	1.64	1.83	+.35
July	6,291	717	85	203	.661	.76	-26.8
August	5,459	382	87	176	.573	.66	-21.4
September	4,918	503	70	164	.534	.60	-28.2
Water year 1945-46	207,196	3,850	70	568	1.85	25.11	-5.13

* Winter discharge measurement made on this day.
† Change in contents, equivalent in second-feet, in East Pittsford and Chittenden Reservoirs.
a No gage-height record; discharge computed on basis of weather records, recorded range in stage when available, and records for Otter Creek at Middlebury and East Creek at Rutland.
f Fragmentary gage-height record; discharge computed from partly estimated gage heights.
Note.- Stage-discharge relation affected by ice Dec. 14-26, Jan. 2-5, 8, 9, 14, 15, Feb. 3-5, 9-13, 19-26 and at times during period of no gage-height record in January. Intake pipes partly clogged Oct. 14, 15, 21-25, Nov. 3, Apr. 14 to May 9; discharge computed on basis of recorded graph adjusted by differences between engineer's readings of inside and outside gages and on basis of records for Otter Creek at Middlebury and East Creek at Rutland.

Otter Creek at Middlebury, Vt.

Location.- Water-stage recorder, lat. 44°00'45", long. 73°10'05", 150 feet upstream from highway bridge in Middlebury, Addison County, and 3½ miles downstream from Middlebury River.

Drainage area.- 628 square miles.

Records available.- April 1903 to May 1907, October 1910 to January 1920, October 1928 to September 1946.

Average discharge.- 30 years (1903-6, 1910-19, 1928-46), 977 second-feet.

Extremes.- Maximum discharge during year, 4,750 second-feet Mar. 13 (gage height, 6.12 feet); minimum, 183 second-feet July 29.

1903-7, 1910-20, 1928-46: Maximum discharge, 11,000 second-feet Mar. 20, 21, 1936 (gage height, 10.3 feet); minimum, 93 second-feet Mar. 5, 1929.

Maximum discharge known, 13,600 second-feet Nov. 4, 1927 (gage height, 13.3 feet, present datum, at chain-gage site 1,800 feet upstream), from rating curve extended above 9,000 second-feet by logarithmic plotting.

Remarks.- Records excellent except those above 3,500 second-feet and those for periods of ice effect or backwater from aquatic vegetation, which are good. Some regulation by Chittenden and East Pittsford Reservoirs on East Creek.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,630	1,110	1,600	706	657	580	1,160	922	1,760	370	280	252
2	2,600	1,080	1,340	710	660	587	1,100	804	2,060	1,060	275	195
3	2,660	1,350	1,270	630	610	566	1,390	727	2,080	1,110	509	205
4	2,570	1,770	1,220	650	630	531	1,620	657	2,050	797	480	239
5	2,580	1,840	1,220	671	640	713	1,600	629	1,930	510	303	249
6	2,600	1,770	1,130	848	590	1,380	1,530	797	1,710	399	305	245
7	2,580	1,620	1,450	1,580	705	2,280	1,360	945	1,560	306	275	235
8	2,530	1,440	*1,910	1,830	960	2,490	1,210	892	1,420	235	259	228
9	2,710	1,290	1,950	1,900	945	2,880	1,140	915	1,530	314	249	211
10	2,760	1,180	1,840	2,070	748	3,250	1,150	952	1,580	358	445	484
11	2,660	1,040	1,690	2,130	610	3,850	1,130	938	1,350	393	1,020	594
12	2,590	960	1,280	2,320	587	4,350	1,070	952	1,110	381	840	447
13	2,520	1,190	920	2,160	594	*4,690	990	1,010	960	337	573	332
14	2,430	1,340	880	1,700	830	4,650	878	938	840	300	426	288
15	2,280	1,390	870	1,130	1,620	4,420	825	818	741	249	496	232
16	2,130	1,350	860	*850	*1,590	4,090	878	908	615	305	447	197
17	2,020	1,250	820	810	1,270	3,820	870	1,040	559	284	482	228
18	1,900	1,480	820	850	982	3,660	797	1,210	587	271	517	239
19	1,720	1,870	780	900	840	3,510	769	1,560	643	256	393	242
20	1,520	2,190	770	880	705	3,360	734	1,610	615	235	412	239
21	1,330	2,320	720	850	660	3,180	706	1,780	594	271	447	222
22	1,070	2,410	660	840	660	2,950	664	1,950	482	419	393	225
23	1,110	2,530	620	840	620	2,740	643	1,830	433	587	358	222
24	1,190	2,510	590	800	580	2,540	748	1,550	381	769	376	319
25	1,240	2,510	560	741	520	2,310	870	1,270	405	608	381	685
26	1,380	2,470	580	730	610	2,120	797	1,400	364	424	280	692
27	1,620	2,360	741	730	630	1,970	998	1,530	358	309	292	517
28	1,620	2,200	825	660	590	1,870	1,190	1,480	419	245	314	364
29	1,440	2,030	762	680	-	1,760	1,170	1,730	399	197	314	256
30	1,300	1,820	678	710	-	1,640	1,040	1,820	376	259	309	545
31	1,190	-	629	664	-	1,440	-	1,630	-	267	280	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches	Change in reservoir contents†
October	61,480	2,760	1,070	1,983	3.16	3.64	+18.4
November	51,670	2,530	960	1,722	2.74	3.06	-8.06
December	31,985	1,950	560	1,032	1.64	1.89	-45.5
Calendar year 1945	525,312	4,650	249	1,439	2.29	31.09	+7.85
January	33,570	2,320	630	1,083	1.72	1.99	-32.5
February	21,643	1,620	520	773	1.23	1.28	-48.4
March	80,177	4,690	531	2,586	4.12	4.75	+52.5
April	31,027	1,620	643	1,034	1.65	1.84	+27.0
May	37,194	1,950	629	1,200	1.91	2.20	+47.3
June	29,911	2,080	358	997	1.59	1.77	†.35
July	12,825	1,110	197	414	.659	.76	-26.8
August	12,736	1,020	249	411	.654	.75	-21.4
September	9,628	692	195	321	.511	.57	-28.2
Water year 1945-46	413,846	4,690	195	1,134	1.81	24.50	-5.13

* Winter discharge measurement made on this day.

† Change in contents, equivalent in second-feet, in East Pittsford and Chittenden Reservoirs.

Note.- Stage-discharge relation affected by ice Dec. 2, 3, 5, 6, 12-25, Jan. 2, 3, 14-24, 26-30, Feb. 2-8, 11, 15, 16, Feb. 19 to Mar. 1, Mar. 11. Backwater from aquatic vegetation June 19 to Sept. 30.

East Creek at Rutland, Vt.

Location.- Water-stage recorder, lat. 43°37'40", long. 72°59'20", at Rutland, Rutland County, on grounds of Rutland Country Club, 280 feet downstream from Grove Street covered bridge and 2 miles upstream from mouth.

Drainage area.- 51.1 square miles.

Records available.- August 1940 to September 1946.

Extremes.- Maximum discharge during year, 1,220 second-feet Mar. 9 (gage height, 3.84 feet); minimum daily, 14 second-feet (regulated) Aug. 4.

1940-46: Maximum discharge, 3,450 second-feet June 25, 1945 (gage height, 7.10 feet), from rating curve extended above 940 second-feet on basis of computation of flow over dam and slope-area determination at gage height 7.10 feet; minimum daily, 9.6 second-feet (regulated) Nov. 26, 1944.

Maximum discharge known, 5,300 second-feet Sept. 21, 1938, by computation of flow over dam a quarter of a mile above gage.

Remarks.- Records excellent except those below 30 second-feet, which are good. Diversion above station from Mendon Brook for supply of Rutland. Flow regulated by power plants and by Chittenden and East Pittsford Reservoirs which have a combined usable capacity of 969,800,000 cubic feet.

Rating table, water year 1945-46 (gage height, in feet, and discharge, in second-feet)

0.9	14	1.3	53	1.8	171
1.0	21	1.4	69	2.1	268
1.1	30	1.5	89	2.5	430
1.2	40	1.6	113	3.0	680

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	161	143	154	69	125	129	111	50	221	74	87	20
2	525	130	22	123	122	103	124	60	171	166	81	22
3	221	227	146	120	51	16	169	59	148	66	58	111
4	172	130	176	108	137	127	122	37	128	16	14	96
5	148	139	138	104	125	200	116	47	129	46	58	92
6	153	169	149	88	131	352	70	89	145	20	80	95
7	77	160	195	238	163	349	62	70	124	29	81	81
8	177	155	195	172	74	295	76	96	101	72	79	25
9	253	155	62	168	67	654	123	82	126	84	92	126
10	248	111	158	185	38	193	116	71	101	85	222	123
11	196	24	161	147	70	153	104	66	92	81	106	83
12	168	157	136	123	118	174	93	79	95	90	81	89
13	152	165	136	43	109	175	53	42	93	36	88	69
14	100	173	140	122	198	270	34	40	96	54	98	58
15	171	163	128	138	140	269	104	88	41	94	78	19
16	206	150	92	146	106	215	88	77	37	98	105	75
17	201	142	145	116	26	120	52	106	79	82	102	87
18	177	141	132	128	122	163	57	188	78	91	22	83
19	163	196	132	108	132	185	64	154	65	96	138	83
20	158	265	128	97	133	173	49	174	62	45	114	89
21	27	199	93	122	132	168	30	200	83	60	94	34
22	147	230	85	136	117	166	38	142	38	60	62	40
23	170	211	49	115	97	183	73	82	29	116	92	99
24	180	175	74	110	16	30	101	102	64	46	31	137
25	186	75	60	132	112	121	42	78	50	53	17	126
26	141	142	138	125	117	153	96	150	61	64	98	36
27	165	174	153	52	140	171	93	152	83	28	95	50
28	71	178	105	139	123	160	72	200	80	18	99	34
29	140	173	93	124	-	141	74	122	83	60	97	34
30	149	163	47	136	-	100	68	58	16	91	91	184
31	144	-	115	128	-	47	-	96	-	95	58	-

Month	Observed				Change in contents and diversion (equivalent, second-feet)†	Adjusted		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	5,347	525	27	172	+22.6	195	3.82	4.40
November	4,815	265	24	160	-3.93	157	3.07	3.42
December	3,717	195	22	120	-40.8	79.1	1.55	1.78
Calendar year 1945	50,121	1,360	11	137	+12.4	150	2.94	39.76
January	3,862	238	43	125	-27.5	97.1	1.90	2.19
February	3,041	198	16	109	-42.9	65.8	1.29	1.34
March	5,755	654	16	186	+57.7	243	4.76	5.49
April	2,474	169	30	82.5	+31.6	114	2.23	2.49
May	3,057	200	37	98.6	+52.3	151	2.95	3.41
June	2,719	221	16	90.6	+5.57	96.2	1.88	2.10
July	2,116	166	16	68.3	-21.2	47.1	.922	1.06
August	2,618	222	14	84.5	-16.3	68.2	1.33	1.54
September	2,300	184	19	76.7	-23.1	53.6	1.05	1.17
Water year 1945-46	41,821	654	14	115	-.17	114	2.23	30.39

† Change in contents in Chittenden and East Pittsford Reservoirs and diversion from Mendon Brook for supply of Rutland.

Winooski River at Montpelier, Vt.

Location.- Water-stage recorder, lat. 44°15'25", long. 72°35'35", three-eighths of a mile upstream from Dog River and 1 mile downstream from depot in Montpelier, Washington County. Datum of gage is 499.99 feet above mean sea level, datum of 1929.

Drainage area.- 397 square miles.

Records available.- May 1909 to September 1923, August 1928 to September 1946.

Average discharge.- 27 years (1914-23, 1928-46), 591 second-feet (adjusted for change in reservoir contents since October 1938).

Extremes.- Maximum gage height during year, 14.10 feet Mar. 9, ice jam (discharge not determined); minimum daily discharge, 98 second-feet (regulated) Sept. 8.

1909-23, 1928-46: Maximum discharge, 20,200 second-feet Apr. 7, 1912 (gage height, about 16.7 feet, present datum), from rating curve extended above 10,000 second-feet on basis of slope-area determination at gage height 27.1 feet; minimum, 6 second-feet (regulated) Sept. 30, 1921 (gage height, 2.58 feet); minimum daily, 17 second-feet (regulated Sept. 3, 1933.

Maximum discharge known, 57,000 second-feet Nov. 3, 1927 (gage height, 27.1 feet), by slope-area method.

Remarks.- Records excellent except those below 150 second-feet, which are good, and those for periods of ice effect, which are fair. Flow regulated by several small power plants above station, by Peacham Pond and Mollys Falls Reservoir (combined usable capacity, 492,000,000 cubic feet), which regulate runoff from 24 square miles, and by East Barre and Wrightsville Detention Reservoirs (combined usable capacity, 1,379,500,000 cubic feet; see p. 264).

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1, 2		Oct. 3 to Sept. 30			
4.9	915	3.2	95	4.4	595
5.5	1,420	3.4	142	5.0	1,030
6.5	2,400	3.6	203	6.0	1,910
7.7	3,800	3.8	276	7.0	2,960
		4.0	365	10.0	6,700

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	966	702	614	350	380	310	1,060	541	1,360	148	153	140
2	3,760	743	480	300	390	290	1,080	481	1,360	354	334	128
3	2,860	1,570	550	340	300	280	1,270	424	920	306	1,840	133
4	2,180	1,540	571	360	270	310	1,080	376	723	192	1,030	186
5	1,770	1,200	490	380	330	400	1,040	444	716	149	490	182
6	1,460	1,050	470	700	320	560	898	702	744	130	313	147
7	1,300	890	1,150	2,200	410	1,000	800	654	602	115	182	135
8	1,480	765	1,890	1,400	390	2,100	688	744	647	140	232	98
9	2,690	695	1,320	1,000	350	5,400	695	786	647	161	202	118
10	2,600	628	998	*1,150	320	6,600	730	920	458	194	267	470
11	1,920	541	650	1,000	260	3,200	660	765	396	170	479	430
12	1,630	808	380	800	*340	2,100	821	1,010	384	168	241	243
13	1,550	660	470	600	330	1,900	571	942	338	149	206	196
14	1,370	737	490	410	700	3,200	541	793	312	102	244	183
15	1,270	674	460	460	920	*3,700	608	808	290	116	228	122
16	1,230	595	440	400	530	2,920	860	600	231	146	188	128
17	1,270	559	420	380	460	2,540	647	935	222	142	224	156
18	1,110	955	400	430	410	2,370	547	1,240	332	144	212	155
19	998	1,340	390	450	380	2,210	535	1,470	394	145	222	183
20	786	1,860	380	340	410	2,100	571	1,190	279	134	921	145
21	647	1,590	400	340	390	2,050	614	1,600	274	114	530	123
22	611	1,570	360	430	370	2,120	535	1,750	264	285	276	132
23	875	1,770	320	430	350	2,110	511	1,300	203	281	238	166
24	920	1,340	320	410	280	1,760	628	1,170	192	396	368	192
25	950	1,070	310	420	260	1,670	640	950	234	223	264	646
26	1,190	860	320	420	340	1,680	643	1,570	207	180	222	293
27	1,400	681	410	320	320	1,880	1,030	1,270	194	136	234	210
28	1,120	709	400	290	320	1,800	815	966	186	99	238	174
29	950	681	360	390	-	1,740	723	751	181	134	220	134
30	815	647	310	400	-	1,620	608	595	114	125	240	990
31	744	-	330	390	-	1,290	-	511	-	148	185	-

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	44,402	3,760	611	1,432	-7.13	1,425	3.59	4.14
November	29,230	1,660	541	974	+28.3	1,003	2.53	2.82
December	16,853	1,890	310	544	+24.6	568	1.43	1.85
Calendar year 1945	322,014	4,390	65	882	+6.65	889	2.24	30.39
January	17,690	2,200	290	571	-47.2	523	1.32	1.52
February	10,850	920	260	388	-64.3	323	.814	.85
March	63,210	6,800	280	2,039	+91.8	2,131	5.37	6.19
April	22,249	1,270	511	742	+24.9	767	1.93	2.15
May	28,458	1,750	376	918	+19.2	937	2.36	2.72
June	13,404	1,360	114	447	-12.5	434	1.09	1.22
July	5,426	396	99	175	-19.9	155	.390	.45
August	11,223	1,840	153	362	-6.35	356	.897	1.03
September	6,723	990	98	224	+2.79	227	.572	.64
Water year 1945-46	269,718	6,600	98	739	+3.32	742	1.87	25.38

* Winter discharge measurement made on this day.

† Change in contents in Peacham Pond, Mollys Falls Reservoir, and East Barre and Wrightsville Detention Reservoirs.

Note.- Stage-discharge relation affected by ice Dec. 2, 3, 5-7, Dec. 11 to Mar. 14 (no gage-height record Jan. 3-10; discharge computed on basis of 1 discharge measurement, weather records, power-plant records, and records for stations in Winooski River Basin).

Winooski River near Essex Junction, Vt.

Location.- Water-stage recorder, lat. 44°28'40", long. 73°08'20", half a mile downstream from Muddy Brook and 2 miles southwest of Essex Junction, Chittenden County.
Drainage area.- 1,044 square miles.
Records available.- October 1928 to September 1946.
Average discharge.- 18 years, 1,641 second-feet (adjusted for change in reservoir contents since October 1938).
Extremes.- Maximum discharge during year, 21,600 second-feet Mar. 10 (gage height, 12.80 feet); minimum daily, 77 second-feet (regulated) July 21.

1928-46: Maximum discharge, 45,300 second-feet Mar. 19, 1936 (gage height, 23.54 feet), from rating curve extended above 25,000 second-feet on basis of slope-area determination and computations of flow over dam at gage heights 18.72, 23.54, and 50.4 feet; minimum daily, 70 second-feet (regulated) Sept. 25, 1937.

Maximum discharge known, 113,000 second-feet Nov. 4, 1927 (gage height, 50.4 feet, from floodmarks), by slope-area determination and computation of flow over dam.

Remarks.- Records good except those for periods of ice effect, which are fair. Flow regulated by power plants above station, by Peacham Pond and Mollys Falls Reservoir (combined usable capacity, 492,000,000 cubic feet), Waterbury Reservoir (see p. 269), and by East Barre and Wrightsville Detention Reservoirs (see following page).

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.3	75	1.3	505	4.5	5,180
.4	98	1.7	780	6.0	8,180
.5	126	2.2	1,230	7.5	11,200
.6	158	2.6	1,890	9.0	14,000
.8	236	3.1	2,450	10.5	17,000
1.0	332	3.7	3,500		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,390	1,760	1,550	720	1,200	1,000	2,040	1,500	2,720	504	542	398
2	14,200	1,740	1,100	960	740	630	2,150	1,890	4,170	769	770	221
3	10,700	4,260	1,200	1,100	850	700	3,240	1,640	2,900	729	3,100	522
4	6,680	5,680	1,450	1,050	1,150	1,050	3,110	1,070	1,900	380	2,580	564
5	5,580	4,010	1,300	920	1,050	1,200	2,860	1,060	1,600	360	1,290	575
6	4,780	2,470	1,300	1,100	1,100	1,500	2,230	1,880	1,730	356	637	569
7	4,240	2,100	2,300	4,200	1,400	2,300	1,910	1,480	2,060	265	502	281
8	4,720	1,830	4,500	7,400	1,200	5,800	1,660	1,600	1,360	595	539	90
9	7,680	1,640	3,600	3,000	820	14,000	1,540	1,840	1,450	572	564	518
10	9,000	1,500	3,000	3,020	820	17,000	1,640	2,070	1,190	529	586	583
11	5,180	1,430	1,700	*3,040	1,150	8,220	2,080	2,160	992	541	435	1,050
12	5,030	1,800	1,400	2,260	1,150	4,860	2,100	2,980	896	572	718	556
13	5,200	1,920	1,150	1,800	1,050	*3,460	1,470	2,800	1,220	323	558	527
14	5,140	1,570	1,400	1,500	2,000	8,600	1,330	2,290	1,010	197	617	282
15	4,430	2,060	1,050	1,000	2,800	13,000	1,360	2,060	672	632	607	174
16	3,800	1,420	1,050	1,100	1,800	6,820	2,100	2,210	525	592	546	533
17	4,190	1,690	1,250	1,800	1,350	5,440	2,230	2,450	1,090	543	388	528
18	3,560	2,020	1,150	1,300	1,300	4,860	1,940	3,170	990	519	200	527
19	2,660	3,900	1,100	950	1,000	4,670	1,750	4,470	902	568	666	543
20	2,130	5,010	1,100	1,000	1,400	4,690	1,260	3,600	652	226	743	501
21	1,720	4,990	1,300	1,600	1,600	4,520	1,400	4,160	626	77	873	251
22	2,010	4,230	850	1,150	1,400	4,650	1,300	5,940	555	525	640	207
23	2,320	5,580	1,000	1,650	1,200	4,990	1,230	4,560	319	719	648	527
24	2,630	4,190	1,100	1,600	1,350	4,090	2,350	3,600	784	915	766	593
25	2,350	3,240	700	1,000	1,200	3,720	2,550	2,530	704	703	838	977
26	3,540	2,310	1,200	1,550	1,200	3,720	2,290	4,870	620	478	544	842
27	4,890	1,880	1,300	1,300	1,000	4,260	3,420	4,640	757	238	598	553
28	4,090	1,700	1,100	1,150	1,150	4,240	2,900	3,070	595	208	648	293
29	2,450	2,270	750	1,150	-	4,130	2,020	2,060	325	527	735	186
30	2,080	2,160	780	1,150	-	3,370	1,690	1,660	338	382	748	1,050
31	1,820	-	900	1,250	-	2,560	-	1,580	-	526	336	-

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	142,190	14,200	1,720	4,587	-73.9	4,513	4.32	4.98
November	82,360	5,680	1,420	2,745	+20.8	2,766	2.65	2.96
December	44,630	4,500	700	1,440	-20.6	1,419	1.36	1.57
Calendar year 1945	897,567	14,200	109	2,459	+16.9	2,476	2.37	32.19
January	53,570	7,400	720	1,728	-146	1,582	1.52	1.75
February	35,430	2,800	740	1,265	-285	981	.940	.98
March	154,050	17,000	630	4,969	+455	5,425	5.20	5.99
April	61,150	3,420	1,230	2,038	+26.1	2,064	1.98	2.21
May	82,890	5,940	1,060	2,674	+13.7	2,688	2.57	2.97
June	35,652	4,170	319	1,188	-67.4	1,121	1.07	1.20
July	15,270	915	77	493	-101	392	.375	.43
August	23,962	3,100	200	773	-1.45	772	.739	.85
September	15,021	1,050	90	501	-67.9	433	.415	.46
Water year 1945-46	746,175	17,000	77	2,044	-18.4	2,026	1.94	26.35

Peak discharge.- Oct. 2 (7:30 p.m.) 18,200 sec.-ft.; Mar. 10 (2 a.m.) 21,600 sec.-ft.
* Winter discharge measurement made on this day.
† Change in contents in Peacham Pond, Mollys Falls Reservoir, East Barre and Wrightsville Detention Reservoirs, and Waterbury Reservoir.
Note.- Stage-discharge relation affected by ice Dec. 2 to Jan. 9, Jan. 13 to Mar. 9, Mar. 14, 15 (no gage-height record Jan. 20 to Feb. 14; discharge computed on basis of weather records, power-plant records, and records for other stations in Winooski River Basin).

Reservoirs in Winooski River Basin above Montpelier, Vt.

East Barre Detention Reservoir.- Staff gage, lat. 44°09'20", long. 72°26'40", at reservoir on Jail Branch at East Barre, Washington County, 4½ miles upstream from mouth of Jail Branch. Datum of gage is 1,187.9 feet above mean sea level (levels by Corps of Engineers, War Department). Drainage area, 38.8 square miles. Records available, March and April 1936, September 1938 to September 1946. Maximum gage height observed during year, 14.2 feet Mar. 14; minimum observed, 0.4 foot July 30 to Aug. 1. Maximum gage height observed during period 1936, 1938-46, 36.0 feet Mar. 22, 1936; minimum observed, 0.1 foot several days in August and September 1939.

Reservoir is formed by earth-fill dam completed by Corps of Engineers, War Department, in 1935 for flood control. Capacity of reservoir, 506,000,000 cubic feet between gage heights 0.0 foot (bottom of outlet opening) and 37.1 feet (crest of spillway). Dam has no gates; below gage height 37.1 feet outflow from reservoir is dependent on capacity of outlet opening, 4 feet square, near base of dam. Gage-height record furnished by State of Vermont Board of Public Works.

Wrightsville Detention Reservoir.- Staff gage, lat. 44°18'35", long. 72°34'30", at reservoir on North Branch Winooski River at Wrightsville, Washington County, a third of a mile downstream from Long Meadow Brook and 4¼ miles upstream from mouth. Datum of gage is 612.75 feet above mean sea level (levels by Corps of Engineers, War Department). Drainage area, 66.5 square miles. Records available, March and April 1936, September 1938 to September 1946. Maximum gage height observed during year, 32.0 feet Mar. 17; minimum observed, 0.5 foot July 20. Maximum gage height during period 1936, 1938-46, 63.7 feet Mar. 22, 1936, from graph based on gage readings; minimum observed, 0.3 foot several days in August and September 1942, and Sept. 9, 1945

Reservoir is formed by earth-fill dam completed by Corps of Engineers, War Department, in 1935 for flood control. Capacity of reservoir, 873,500,000 cubic feet between gage heights 0.0 foot (bottom of outlet opening) and 72.25 feet (crest of spillway). Dam has no gates; below gage height 72.25 feet outflow from reservoir is dependent on capacity of outlet opening, 5½ feet square, near base of dam. Gage-height record furnished by State of Vermont Board of Public Works.

Gage height and contents, water year October 1945 to September 1946

Date	East Barre Detention Reservoir			
	Gage height (feet)†	Contents (millions of cubic feet)	Change in contents during month	
			Millions of cubic feet	Equivalent, second-feet
Sept. 30	6.1	5.22	-	-
Oct. 31	3.3	2.12	-3.10	-1.16
Nov. 30	3.4	2.21	+.09	+.03
Dec. 31	.9	.45	-1.76	-.66
Calendar year 1945	-	-	-.66	-.02
Jan. 31	.9	.45	0	0
Feb. 28	1.2	.62	+.17	+.07
Mar. 31	4.1	2.84	+2.22	+.83
Apr. 30	3.5	2.39	-.45	-.17
May 31	1.8	.99	-1.40	-.52
June 30	1.0	.50	-.49	-.19
July 31	.4	.20	-.30	-.11
Aug. 31	2.6	1.56	+1.36	+.51
Sept. 30	12.5	26.4	+24.84	+9.58
Water year 1945-46	-	-	+21.18	+.67

Date	Wrightsville Detention Reservoir			
Sept. 30	9.3	30.3	-	-
Oct. 31	4.6	12.5	-17.8	-6.65
Nov. 30	3.4	8.75	-3.75	-1.45
Dec. 31	1.8	4.25	-4.50	-1.68
Calendar year 1945	-	-	+1.25	+.04
Jan. 31	1.7	4.0	-.25	-.09
Feb. 28	1.6	3.75	-.25	-.10
Mar. 31	13.2	48.5	+44.75	+16.7
Apr. 30	4.2	11.2	-37.3	-14.4
May 31	3.2	8.15	-3.05	-1.14
June 30	.7	1.6	-6.55	-2.53
July 31	.7	1.6	0	0
Aug. 31	.9	2.0	+.4	+.15
Sept. 30	6.2	18.1	+16.1	+6.21
Water year 1945-46	-	-	-12.2	-.39

† Gage height at 12 p.m. determined from graph based on observer's readings and graph for station on river below reservoir.

Jail Branch at East Barre, Vt.

Location.- Water-stage recorder, lat. 44°09'40", long. 72°27'00", at East Barre, Washington County, just downstream from highway bridge, 0.6 mile downstream from East Barre Detention Reservoir and 3.9 miles upstream from mouth. Datum of gage is 1,071.59 feet above mean sea level (levels by Corps of Engineers, War Department).
Drainage area.- 40.4 square miles.
Records available.- August 1920 to September 1923, November 1933 to September 1946.
Average discharge.- 16 years, 58.2 second-feet (adjusted).
Extremes.- Maximum gage height during year, 2.78 feet Mar. 9, ice jam (discharge not determined); minimum discharge, 1.8 second-feet July 20.
1920-23, 1933-46: Maximum discharge observed, 1,350 second-feet Apr. 10, 1922 (gage height, 8.38 feet, site and datum then in use), from rating curve extended above 900 second-feet; minimum observed, 0.5 second-foot Sept. 11, 1921.
Remarks.- Records good except those below 10 second-feet and those for periods of ice effect, no gage-height record, or partly clogged intake pipes, which are fair. High flow controlled by East Barre Detention Reservoir (see p. 264). Diurnal fluctuation at low flow caused by mill above station. Diversion from reservoir on Orange Brook, a tributary above station, for city of Barre.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Backwater from debris May 8, June 2-19, June 24 to July 16, Aug. 21-27)

Oct. 1, 2				Oct. 3 to Sept. 30							
0.7	36	1.1	116	-0.4	2.2	0.1	5.2	0.6	32	1.1	143
.8	50	1.2	155	-.3	2.4	.2	7.5	.7	44	1.2	185
.9	67	1.3	205	-.2	2.6	.3	11	.8	59	1.3	233
1.0	88	1.4	265	-.1	2.7	.4	16	.9	80	1.4	290
				0	3.6	.5	24	1.0	108	1.5	360

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	43	56	21	19	19	82	54	175	6.7	4.6	14
2	223	46	50	20	19	19	103	50	233	70	40	14
3	297	154	52	19	19	19	195	45	109	21	262	9.4
4	246	168	51	18	19	20	118	42	56	10	223	7.2
5	116	90	46	20	18	22	100	55	49	6.9	44	6.6
6	74	67	57	30	18	33	90	72	56	5.6	16	6.2
7	84	60	210	150	23	70	77	80	46	5.0	10	6.2
8	99	58	290	130	21	130	70	94	60	4.6	9.6	6.6
9	190	53	233	80	19	310	66	68	58	5.5	9.2	8.0
10	284	52	122	110	18	280	65	78	36	4.5	49	77
11	201	47	70	76	19	170	54	53	32	4.0	85	37
12	94	59	50	53	19	110	54	59	31	3.8	23	17
13	100	58	44	46	18	130	53	46	24	4.0	14	12
14	88	59	39	41	29	*239	48	36	20	3.6	18	11
15	76	50	36	37	60	297	61	59	17	3.6	22	10
16	82	41	35	34	46	304	69	52	16	3.5	14	8.6
17	90	38	34	33	35	297	47	75	15	3.2	37	7.9
18	63	120	33	30	29	290	45	101	35	2.9	22	6.2
19	58	140	31	28	25	279	46	88	25	2.4	32	6.0
20	56	149	30	27	24	262	58	53	18	2.3	267	6.4
21	50	117	28	26	22	250	58	113	23	9.8	182	6.4
22	47	134	26	25	21	244	51	106	19	11	33	23
23	63	228	24	24	20	244	49	54	14	26	22	16
24	78	136	25	24	19	198	76	47	11	17	49	15
25	78	91	22	24	19	143	72	43	8.9	6.6	30	118
26	100	74	24	23	19	150	105	153	8.2	5.0	23	32
27	143	83	26	22	19	195	125	95	7.5	4.1	25	19
28	97	72	24	21	19	209	95	56	6.9	3.8	24	15
29	65	63	22	20	-	204	70	46	9.4	3.4	17	13
30	54	61	20	19	-	183	60	39	9.9	2.9	20	159
31	48	-	21	18	-	108	-	36	-	3.3	16	-

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	3,389	297	45	109	-1.16	108	2.67	3.09
November	2,611	228	38	87.0	+.03	87.1	2.16	2.40
December	1,831	290	20	59.1	-.66	58.4	1.45	1.67
Calendar year 1945	31,041.3	410	2.4	85.0	-.02	85.0	2.10	28.57
January	1,249	150	18	40.3	0	40.3	.998	1.15
February	655	60	18	23.4	+.07	23.5	.582	.60
March	5,428	310	19	175	+.83	176	4.36	5.02
April	2,262	195	45	75.4	-.17	75.2	1.86	2.08
May	2,048	153	36	66.1	-.52	65.5	1.62	1.87
June	1,228.8	233	6.9	41.0	-.19	40.8	1.01	1.13
July	266.0	70	2.3	8.58	-.11	8.47	.210	.24
August	1,642.4	267	4.6	53.0	+.51	53.5	1.32	1.53
September	693.7	159	6.0	23.1	+9.58	32.7	.809	.90
Water year 1945-46	23,303.9	310	2.3	63.8	+.67	64.5	1.60	21.68

* Winter discharge measurement made on this day.
† Change in contents in East Barre Detention Reservoir.
Note.- No gage-height record Jan. 14 to Feb. 12, Feb. 16 to Mar. 13, Apr. 5-9, Apr. 18 to May 7; discharge computed on basis of weather records, recorded range in stage, records for Wells River at Wells River, and records for stations in Winooski River Basin including East Barre Detention Reservoir and North Branch Winooski River at Wrightsville. Stage-discharge relation affected by ice Nov. 27, Nov. 30 to Dec. 7, Dec. 11 to Jan. 11, Jan. 13, Feb. 13-15, and during part or all periods of no gage-height record in winter. Discharge for period of partly clogged intake pipes, Nov. 5-9, computed on basis of weather records, change in stage when intakes were rodded, and records for stations on nearby streams.

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North Branch Winooski River at Wrightsville, Vt.

Location.- Water-stage recorder and concrete control, lat. 44°18'00", long. 72°34'45", at Wrightsville, Washington County, three-quarters of a mile downstream from Wrightsville Detention Reservoir and 3½ miles upstream from mouth. Datum of gage is 550.53 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 69.2 square miles.

Records available.- October 1933 to September 1946.

Average discharge.- 13 years, 133 second-feet (adjusted).

Extremes.- Maximum discharge during year, 700 second-feet Mar. 16; maximum gage height, 3.59 feet Mar. 9 (ice jam); minimum daily discharge, 8.9 second-feet Sept. 21.

1933-46: Maximum discharge, 2,170 second-feet Apr. 12, 1934 (gage height, 6.53 feet), from rating curve extended above 920 second-feet; minimum daily, 0.2 second-foot Aug. 13, 1941.

Maximum discharge known, 17,200 second-feet Nov. 3, 1927, by computation of flow over dam three-quarters of a mile above gage.

Remarks.- Records good except those for periods of ice effect, which are fair. High flow controlled by Wrightsville Detention Reservoir (see p. 264). Diurnal fluctuation at low flow caused by small mill above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.2	6.7	0.7	30	2.0	242
.3	10	.8	40	2.5	358
.4	14	.9	50	3.0	518
.5	18	1.2	92	3.5	730
.6	24	1.5	143		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	327	147	104	41	39	36	366	130	156	14	11	18
2	607	153	84	38	39	36	292	113	217	37	23	14
3	676	334	80	37	39	37	240	95	168	52	229	12
4	662	432	82	35	38	39	213	84	129	38	226	11
5	640	410	78	34	37	43	195	90	106	26	120	10
6	807	353	74	36	36	60	179	151	103	20	64	10
7	572	285	124	170	40	90	162	158	90	18	40	10
8	533	191	244	290	50	230	138	156	84	15	30	10
9	564	149	225	210	43	380	125	170	86	15	24	10
10	615	125	*177	215	38	540	127	213	70	17	24	35
11	587	108	138	220	*40	520	122	219	56	17	28	50
12	552	113	97	173	39	470	115	327	50	15	24	40
13	526	125	83	139	38	430	111	332	43	15	21	24
14	496	149	71	100	46	537	108	278	36	14	20	17
15	448	149	69	82	98	*662	118	221	31	14	21	15
16	398	129	67	77	86	690	170	207	28	13	19	13
17	378	113	65	71	75	685	152	234	24	12	21	12
18	335	149	62	68	62	680	125	287	38	11	23	11
19	281	276	59	63	54	666	116	395	57	9.6	21	10
20	195	358	57	55	50	648	120	401	43	9.6	28	9.2
21	149	395	54	55	46	631	136	422	34	17	26	8.9
22	125	366	50	54	43	627	129	504	28	24	20	11
23	179	361	47	51	41	623	118	486	25	48	22	10
24	193	327	49	50	39	599	136	432	22	82	23	13
25	229	272	42	50	38	572	145	364	20	52	24	63
26	322	187	46	49	37	541	138	350	18	33	24	57
27	361	139	52	45	37	533	203	330	17	22	24	39
28	348	130	46	44	37	529	197	257	16	18	24	28
29	301	122	41	42	-	518	172	168	15	15	21	20
30	219	111	38	40	-	500	151	127	15	14	19	108
31	168	-	42	38	-	448	-	103	-	12	18	-

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	12,593	676	125	406	-6.65	400	5.78	6.86
November	6,658	432	108	222	-1.45	220	3.18	3.55
December	2,547	244	38	82.2	-1.68	80.5	1.16	1.34
Calendar year 1945	73,924.9	780	8.9	203	+.04	203	2.93	39.73
January	2,672	290	34	86.2	-.09	86.1	1.24	1.43
February	1,305	98	36	46.6	-.10	46.5	.672	.70
March	13,600	690	36	439	+16.7	455	6.58	7.59
April	4,819	366	108	161	-14.4	146	2.11	2.36
May	7,804	504	84	252	-1.14	251	3.63	4.18
June	1,825	217	15	60.8	-2.53	58.3	.842	.94
July	719.2	82	9.6	23.2	0	23.2	.335	.39
August	1,262	229	11	40.7	+.15	40.9	.591	.68
September	699.1	108	8.9	23.3	+6.21	29.5	.426	.48
Water year 1945-46	56,503.3	690	8.9	155	-.39	154	2.23	30.30

* Winter discharge measurement made on this day.
† Change in contents in Wrightsville Detention Reservoir.
Note.- Stage-discharge relation affected by ice Dec. 1-6, Dec. 12 to Jan. 11, Jan. 14 to Mar. 13.

Dog River at Northfield Falls, Vt.

Location.- Water-stage recorder, lat. 44°10'55", long. 72°38'30", 1 mile downstream from Northfield Falls, Washington County, and 1¼ miles downstream from Cox Branch. Datum of gage is 603.00 feet above mean sea level (levels by Corps of Engineers, War Department)

Drainage area.- 76.1 square miles.

Records available.- November 1934 to September 1946.

Average discharge.- 12 years, 125 second-feet.

Extremes.- Maximum discharge during year, 2,150 second-feet Mar. 9 (gage height, 5.35 feet); minimum, 6.6 second-feet (regulated) July 19-21, Sept. 21.
1934-46: Maximum discharge, 9,750 second-feet Sept. 21, 1938 (gage height, 11.53 feet), by slope-area method; minimum, 4.3 second-feet (regulated) Aug. 31, Sept. 7, 1942.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Some regulation at low flow caused by power plant above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.6	7.4	1.2	51	2.8	540
.7	12	1.4	80	3.5	895
.8	17	1.7	141	4.3	1,370
.9	24	2.0	225		
1.0	32	2.3	330		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	120	123	61	58	53	143	95	383	28	16	19
2	1,340	132	110	61	55	50	164	85	300	59	36	18
3	557	240	116	57	52	52	283	75	206	38	207	24
4	349	234	112	57	53	64	210	72	172	27	70	18
5	268	172	100	*59	54	98	200	95	154	24	41	17
6	213	146	108	115	54	162	177	100	144	20	31	15
7	211	134	219	750	85	277	161	93	123	12	25	8.8
8	262	125	271	384	66	437	143	108	132	27	21	12
9	875	116	200	219	59	1,350	141	104	120	20	22	22
10	572	110	*175	304	56	621	139	118	94	20	45	55
11	338	100	135	219	56	323	125	106	85	19	65	46
12	268	114	80	177	52	234	116	139	80	18	41	30
13	258	114	85	130	52	356	110	116	70	11	31	24
14	235	130	95	85	*170	*1,060	106	98	64	12	30	13
15	213	114	90	90	190	981	110	116	58	23	29	17
16	219	104	86	80	105	628	110	112	55	16	24	25
17	216	100	83	83	100	512	94	125	46	15	32	18
18	180	182	80	87	80	450	93	177	52	13	36	17
19	158	204	77	82	75	400	90	282	49	12	35	16
20	141	321	74	75	70	360	100	194	43	8.3	39	15
21	130	232	70	80	65	357	95	408	48	16	38	8.0
22	118	310	66	78	66	396	88	359	43	33	28	21
23	132	330	64	75	62	384	88	225	39	35	26	28
24	136	235	60	72	58	276	130	177	38	42	18	21
25	171	197	58	74	56	258	115	155	32	25	25	54
26	197	172	64	68	56	262	130	472	29	19	31	36
27	232	146	64	65	54	319	145	273	27	8.6	27	24
28	180	144	60	65	53	286	130	197	29	13	26	14
29	151	139	62	60	-	265	115	161	26	22	22	19
30	136	134	60	58	-	219	105	136	36	15	20	194
31	130	-	60	60	-	169	-	123	-	13	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	8,809	1,340	118	284	3.73	4.30
November	5,051	330	100	168	2.21	2.47
December	3,107	271	58	100	1.31	1.52
Calendar year 1945	62,616.5	1,340	8.5	172	2.26	30.61
January	3,930	750	57	127	1.67	1.92
February	2,012	190	52	71.9	.945	.98
March	11,659	1,350	50	376	4.94	5.70
April	3,956	283	88	132	1.73	1.93
May	5,096	472	72	164	2.16	2.49
June	2,777	383	26	92.6	1.22	1.36
July	663.9	59	8.3	21.4	.281	.32
August	1,153	207	16	37.2	.489	.56
September	848.8	194	8.0	28.3	.372	.41
Water year 1945-46	49,062.7	1,350	8.0	134	1.76	23.96

Peak discharge.- Oct. 2 (12:30 p.m.) 2,090 sec.-ft.; Oct. 9 (2:30 p.m.) 1,810 sec.-ft.; Mar. 9 (4 p.m.) 2,150 sec.-ft.; Mar. 14 (7:30 p.m.) 1,620 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Apr. 19 to May 6; discharge computed on basis of 1 discharge measurement, records for Mad River near Moretown, and other stations on nearby streams. Stage-discharge relation affected by ice Dec. 11 to Jan. 4, Jan. 6, 7, Jan. 13 to Feb. 14, Feb. 16 to Mar. 4.

Mad River near Moretown, Vt.

Location.- Water-stage recorder and concrete control, lat. 44°16'40", long. 72°44'35", at highway bridge, 2.4 miles downstream from Moretown, Washington County, and 3.8 miles upstream from mouth.
Drainage area.- 139 square miles.
Records available.- July to November 1910, November 1928 to September 1946.
Average discharge.- 18 years (1928-46), 249 second-feet.
Extremes.- Maximum discharge during year, 6,070 second-feet Mar. 9, from rating curve extended above 2,700 second-feet on basis of computations of flow over dam at gage heights 9.98, 16.34, and 19.4 feet; maximum gage height, 13.35 feet Mar. 7 (ice jam); minimum discharge, 8.2 second-feet (regulated) Sept. 6; minimum daily, 17 second-feet (regulated) Sept. 8.
1910, 1928-46: Maximum discharge, 18,400 second-feet Sept. 22, 1938 (gage height, 16.34 feet, from floodmarks), from rating curve extended above 2,700 second-feet by method explained above; minimum, 1.4 second-feet (regulated) Oct. 1, 1930.
Maximum discharge known, 23,000 second-feet Nov. 3, 1927 (gage height, 19.4 feet, from floodmarks), by computation of flow over dam.
Remarks.- Records excellent except those for periods of ice effect, which are fair. Regulation at low flow by mill in Moretown.

Rating tables, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1, 2		Oct. 3 to Sept. 30					
4.7	735	3.1	14	3.6	98	5.0	980
5.5	1,460	3.2	24	3.7	129	5.5	1,460
6.5	2,530	3.3	36	3.9	205	6.5	2,530
7.5	3,780	3.4	51	4.2	350	7.7	4,040
		3.5	72	4.5	540		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	796	285	230	120	120	105	280	275	961	49	30	35
2	3,710	343	210	120	115	100	339	241	618	217	80	44
3	1,310	768	230	115	105	100	529	214	416	97	735	30
4	773	632	220	115	105	110	380	197	345	59	284	25
5	580	416	200	120	105	180	392	268	300	54	128	30
6	440	345	210	250	105	300	350	300	290	38	79	27
7	487	305	470	1,600	170	550	320	250	246	36	58	23
8	554	275	539	860	130	1,200	275	309	278	39	55	17
9	1,690	250	*374	470	115	4,000	265	291	250	38	50	36
10	998	228	335	*674	105	1,210	280	416	193	37	111	232
11	604	210	255	425	100	640	255	340	169	30	173	127
12	491	246	160	345	95	500	246	591	157	33	85	68
13	596	241	170	295	*100	*648	246	380	132	32	64	53
14	588	354	180	165	380	1,950	236	305	116	31	64	44
15	464	265	175	175	420	1,680	275	365	105	32	69	38
16	565	232	170	155	200	1,010	310	330	93	34	56	44
17	533	223	160	160	180	773	241	398	85	30	72	34
18	434	663	155	165	160	674	218	643	108	25	72	31
19	380	531	150	155	150	596	236	782	95	27	59	29
20	330	818	140	150	140	533	270	484	79	25	84	27
21	285	484	135	160	130	519	260	1,110	83	56	64	28
22	260	732	125	150	130	596	228	894	78	102	55	24
23	368	646	120	150	125	588	228	526	69	194	46	42
24	368	440	115	145	120	428	488	398	62	139	70	56
25	466	374	110	140	115	416	368	365	54	65	77	240
26	565	320	120	140	115	446	405	1,510	50	46	66	86
27	629	275	120	115	110	572	595	701	46	36	60	60
28	422	275	115	120	110	519	404	470	45	34	54	50
29	345	260	120	125	-	556	335	380	53	33	48	37
30	315	250	115	110	-	484	300	315	68	28	46	324
31	300	-	115	115	-	345	-	285	-	25	37	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	20,646	3,710	260	666	4.79	5.52
November	11,686	818	210	390	2.81	3.13
December	6,043	539	110	195	1.40	1.62
Calendar year 1945	128,176	3,710	19	351	2.53	34.29
January	8,104	1,600	110	261	1.88	2.17
February	4,055	420	95	145	1.04	1.08
March	22,328	4,000	100	720	5.18	5.97
April	9,554	595	218	318	2.29	2.56
May	14,333	1,510	197	462	3.32	3.83
June	5,644	961	45	188	1.35	1.51
July	1,721	217	25	55.5	.399	.46
August	3,031	735	30	97.8	.704	.81
September	1,941	324	17	64.7	.465	.52
Water year 1945-46	109,086	4,000	17	299	2.15	29.18

Peak discharge.- Oct. 2 (2 p.m.) 5,600 sec.-ft.; Mar. 9 (2:30 p.m.) 6,070 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Dec. 1-7, Dec. 12 to Jan. 9, Jan. 13 to Mar. 9, Mar. 11, 12 (no gage-height record Dec. 31 to Jan. 4).

Waterbury Reservoir near Waterbury, Vt.

Location.- Water-stage recorder, lat. 44°22'55", long. 72°46'15", at dam on Waterbury River, 2 2/3 miles upstream from mouth and 3½ miles north of Waterbury, Washington County. Datum of gage is at mean sea level (levels by Corps of Engineers, War Department)

Drainage area.- 109 square miles.

Records available.- September 1938 to September 1946.

Extremes.- Maximum elevation during year, 600.89 feet Oct. 3; minimum, 553.44 feet Mar. 5. 1938-46: Maximum elevation, 613.45 feet May 4, 1940; minimum observed, 501.3 feet Oct. 16, 1938.

Remarks.- Reservoir is formed by earth-fill dam completed by Corps of Engineers, War Department, during summer of 1937 for conservation and flood control. Total usable capacity for flood control, 2,812,300,000 cubic feet between elevations 500.0 feet (bottom of lowest outlet) and 617.5 feet (crest of spillway) above mean sea level. Usable capacity for conservation, 1,582,700,000 cubic feet between elevations 500.0 and 592.0 feet (sill of taintor gate) above mean sea level.

Elevation at 12 p.m., water year October 1925 to September 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	594.18	590.76	590.18	585.94	577.64	555.50	591.67	591.20	591.37	586.61	579.53	580.85
2	599.53	591.43	590.54	585.03	577.95	555.92	591.27	590.15	590.87	587.25	579.64	580.95
3	600.50	590.96	590.99	584.08	576.83	555.46	590.52	590.17	590.87	587.43	582.37	579.97
4	599.18	589.24	591.41	583.76	575.65	554.17	589.59	590.55	591.26	587.54	583.05	578.85
5	597.70	589.11	591.53	584.03	574.57	553.87	589.25	590.64	591.61	587.57	583.32	578.21
6	595.94	589.81	591.42	585.77	573.51	554.66	589.87	590.96	590.87	587.66	583.48	577.80
7	594.25	590.46	592.41	588.27	573.37	557.42	590.38	591.58	590.21	587.36	583.06	577.93
8	592.35	591.04	592.22	588.53	573.50	561.21	590.82	592.36	590.59	586.99	582.63	577.66
9	594.31	591.57	591.34	589.28	573.86	568.42	591.30	592.95	590.89	586.63	582.15	576.90
10	596.24	592.00	590.90	590.59	573.50	571.19	591.29	593.58	591.11	586.20	582.39	576.68
11	595.54	591.39	591.30	591.28	572.34	572.48	590.18	594.04	591.34	585.74	582.56	576.88
12	593.62	590.87	591.57	591.84	571.26	573.41	589.59	594.70	590.42	585.34	582.70	577.01
13	592.43	590.88	590.75	591.28	570.11	575.53	590.07	594.45	589.54	585.43	582.32	577.13
14	590.83	590.95	590.62	590.99	570.96	582.39	590.55	594.16	589.30	585.15	581.85	577.24
15	589.66	590.88	590.94	591.25	572.21	586.53	591.48	594.05	589.47	584.40	581.65	577.08
16	589.89	590.74	591.24	590.44	572.72	588.61	591.13	594.02	589.00	583.63	581.49	576.36
17	589.83	590.71	591.01	589.69	571.95	590.16	590.18	594.30	588.38	582.82	581.64	575.62
18	590.21	591.52	590.60	589.46	571.68	591.52	589.17	594.83	588.76	582.40	581.75	574.93
19	591.33	391.58	590.32	589.75	570.76	591.72	589.20	594.95	589.01	582.20	581.44	574.17
20	592.11	591.49	589.48	588.98	568.22	591.28	589.98	594.60	588.94	582.30	581.58	573.35
21	592.16	591.06	588.63	587.66	566.31	590.92	590.54	595.37	589.12	582.08	581.70	573.44
22	591.99	590.90	588.86	586.94	565.12	590.80	591.09	594.33	589.27	581.72	581.58	573.28
23	591.82	590.40	587.97	585.52	563.13	590.56	591.26	592.28	589.08	582.55	581.45	572.55
24	592.07	589.62	587.59	584.66	561.93	589.89	591.18	591.00	588.77	582.99	581.22	572.19
25	592.06	589.76	587.85	584.43	559.80	589.20	590.49	591.36	588.37	583.15	581.75	572.90
26	591.07	590.38	587.01	582.88	558.54	588.75	590.07	591.48	587.67	582.75	582.07	573.13
27	589.02	590.85	586.16	581.94	557.27	588.82	589.75	590.66	586.97	582.85	582.04	573.26
28	588.25	590.85	585.83	580.95	555.98	588.60	590.03	590.79	587.07	582.52	581.48	573.40
29	588.93	589.76	586.08	579.94	-	589.29	590.67	591.22	587.17	581.88	580.89	573.41
30	589.55	589.69	585.98	578.96	-	590.46	591.23	591.60	586.91	581.20	580.58	574.43
31	590.22	-	586.27	577.96	-	591.15	-	590.85	-	580.32	580.73	-

Elevation and contents, water year October 1945 to September 1946

Date	Elevation (feet)†	Contents (millions of cubic feet)	Change in contents during month	
			Millions of cubic feet	Equivalent, second-feet
Sept. 30	594.81	1,692.3		-
Oct. 31	590.22	1,513.5	-178.8	-66.8
Nov. 30	589.69	1,494.0	-19.5	-7.52
Dec. 31	586.27	1,373.0	-121.0	-45.2
Calendar year 1945	-	-	+322.5	+10.2
Jan. 31	577.96	1,109.3	-263.7	-98.5
Feb. 28	555.98	575.9	-533.4	-220
Mar. 31	591.15	1,549.6	+973.7	+364
Apr. 30	591.23	1,552.7	+3.1	+1.20
May 31	590.85	1,538.0	-14.7	-5.49
June 30	586.91	1,395.6	-142.4	-54.9
July 31	580.32	1,178.6	-217.0	-81.0
Aug. 31	580.73	1,191.7	+13.1	+4.89
Sept. 30	574.43	1,008.6	-183.1	-70.6
Water year 1945-46	-	-	-683.7	-21.7

† Elevation at 12 p.m.

Waterbury River near Waterbury, Vt.

Location.- Water-stage recorder and concrete control, lat. 44°22'10", long. 72°46'10", 1 mile downstream from Waterbury Reservoir, 1 2/3 miles upstream from mouth, and 2½ miles north of Waterbury, Washington County. Datum of gage is 428.00 feet above mean sea level (levels by Corps of Engineers, War Department).

Drainage area.- 111 square miles.

Records available.- July to October 1910 (gage heights only), December 1935 to September 1946.

Average discharge.- 10 years, 230 second-feet (adjusted for change in reservoir contents).

Extremes.- Maximum discharge during year, 1,460 second-feet (regulated) Oct. 2 (gage height, 9.43 feet); minimum daily, 0.9 second-foot (regulated) July 6.

1935-46: Maximum discharge, 6,520 second-feet Mar. 18, 1936 (gage height, 19.38 feet); minimum daily, 0.6 second-foot (regulated) several times during summers of 1938, 1939, 1941, and 1944.

Remarks.- Records excellent except those below 25 second-feet, which are good. Flow completely regulated by Waterbury Reservoir (see preceding page).

Rating table, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

4.77	0.9	4.95	3.4	5.3	14	6.0	71	7.1	301
4.8	1.2	5.0	4.4	5.4	19	6.2	98	7.5	450
4.85	1.8	5.1	7.0	5.6	32	6.5	150	8.0	665
4.9	2.6	5.2	10	5.8	49	6.8	216	9.4	1,450

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,140	7.0	4.7	208	204	186	4.3	242	198	197	315	1.2
2	526	193	4.2	431	2.6	2.6	452	665	484	2.6	198	1.0
3	772	1,130	4.2	438	428	190	675	205	190	1.2	8.6	339
4	1,440	1,380	4.2	227	450	372	670	3.8	4.7	1.0	2.6	425
5	1,430	476	88	2.7	415	201	455	235	4.0	21	1.8	265
6	1,420	7.6	228	5.2	420	4.4	6.2	206	490	.9	1.4	199
7	1,420	6.7	10	404	205	12	5.2	4.0	413	130	206	1.3
8	1,400	6.2	484	453	87	11	4.7	43	4.2	199	200	123
9	973	5.7	*685	6.2	2.7	33	4.7	62	3.1	206	214	269
10	19	5.5	464	7.9	214	12	213	180	2.6	206	2.9	196
11	828	430	5.2	5.5	412	7.6	675	262	2.6	213	1.7	1.6
12	1,400	459	4.0	5.0	404	6.7	455	506	493	198	1.4	1.2
13	1,400	239	452	401	401	14	5.5	510	458	1.6	176	1.1
14	1,380	220	230	249	212	39	4.7	426	173	127	210	1.0
15	992	236	3.8	4.0	4.9	25	5.0	376	2.1	319	114	83
16	695	222	3.4	455	b4.2	15	641	346	256	327	109	258
17	690	229	222	447	378	13	665	422	336	320	1.5	258
18	478	223	281	224	210	11	665	498	128	201	1.2	249
19	8.5	459	225	3.4	353	432	224	638	2.5	103	157	253
20	7.3	903	445	431	824	680	6.2	584	105	1.7	1.5	287
21	250	651	438	640	606	680	5.0	611	2.3	125	1.1	1.7
22	363	685	3.1	403	404	675	4.2	1,100	1.8	196	77	82
23	449	680	436	660	598	670	214	1,380	128	4.0	71	250
24	238	680	229	417	390	670	670	875	198	1.7	192	267
25	462	242	2.6	194	588	670	670	197	213	1.1	1.7	3.0
26	915	6.2	433	652	382	670	675	491	331	185	1.2	1.7
27	1,380	5.7	438	436	384	670	675	670	322	1.4	70	1.4
28	719	220	224	425	378	670	267	192	2.2	132	268	1.2
29	8.5	880	2.7	420	-	457	5.5	5.5	1.3	263	268	38
30	7.3	237	139	429	-	6.0	5.0	4.7	131	262	192	198
31	7.6	-	3.4	420	-	4.7	-	488	-	315	1.3	-

Month	Observed				Change in contents (equivalent, second-feet)†	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
October	23,218.2	1,440	7.3	749	-66.8	682	6.14	7.09
November	10,924.6	1,380	5.5	364	-7.52	357	3.22	3.58
December	6,196.5	685	2.6	200	-45.2	155	1.40	1.61
Calendar year 1945	118,004.8	1,440	1.1	323	+10.2	334	3.01	40.79
January	9,503.9	660	2.7	307	-98.5	208	1.87	2.16
February	9,361.4	824	2.6	334	-220	114	1.03	1.07
March	8,110.0	680	2.6	262	+364	625	5.63	6.49
April	9,027.2	675	4.2	301	+1.20	302	2.72	3.04
May	12,428.0	1,380	3.8	401	-5.49	395	3.56	4.11
June	5,080.4	493	1.3	169	-54.9	114	1.03	1.15
July	4,262.2	327	.9	137	-81.0	56.5	.509	.59
August	3,066.9	315	1.1	98.9	+4.89	104	.937	1.08
September	4,056.4	425	1.0	135	-70.6	64.8	.582	.65
Water year 1945-46	105,235.7	1,440	.9	288	-21.7	267	2.41	32.62

* Winter discharge measurement made on this day.
† Change in contents in Waterbury Reservoir.
b Stage-discharge relation affected by ice.

Lamoille River at Johnson, Vt.

Location.- Water-stage recorder, lat. 44°37'20", long. 72°40'50", at falls 0.9 mile upstream from bridge in Johnson, Lamoille County, and 1 1/8 miles upstream from Gihon River.
Drainage area.- 310 square miles.
Records available.- July 1910 to December 1913, September 1928 to September 1946.
Average discharge.- 18 years (1928-46), 522 second-feet.
Extremes.- Maximum discharge during year, 5,360 second-feet Mar. 15 (gage height, 10.56 feet); minimum daily, 41 second-feet (regulated) July 21.
1910-13, 1928-46: Maximum discharge, 13,000 second-feet Mar. 18, 1936 (gage height, 16.48 feet), by computation of flow over dam; minimum, 11 second-feet (regulated) Sept. 2, 1935; minimum daily, 20 second-feet (regulated) Aug. 18, 1940.
Remarks.- Records good except those below 300 second-feet during period June to September 2, those for periods of ice effect, or doubtful or no gage-height record, which are fair. Flow regulated by power plant above station.

Rating tables, water year 1945-46, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 14				Mar. 15 to Sept. 3				Sept. 3 to Sept. 30			
2.0	125	1.6	38	2.4	280	6.0	1,980	1.2	30	1.8	139
2.2	190	1.7	62	3.0	511	7.5	2,860	1.3	52	2.0	189
2.5	308	1.8	88	4.0	945	9.6	4,490	1.4	66	2.4	309
3.0	511	2.0	146	5.0	1,440			1.6	89	2.8	449

Note.- Same as following table above 3.0 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,040	255	370	270	180	200	750	481	415	300	171	134
2	2,760	643	360	270	170	195	730	435	764	629	212	228
3	3,640	2,000	390	270	170	190	886	380	572	408	1,190	156
4	1,850	1,880	400	240	210	270	868	286	392	256	844	178
5	1,440	1,050	370	240	190	260	837	347	350	251	464	146
6	890	773	340	400	180	400	758	667	396	186	292	129
7	950	630	560	1,600	190	700	670	713	394	109	180	116
8	1,200	572	1,580	1,300	220	1,450	640	714	348	167	197	121
9	2,700	522	1,000	800	230	2,590	570	802	302	174	160	154
10	2,400	438	821	840	190	2,500	617	909	428	140	164	186
11	1,700	437	560	800	200	1,450	582	739	340	152	143	196
12	1,100	458	420	540	190	990	572	1,200	301	170	175	172
13	1,300	539	440	370	180	1,150	514	947	251	138	160	165
14	1,150	559	*390	300	190	3,200	443	638	169	69	154	124
15	900	533	350	*340	470	*4,420	660	533	142	164	153	92
16	1,500	445	280	310	*470	2,990	924	577	67	155	137	155
17	1,700	383	340	300	370	2,260	706	755	141	159	153	155
18	1,100	633	320	280	300	1,990	545	924	478	163	114	144
19	900	1,030	290	270	260	1,800	555	1,350	430	118	160	122
20	700	1,530	290	230	220	1,640	580	972	321	132	146	112
21	600	1,340	260	260	200	1,610	670	1,240	308	41	131	100
22	550	1,100	220	220	200	1,820	640	1,750	244	104	143	67
23	700	1,570	210	205	190	2,050	560	958	158	224	150	153
24	760	940	290	210	150	1,350	664	670	229	234	187	161
25	1,000	773	190	220	200	1,180	703	443	205	176	260	280
26	1,100	583	270	215	200	1,280	634	676	173	151	327	241
27	1,090	483	270	210	160	1,900	924	794	187	117	229	194
28	837	498	270	230	170	1,800	760	513	170	120	167	119
29	666	470	280	210	-	1,670	710	415	127	145	219	49
30	600	440	220	210	-	1,550	551	329	122	142	174	423
31	544	-	290	190	-	950	-	340	-	122	156	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	39,367	3,640	544	1,270	4.10	4.72
November	23,507	2,000	255	784	2.53	2.82
December	12,641	1,580	190	408	1.32	1.52
Calendar year 1945	267,725	4,530	67	733	2.36	32.10
January	12,350	1,600	190	398	1.28	1.48
February	6,250	470	150	223	.719	.75
March	47,805	4,420	190	1,542	4.97	5.74
April	20,223	924	443	674	2.17	2.43
May	22,497	1,750	286	726	2.34	2.70
June	8,924	764	67	297	.958	1.07
July	5,616	629	41	181	.584	.67
August	7,512	1,190	114	242	.781	.90
September	4,772	423	49	159	.513	.57
Water year 1945-46	211,464	4,420	41	579	1.87	25.37

* Winter discharge measurement made on this day.
Note.- No gage-height record Oct. 7-26; discharge computed on basis of weather records and records for Missisquoi River near North Troy and Winooski River at Montpelier. Stage-discharge relation affected by ice Nov. 29 to Dec. 7, Dec. 11 to Mar. 8. Discharge for periods of doubtful gage-height record Mar. 10-14, 24-27, Mar. 31 to Apr. 2, Apr. 7, 8, 15, 20-22, 28, 29 computed on basis of gage heights adjusted for intake lag, engineer's notes, and records for station at East Georgia.

Lamoille River at East Georgia, Vt.

Location.- Water-stage recorder, lat. 44°40'45", long. 73°04'20", at East Georgia, Franklin County, 0.5 mile upstream from railroad bridge and 1 mile downstream from Beaver Meadow Brook.
Drainage area.- 686 square miles.
Records available.- October 1937 to September 1946. August 1929 to November 1937 at site near Milton, 3½ miles downstream, published as Lamoille River near Milton.
Average discharge.- 17 years, 1,222 second-feet, adjusted to present drainage area.
Extremes.- Maximum discharge during year, 11,900 second-feet Oct. 3; maximum gage height, 15.86 feet Mar. 11 (ice jam); minimum discharge, 92 second-feet (regulated) Sept. 23; minimum daily, 173 second-feet (regulated) Sept. 23.
1929-46: Maximum discharge, 23,200 second-feet Mar. 19, 1936, by computation of flow over dam; maximum gage height, that of Mar. 11, 1946; minimum discharge, 49 second-feet (regulated) July 30, 1933; minimum daily, 91 second-feet (regulated) July 30, 1933.
Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are fair. Low flow regulated by power plants above station.

Rating tables, water year 1945-46, except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-3		Oct. 4 to Sept. 30					
5.9	3.200	2.3	160	4.0	970	7.0	5,050
7.0	5,050	2.5	212	4.5	1,410	8.0	7,150
8.0	7,150	2.8	306	5.0	1,910	8.8	9,160
9.4	10,900	3.1	426	5.5	2,510		
		3.5	630	6.0	3,230		

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,240	1,150	900	640	410	390	1,600	1,380	883	377	240	378
2	8,440	1,410	880	620	400	450	1,510	1,190	1,360	1,150	256	318
3	10,800	5,200	920	600	390	530	1,880	1,030	1,180	1,080	2,320	418
4	6,000	f5,500	940	590	380	540	1,820	925	978	668	2,690	268
5	4,200	3,100	890	580	400	630	1,770	910	839	462	1,200	346
6	2,500	2,000	840	900	380	700	1,860	1,330	762	402	754	252
7	2,300	1,700	1,400	3,500	500	1,800	1,640	1,720	762	330	521	249
8	2,600	1,500	3,500	3,100	560	3,500	1,390	1,820	755	268	342	272
9	6,000	1,300	2,500	2,200	530	5,200	1,300	1,960	895	285	348	233
10	6,600	1,150	2,000	2,300	500	6,000	1,490	2,040	748	342	292	362
11	4,500	1,150	1,400	2,000	460	5,400	1,360	1,900	736	301	362	571
12	2,700	1,150	1,000	1,400	430	3,400	1,320	3,140	660	250	326	612
13	3,000	1,2500	1,050	1,000	410	2,700	1,370	2,550	540	260	336	358
14	2,600	1,300	920	760	430	6,000	1,220	1,710	451	249	300	348
15	2,100	1,200	820	780	1,100	9,000	1,360	1,410	409	312	270	278
16	3,700	1,100	780	720	1,000	7,200	2,330	1,360	332	332	274	271
17	4,100	950	760	660	850	5,400	1,860	2,320	324	324	267	236
18	3,000	1,400	820	660	700	4,900	1,390	2,550	442	312	242	266
19	2,200	2,000	820	600	620	4,400	1,290	3,420	1,000	256	300	264
20	1,800	3,100	740	570	560	4,000	1,340	2,580	690	186	346	257
21	1,500	3,700	700	540	480	3,800	1,560	2,630	580	193	312	234
22	1,300	2,700	660	560	470	4,100	1,400	4,660	569	251	268	194
23	1,600	3,700	620	520	420	4,300	1,310	2,760	466	336	280	173
24	1,800	2,400	600	500	440	*3,100	2,130	1,800	368	996	334	260
25	2,400	1,600	640	490	410	2,400	2,030	1,380	384	636	1,460	644
26	2,800	1,300	640	490	450	2,370	1,860	1,410	392	339	1,150	698
27	3,000	1,200	670	460	420	3,170	2,780	1,630	320	272	774	524
28	2,090	1,200	640	440	400	3,360	2,440	1,250	318	254	626	336
29	1,620	1,100	610	450	-	3,130	2,030	978	294	256	498	292
30	1,360	1,000	600	430	-	3,040	1,620	839	248	258	633	891
31	1,370	-	580	420	-	2,230	-	742	-	260	528	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	103,220	10,800	1,300	3,330	4.85	5.60
November	58,510	5,500	950	1,950	2.84	3.17
December	30,840	3,500	580	995	1.45	1.67
Calendar year 1945	633,431	10,800	166	1,735	2.53	34.33
January	29,480	3,500	420	951	1.39	1.60
February	14,500	1,100	380	518	.755	.79
March	107,140	9,000	390	3,456	5.04	5.81
April	50,060	2,780	1,220	1,669	2.43	2.71
May	57,324	4,660	742	1,849	2.70	3.11
June	18,685	1,360	248	623	.908	1.01
July	12,197	1,150	186	393	.573	.66
August	18,849	2,690	240	608	.886	1.02
September	10,803	891	173	360	.525	.59
Water year 1945-46	511,608	10,800	173	1,402	2.04	27.74

* Winter discharge measurement made on this day.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Oct. 4-27, Nov. 3, Nov. 5 to Dec. 12, Mar. 15-24; discharge computed on basis of 2 discharge measurements, weather record, and records for Lamoille River at Johnson, Missisquoi River near Richford, and Winooski River near Essex Junction. Stage-discharge relation affected by ice Dec. 13 to Mar. 14.

Missisquoi River near North Troy, Vt.

Location.- Water-stage recorder, lat. 44°58'20", long. 72°23'15", just upstream from Big Falls, 1½ miles downstream from Jay Branch and 2½ miles upstream from North Troy, Troy County.

Drainage area.- 131 square miles.

Records available.- August 1931 to September 1946.

Average discharge.- 15 years, 267 second-feet.

Extremes.- Maximum discharge during year, 3,100 second-feet Mar. 14; maximum gage height, 8.48 feet Mar. 14 (ice jam); minimum discharge, 26 second-feet July 31, Aug. 1.
1931-46: Maximum discharge, 7,980 second-feet May 3, 1940 (gage height, 12.87 feet), from rating curve extended above 3,600 second-feet by logarithmic plotting, verified by computation of flow over dam at gage height 11.70 feet; minimum, 10 second-feet (regulated) Aug. 22, 1934 (gage height, 0.81 foot); minimum daily, 12 second-feet (regulated) Sept. 24, 1941.

Remarks.- Records excellent except those for periods of ice effect, which are fair. Some regulation from small power plant above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.2	26	2.0	107	4.0	718
1.3	30	2.3	164	5.0	1,170
1.4	38	2.6	234	6.0	1,700
1.6	55	3.0	346	7.0	2,350
1.8	77	3.5	518	7.4	2,640

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	478	284	160	90	66	82	263	282	208	66	26	45
2	2,640	654	145	86	68	78	279	247	216	273	31	38
3	2,240	1,400	150	84	68	84	485	209	152	123	482	35
4	912	998	145	88	65	95	397	186	148	68	232	33
5	735	480	135	88	65	120	442	303	171	52	97	30
6	564	340	130	310	65	150	387	750	154	43	61	30
7	397	282	350	1,400	80	350	313	771	123	38	48	28
8	438	244	634	1,020	105	720	252	588	169	36	41	30
9	1,460	219	390	362	100	1,750	260	496	190	43	35	33
10	1,530	198	290	550	90	1,820	328	619	120	48	36	86
11	564	177	190	400	80	764	290	465	104	39	49	261
12	410	179	150	250	75	449	282	873	334	35	43	111
13	552	184	160	170	70	729	296	463	199	35	35	66
14	459	242	150	120	150	2,200	276	316	129	33	31	51
15	362	200	*140	130	220	2,570	836	276	99	54	30	45
16	651	164	135	*120	180	1,360	936	278	83	46	28	39
17	746	156	125	110	150	*1,000	417	658	72	34	58	35
18	488	337	115	105	130	892	325	530	288	30	51	33
19	390	422	115	100	*115	805	387	599	198	28	78	30
20	293	608	110	95	100	727	457	387	112	30	144	29
21	239	446	105	100	92	779	445	784	94	36	69	28
22	212	380	100	95	90	980	394	911	90	49	48	28
23	310	478	95	85	90	1,040	387	418	78	103	42	30
24	310	299	90	86	88	556	804	293	66	140	126	43
25	474	247	85	84	86	522	531	229	58	69	196	142
26	526	190	100	80	82	616	540	284	51	47	111	81
27	631	160	100	74	80	1,090	901	242	46	38	94	52
28	420	190	95	74	78	761	511	184	43	33	70	43
29	299	185	90	74	-	858	390	154	40	29	58	38
30	265	145	88	70	-	703	319	134	38	28	67	305
31	255	-	95	68	-	380	-	133	-	26	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	20,250	2,640	212	653	4.98	5.75
November	10,488	1,400	145	350	2.67	2.98
December	4,962	634	85	160	1.22	1.41
Calendar year 1945	130,380	3,400	20	357	2.73	37.03
January	6,568	1,400	68	212	1.62	1.86
February	2,728	220	65	97.4	.744	.77
March	25,030	2,570	78	807	6.16	7.11
April	13,130	936	252	438	3.34	3.73
May	13,062	911	133	421	3.21	3.71
June	3,873	334	38	129	.985	1.10
July	1,752	273	26	56.5	.431	.50
August	2,572	482	26	83.0	.634	.73
September	1,878	305	28	62.6	.478	.53
Water year 1945-46	106,293	2,640	26	291	2.22	30.18

Peak discharge.- Oct. 2 (9 p.m.) 3,040 sec.-ft.; Mar. 14 (11:30 p.m.) 3,100 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 26 to Dec. 7, Dec. 10 to Jan. 7, Jan. 10 to Mar. 9, Mar. 14 (no gage-height record Dec. 12-14, Jan. 27 to Feb. 18; discharge computed on basis of engineers' notes, weather records, recorded range in stage, records for station at Richford and for stations on nearby streams).

Missisquoi River near Richford, Vt.

Location.- Water-stage recorder, lat. 44°57'30", long. 72°41'55", 1 2/3 miles upstream from Trout River, 3 miles south of Richford, Franklin County, and 3¾ miles downstream from North Branch.

Drainage area.- 479 square miles.

Records available.- July 1911 to September 1923, October 1928 to September 1946.

Average discharge.- 26 years (1911-19, 1928-46), 927 second-feet.

Extremes.- Maximum gage height during year, 18.92 feet Mar. 15, ice jam (discharge not determined); minimum discharge, 61 second-feet Aug. 2, Sept. 23 (gage height, 2.47 feet).

1911-23, 1928-46: Maximum discharge, 17,200 second-feet May 4, 1940 (gage height, 15.15 feet), from rating curve extended above 9,300 second-feet on basis of computation of flow over dam at gage height 14.70 feet, slope-area determination at gage height 12.90 feet, and study of discharge per foot of width at measuring section; maximum gage height, that of Mar. 15, 1946; minimum discharge, 8 second-feet July 14, 1911.

Maximum discharge known, 45,000 second-feet during flood of November 1927 (gage height, 23.1 feet, from floodmarks), from rating curve extended above 9,300 second-feet by method explained above.

Remarks.- Records good except those for period of ice effect, which are fair. Slight diurnal fluctuation at low flow.

Rating tables, water year 1945-46, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 14

3.2	226	6.0	2,240
3.5	340	7.5	3,610
3.8	480	9.5	6,250
4.1	660	11.7	9,430
5.0	1,360		

Mar. 15 to Sept. 30

2.4	50	3.0	181	3.9	540
2.5	66	3.3	275	4.3	805
2.7	106	3.6	390	5.0	1,360

Note.- Same as preceding table above 5.0 feet.

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,510	936	540	350	255	320	1,130	1,190	496	179	66	159
2	5,070	1,740	520	340	265	330	992	1,020	534	314	66	134
3	6,520	3,970	540	330	265	340	1,310	835	450	420	475	118
4	5,160	3,990	510	320	250	350	1,380	721	378	238	740	106
5	3,150	2,460	490	340	260	390	1,310	838	386	176	342	87
6	2,070	1,540	470	800	250	450	1,380	1,840	404	134	213	85
7	1,480	1,200	1,100	3,500	370	900	1,170	2,570	361	113	152	85
8	1,320	1,020	2,200	4,000	460	2,100	944	2,020	319	104	124	83
9	3,380	872	1,500	1,600	420	5,200	936	1,860	528	102	106	76
10	5,170	752	1,100	1,750	380	6,800	1,270	1,780	430	104	106	127
11	3,560	654	700	1,300	340	3,600	1,210	1,590	322	102	106	353
12	1,930	602	530	1,000	320	2,300	1,220	2,640	390	106	106	398
13	2,090	602	580	700	300	2,000	1,150	1,920	576	96	104	230
14	1,850	667	550	520	600	6,000	1,050	1,300	374	87	87	165
15	1,540	654	520	540	920	9,400	2,050	1,040	297	89	72	134
16	2,380	547	490	510	780	*6,720	3,130	960	251	91	74	115
17	2,860	466	470	470	700	5,140	1,920	2,020	232	100	141	104
18	2,070	855	450	440	*660	3,990	1,310	1,780	305	85	181	96
19	1,550	1,280	430	410	*540	3,360	1,280	2,260	473	77	173	85
20	1,210	1,770	410	370	480	2,890	1,260	1,700	328	70	417	81
21	976	2,240	400	390	440	2,690	1,440	2,100	286	79	330	79
22	612	1,700	380	370	400	2,930	1,200	3,150	304	85	222	76
23	1,000	1,920	360	340	380	3,440	1,110	2,050	275	146	170	64
24	992	1,370	350	*330	360	2,670	2,410	1,280	241	251	252	64
25	1,310	1,040	350	330	360	2,020	2,160	968	219	229	636	189
26	1,680	820	360	330	350	1,960	1,670	688	184	154	548	248
27	2,160	700	390	300	340	2,750	2,650	835	157	115	349	188
28	1,660	700	370	280	330	2,720	2,280	639	149	102	282	134
29	1,200	640	360	300	-	2,450	1,710	516	134	85	241	106
30	984	560	350	270	-	2,390	1,380	435	129	77	222	407
31	872	-	370	270	-	1,650	-	412	-	68	184	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	69,716	6,520	812	2,249	4.70	5.41
November	38,267	3,990	486	1,276	2.66	2.97
December	18,140	2,200	350	585	1.22	1.41
Calendar year 1945	425,081	11,000	70	1,165	2.43	32.98
January	23,100	4,000	270	745	1.56	1.79
February	11,775	920	250	421	.879	.91
March	90,250	9,400	320	2,911	6.08	7.01
April	45,412	3,130	936	1,514	3.16	3.53
May	45,159	3,150	412	1,457	3.04	3.51
June	9,912	576	129	330	.689	.77
July	4,178	420	68	135	.282	.32
August	7,287	740	66	235	.491	.57
September	4,396	407	64	147	.307	.34
Water year 1945-46	367,612	9,400	64	1,007	2.10	28.54

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 26 to Mar. 15 (no gage-height record Jan. 15-24, Mar. 12; discharge computed on basis of 1 discharge measurement, weather records, and records for station near North Troy).

Lake Memphremagog at Newport, Vt.

Location.-Chain gage, lat. 44°56'10", long. 72°12'15", on concrete highway bridge in Newport, Orleans County. Datum of gage is 673.00 feet above mean sea level, datum of 1929.

Records available.- May 1931 to September 1946.

Extremes.- Maximum gage height observed during year, 10.46 feet Oct. 10; minimum observed, 6.97 feet Sept. 24.

1931-46: Maximum gage height observed, 12.92 feet Apr. 20, 1933; minimum observed, 6.69 feet Nov. 4, 1934.

Remarks.- Gage read twice daily.

Gage height, in feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.82	9.85	10.01	9.71	9.72	8.74	9.68	9.98	10.01	9.39	8.29	7.62
2	10.07	9.84	9.95	9.72	9.72	8.72	9.71	9.96	9.99	9.50	8.27	7.58
3	10.30	9.84	9.96	9.84	9.72	8.46	9.71	9.99	9.94	9.45	8.33	7.54
4	10.29	10.16	9.94	9.64	9.74	8.36	9.73	9.94	9.83	9.35	8.39	7.43
5	10.27	10.16	9.95	9.94	9.72	8.34	9.71	9.96	9.85	9.30	8.39	7.39
6	10.17	10.10	9.92	9.54	9.74	8.24	9.69	9.99	9.80	9.24	8.38	7.33
7	10.20	9.98	9.95	9.72	9.76	8.20	9.69	9.99	9.79	9.30	8.35	7.29
8	10.23	9.94	9.99	9.72	9.78	8.25	9.61	10.03	9.79	9.20	8.27	7.27
9	10.27	9.81	10.08	9.80	9.82	8.44	9.62	10.02	9.81	9.19	8.25	7.23
10	10.42	9.94	10.07	9.91	9.84	8.65	9.65	9.98	9.88	9.13	8.19	7.20
11	10.39	9.86	9.92	9.98	9.84	8.88	9.67	9.98	9.87	9.05	8.23	7.17
12	10.28	9.91	9.93	10.00	9.84	8.86	9.63	9.89	9.88	8.99	8.18	7.23
13	10.27	9.90	9.85	10.08	9.86	8.97	9.62	9.88	9.87	8.99	8.08	7.19
14	10.11	9.91	9.90	9.98	9.85	9.14	9.62	9.89	9.82	8.86	8.04	7.16
15	10.04	9.94	9.81	9.96	9.80	9.51	9.65	9.86	9.89	9.00	7.97	7.18
16	9.90	9.91	9.85	9.98	9.85	9.73	9.72	9.86	9.77	8.82	f7.96	7.20
17	9.89	9.96	9.94	9.96	9.73	9.91	9.81	10.00	9.74	8.77	7.95	7.09
18	9.81	9.94	9.93	9.96	9.72	9.93	9.65	9.92	9.83	8.72	7.96	7.16
19	9.77	9.99	9.93	9.96	9.12	9.97	9.81	9.92	9.79	8.66	7.87	7.09
20	9.80	10.11	9.75	9.97	9.18	9.97	9.86	9.95	9.68	8.61	7.90	7.06
21	9.82	10.11	9.75	9.97	9.23	9.95	9.90	9.94	9.66	8.64	7.88	7.02
22	9.81	9.95	9.73	9.99	9.71	9.93	9.91	9.99	9.64	8.58	7.80	7.03
23	9.85	10.00	9.67	9.97	9.18	9.90	9.94	9.93	9.64	8.59	7.79	7.03
24	9.90	9.95	9.70	9.97	8.99	9.89	10.00	9.91	9.81	8.55	7.79	6.99
25	9.96	9.97	9.72	9.97	9.00	9.86	10.03	9.89	9.60	8.54	7.71	7.08
26	9.97	9.89	9.72	9.65	8.89	9.74	9.95	9.95	9.58	8.49	7.74	7.04
27	9.93	9.93	9.71	9.68	8.88	9.74	10.07	9.99	9.51	8.39	7.74	7.04
28	9.83	9.91	9.67	9.69	8.72	9.77	9.99	10.00	9.43	8.33	7.70	7.01
29	9.81	9.95	9.61	9.69	-	9.74	9.93	9.97	9.48	8.37	7.68	7.00
30	9.79	9.99	9.66	9.71	-	9.76	10.00	9.92	9.63	8.38	7.62	7.15
31	9.82	-	9.65	9.69	-	9.80	-	9.97	-	8.31	7.58	-

f Interpolated.

Note.- Gage heights for Dec. 13, Dec. 18 to Jan. 25, Jan. 28 to Feb. 18, Feb. 22 were taken to top of ice. Ice removed at gage Jan. 26, Feb. 19, 23.

Clyde River at Newport, Vt.

Location.- Water-stage recorder, lat. 44°56'20", long. 72°11'25", in Newport, Orleans County, just downstream from unnamed tributary entering from north and 1 mile upstream from mouth. Datum of gage is 682.36 feet above mean sea level, datum of 1929.

Drainage area.- 142 square miles.

Records available.- September 1938 to September 1946. May 1909 to September 1924 and November 1928 to May 1936 at site 0.65 mile upstream.

Average discharge.- 24 years (1909-19, 1929-35, 1938-46), 247 second-feet.

Extremes.- Maximum discharge during year, 876 second-feet (regulated) Oct. 11, Mar. 17 (gage height, 5.47 feet); minimum daily, 30 second-feet (regulated) July 28.
1909-24, 1928-36, 1938-46: Maximum discharge, 3,900 second-feet Mar. 20, 1936 (gage height, 5.76 feet, site and datum then in use), by computation of flow over dam; minimum daily, 3.0 second-feet (regulated) Oct. 27, 1930; practically no flow at times because of regulation.

Remarks.- Records excellent except those for periods of ice effect and those below 200 second-feet, which are good. Flow regulated by power plant and reservoirs above station.

Rating table, water year 1945-46, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.5	30	3.3	137
2.6	38	3.5	203
2.7	47	4.0	315
2.8	58	4.5	475
3.0	85	5.3	800

Discharge, in second-feet, water year October 1945 to September 1946

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	491	362	284	139	149	140	768	489	275	135	46	87
2	657	363	265	130	150	177	710	436	243	90	55	71
3	748	409	278	190	90	141	654	405	266	76	179	112
4	786	427	268	170	140	190	602	372	255	56	174	117
5	788	466	263	194	130	136	570	357	245	142	157	117
6	746	372	264	192	160	141	534	384	240	136	138	116
7	693	401	269	260	182	181	503	408	232	71	151	117
8	640	389	257	273	136	202	482	433	205	132	157	68
9	735	371	235	327	110	242	475	461	175	114	173	145
10	778	345	369	362	90	338	454	486	227	110	152	145
11	751	329	366	350	200	510	436	496	234	102	78	130
12	726	334	344	340	164	478	419	496	205	68	127	107
13	693	312	309	300	167	475	399	482	145	47	129	89
14	665	300	302	270	163	602	369	461	146	39	142	91
16	683	277	299	240	188	690	399	444	99	107	71	84
16	586	266	260	205	140	724	390	426	57	106	98	124
17	600	260	260	214	95	*760	393	412	113	90	73	127
18	583	235	250	221	180	786	405	412	111	54	55	129
19	572	273	247	227	210	746	402	405	120	57	94	130
20	571	279	244	140	190	690	412	416	121	59	84	130
21	335	258	240	190	172	650	390	468	143	42	81	125
22	372	350	190	200	150	634	396	503	165	56	74	88
23	429	402	120	170	134	630	390	486	62	57	82	92
24	396	405	160	150	80	618	467	464	111	89	65	118
25	405	394	105	170	60	622	410	444	116	89	88	97
26	426	387	211	*155	130	626	331	422	107	78	110	92
27	410	360	160	110	90	646	489	405	106	57	110	45
28	412	344	130	170	90	670	506	378	113	30	119	50
29	441	320	207	155	-	710	526	354	94	59	174	57
30	379	310	167	170	-	768	510	333	51	56	186	197
31	356	-	229	150	-	786	-	309	-	49	163	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October	17,863	788	335	576	4.06	4.68
November	10,300	466	235	343	2.42	2.70
December	7,552	369	105	244	1.72	1.98
Calendar year 1945	126,347	1,530	38	346	2.44	33.11
January	6,534	362	110	211	1.49	1.71
February	3,940	210	60	141	.993	1.03
March	15,709	786	136	507	3.57	4.11
April	14,191	768	331	473	3.33	3.72
May	13,247	503	309	427	3.01	3.47
June	4,782	275	51	159	1.12	1.25
July	2,453	142	30	79.1	.557	.64
August	3,585	186	46	116	.817	.94
September	3,197	197	45	107	.754	.84
Water year 1945-46	103,353	788	30	283	1.99	27.07

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Dec. 16-18, 22-25, 27, 28, Jan. 2-4, 11-16, 20-31, Feb. 2-6, 9-11, 16-20, 22, Feb. 24 to Mar. 1 (no gage-height record Jan. 21-25). Discharge in second-feet per square mile and runoff in inches may not represent natural flow because of regulation.

Measurements of stream flow in the St. Lawrence River Basin made at points other than gaging stations are given in the following table:

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946

Streams tributary to Lake Superior

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
May 22	Little Gratiot River.	Lac La Belle.....	At Gratiot Lake outlet, sec. 3, T. 57 N., R. 30 W., near Phoenix, Mich.	20.8
July 23	Sturgeon River..	Portage Lake....	Sec. 15, T. 50 N., R. 34 W., below Prickett Dam, near Alston, Mich.	294
23	....do.....	....do.....	....do.....	278
23	....do.....	....do.....	....do.....	182
23	....do.....	....do.....	....do.....	195
Apr. 26	Iron River.....	Lake Superior...	Sec. 13, T. 51 N., R. 27 W., near Big Bay, Mich.	89.8

Streams tributary to Lake Michigan

Nov. 15	McDonald Lake outlet.	Lake Michigan...	NE¼ sec. 9, T. 41 N., R. 13 W., at county highway bridge, near Gulliver, Mich.	60.1
Jan. 23	....do.....	....do.....	....do.....	20.1
Apr. 24	....do.....	....do.....	....do.....	15.7
Aug. 20	....do.....	....do.....	....do.....	4.25
Nov. 15	Gulliver Lake outlet.	....do.....	SW¼ sec. 2, T. 41 N., R. 14 W., near Gulliver, Mich.	8.52
Jan. 23	....do.....	....do.....	....do.....	8.79
Apr. 24	....do.....	....do.....	....do.....	12.4
Aug. 20	....do.....	....do.....	....do.....	1.48
Feb. 26	North Manistique Lake outlet.	Manistique Lake.	Sec. 20, T. 45 N., R. 11 W., at bridge on State Highway 98, near Helmer, Mich.	16.3
Apr. 25	....do.....	....do.....	....do.....	15.6
Oct. 17	Iron River.....	Brule River.....	Sec. 17, T. 43 N., R. 35 W., at county bridge near Iron River, Mich.	28.1
Nov. 30	....do.....	....do.....	....do.....	34.3
Mar. 2	....do.....	....do.....	....do.....	28.8
Apr. 29	....do.....	....do.....	....do.....	31.2
Sept.19	....do.....	....do.....	....do.....	24.1
Nov. 30	....do.....	....do.....	SE¼, NW¼ sec. 16, T. 43 N., R. 35 W., near Iron River, Mich.	35.2
Mar. 2	....do.....	....do.....	....do.....	29.5
Apr. 29	....do.....	....do.....	....do.....	32.0
Sept.19	....do.....	....do.....	....do.....	24.3
Oct. 18	....do.....	....do.....	NW¼ sec. 22, T. 43 N., R. 35 W.,at bridge near Iron River, Mich.	31.8
Nov. 30	....do.....	....do.....	....do.....	37.4
Mar. 2	....do.....	....do.....	....do.....	32.5
Apr. 29	....do.....	....do.....	....do.....	33.9
Sept.19	....do.....	....do.....	....do.....	26.8
Oct. 17	....do.....	....do.....	SE¼ sec. 27, T. 43 N., R. 35 W., at county bridge near Iron River, Mich.	53.3
Nov. 30	....do.....	....do.....	....do.....	62.1
Mar. 2	....do.....	....do.....	....do.....	48.8
Apr. 29	....do.....	....do.....	....do.....	56.5
Sept.19	....do.....	....do.....	....do.....	41.7
Nov. 30	....do.....	....do.....	Bridge at 7th St., Iron River, Mich.....	59.5
Mar. 2	....do.....	....do.....	....do.....	48.7
Apr. 29	....do.....	....do.....	....do.....	57.6
Sept.19	....do.....	....do.....	....do.....	42.9
Oct. 17	....do.....	....do.....	U. S. Highway 2, Iron River, Mich.....	54.3
Nov. 30	....do.....	....do.....	....do.....	66.5
Mar. 2	....do.....	....do.....	....do.....	52.6
Apr. 29	....do.....	....do.....	....do.....	58.6
Sept.19	....do.....	....do.....	....do.....	47.8
18	....do.....	....do.....	NW¼NW¼ sec. 1, T. 42 N., R. 35 W., above Caspian, Mich.	53.6
18	....do.....	....do.....	Bridge at East Caspian Ave., Caspian, Mich.	58.1
18	....do.....	....do.....	SE¼SE¼ sec. 1, T. 42 N., R. 35 W., Caspian, Mich.	57.5
18	....do.....	....do.....	Near E. ¼ cor. sec. 13, T. 42 N., R. 35 W., below Caspian, Mich.	60.6
18	....do.....	....do.....	Above mouth, sec. 29, T. 42 N., R. 34 W., below Caspian, Mich.	66.4
Oct. 17	Stanley Creek...	Iron River.....	Sec. 27, T. 43 N., R. 35 W., at U. S. Highway 2, near Iron River, Mich.	1.68
Nov. 30	....do.....	....do.....	....do.....	2.66
Mar. 2	....do.....	....do.....	....do.....	2.23
Apr. 29	....do.....	....do.....	....do.....	1.70
Sept.19	....do.....	....do.....	....do.....	1.16
Nov. 5	Chicagoan Creek.	Paint River.....	Sec. 22, T. 43 N., R. 34 W., at bridge on U. S. Highway 2, near Crystal Falls, Mich.	9.75
Jan. 17	....do.....	....do.....	....do.....	10.7
Apr. 30	....do.....	....do.....	....do.....	5.80
Nov. 6	Briar Hill Creek	....do.....	SW¼ sec. 24, T. 43 N., R. 33 W., at county bridge at New Bristol location near Crystal Falls, Mich.	14.7
Jan. 17	....do.....	....do.....	....do.....	14.1
Apr. 30	....do.....	....do.....	....do.....	5.67
Sept.11	....do.....	....do.....	....do.....	20.6
Apr. 10	Rose Lake outlet	Coldwater River.	SW¼ sec. 18, T. 7 S., R. 6 W., near Coldwater, Mich.	6.64
May 15	....do.....	....do.....	....do.....	2.24

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946--Continued

Streams tributary to Lake Michigan--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Mar. 13	Portage River...	St. Joseph River	SW¼ sec. 16, T. 4 S., R. 10 W., near Vicksburg, Mich.	136
Apr. 16	....do.....	....do.....	....do.....	52.5
May 8	....do.....	....do.....	....do.....	34.7
15	....do.....	....do.....	....do.....	35.7
June 18	....do.....	....do.....	....do.....	36.1
Aug. 14	....do.....	....do.....	....do.....	11.6
Oct. 2	Lake George outlet.	Crooked Creek...	SE¼ sec. 15, T. 38 N., R. 13 E., at Jamestown, Ind.	14.3
May 27	....do.....	....do.....	....do.....	.22
June 14	....do.....	....do.....	....do.....	1.72
July 23	....do.....	....do.....	....do.....	.75
Jan. 10	James Lake outlet.	....do.....	NW¼NW¼ sec. 4, T. 37 N., R. 13 E., at Lake James, Ind.	23.4
May 21	....do.....	....do.....	....do.....	14.5
July 24	....do.....	....do.....	....do.....	26.3
Oct. 9	Jimerson Lake outlet.	....do.....	SW¼NW¼ sec. 30, T. 38 N., R. 13 E., at Nevada Mills, Ind.	58.4
Apr. 9	....do.....	....do.....	....do.....	38.5
May 21	....do.....	....do.....	....do.....	2.59
June 14	....do.....	....do.....	....do.....	2.42
July 24	....do.....	....do.....	....do.....	11.7
Oct. 3	Crooked Creek...	St. Joseph River	At bridge 0.1 mile downstream from Bell Lake ditch, 2.8 miles east of Orland, Ind.	65.4
Nov. 29	....do.....	....do.....	....do.....	33.8
Jan. 1	....do.....	....do.....	....do.....	20.8
Feb. 4	....do.....	....do.....	....do.....	49.4
Mar. 11	....do.....	....do.....	....do.....	56.3
Oct. 10	Crooked Lake outlet.	Lake Gage.....	SE¼NE¼ sec. 8, T. 37 N., R. 13 E., at Crooked Lake, Ind.	2.00
May 23	Lake Gage outlet	Crooked Creek...	NW¼ sec. 35, T. 38 N., R. 12 E., at Panama, Ind.	7.33
Apr. 10	Klinger Lake outlet.	Fawn River.....	SE¼ sec. 35, T. 7 S., R. 11 W., near White Pigeon, Mich.	18.6
May 15	....do.....	....do.....	....do.....	14.9
Aug. 13	....do.....	....do.....	....do.....	7.75
Oct. 3	Bower Lake outlet.	Pigeon Creek....	NW¼ sec. 8, T. 38 N., R. 13 E., near Pleasant Lake, Ind.	114
May 23	....do.....	....do.....	....do.....	21.3
June 14	....do.....	....do.....	....do.....	52.1
Aug. 20	....do.....	....do.....	....do.....	14.2
Jan. 18	Hogback Lake outlet.	....do.....	NE¼NW¼ sec. 36, T. 37 N., R. 12 E., near Angola, Ind.	83.3
May 22	....do.....	....do.....	....do.....	36.1
June 14	....do.....	....do.....	....do.....	30.1
July 18	....do.....	....do.....	....do.....	15.9
May 22	Fox Lake outlet.	....do.....	NW¼NE¼ sec. 34 T. 37 N., R. 13 E., near Angola, Ind.	.43
Oct. 4	Silver Lake outlet.	....do.....	SE¼SW¼ sec. 30, T. 37 N., R. 13 E., near Angola, Ind.	4.78
Jan. 9	....do.....	....do.....	....do.....	3.60
Mar. 19	....do.....	....do.....	....do.....	4.61
May 22	....do.....	....do.....	....do.....	2.16
July 5	....do.....	....do.....	....do.....	1.05
Jan. 8	Big Turkey Lake outlet.	Turkey Creek....	SW¼SE¼ sec. 12, T. 36 N., R. 11 E., at Stroh, Ind.	30.4
May 9	....do.....	....do.....	....do.....	10.7
July 24	....do.....	....do.....	....do.....	6.16
Apr. 26	Little Turkey Lake outlet.	....do.....	SE¼NE¼ sec. 11, T. 36 N., R. 11 E., at Elmira, Ind.	12.7
May 24	....do.....	....do.....	....do.....	31.1
June 14	Story Lake outlet.	....do.....	NE¼SW¼ sec. 4, T. 35 N., R. 12 E., near Helmer, Ind.	9.60
18	....do.....	....do.....	....do.....	8.30
May 9	Fish Lake outlet	Little Fly Creek	SW¼NW¼ sec. 36, T. 37 N., R. 10 E., near Plato, Ind.	1.26
Nov. 6	Indiana Lake outlet.	Mud River.....	NE¼SE¼ sec. 9, T. 38 N., R. 6 E., near Bristol, Ind.	2.54
Apr. 17	....do.....	....do.....	....do.....	1.20
May 28	....do.....	....do.....	....do.....	1.66
Nov. 5	Simonton Lake outlet.	St. Joseph River	NW¼SE¼ sec. 17, T. 38 N., R. 5 E., near Elkhart, Ind.	.65
Apr. 17	....do.....	....do.....	....do.....	2.54
May 23	....do.....	....do.....	....do.....	2.28
Nov. 7	Adams Lake outlet.	North Branch Elkhart River.	SE¼SW¼ sec. 36, T. 36 N., R. 10 E., near Wolcottville, Ind.	1.27
May 10	....do.....	....do.....	....do.....	.95
July 17	....do.....	....do.....	....do.....	.94
May 10	Hackenburg Lake outlet.	....do.....	SW¼SW¼ sec. 24, T. 36 N., R. 9 E., near Wolcottville, Ind.	17.9
June 18	....do.....	....do.....	....do.....	38.3
Oct. 1	Bixler Lake outlet.	Diebele Creek...	NW¼ sec. 4, T. 34 N., R. 11 E., at Kendallville, Ind.	1.18
Dec. 29	....do.....	....do.....	....do.....	1.04
Jan. 11	....do.....	....do.....	....do.....	9.93
29	....do.....	....do.....	....do.....	2.91
29	....do.....	....do.....	....do.....	1.85
Feb. 5	....do.....	....do.....	....do.....	1.32
14	....do.....	....do.....	....do.....	8.41
14	....do.....	....do.....	....do.....	8.53
15	....do.....	....do.....	....do.....	9.84
18	....do.....	....do.....	....do.....	12.2
23	....do.....	....do.....	....do.....	8.74

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946--Continued

Streams tributary to Lake Michigan--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Feb. 25	Bixler Lake outlet.	Diebele Creek...	NW¼ sec. 4, T. 34 N., R. 11 E., at Kendallville, Ind.	7.71
Mar. 2	....do.....	....do.....	....do.....	6.79
Apr. 11	....do.....	....do.....	....do.....	2.21
May 15	....do.....	....do.....	....do.....	.06
27	....do.....	....do.....	....do.....	.45
June 13	....do.....	....do.....	....do.....	11.2
14	....do.....	....do.....	....do.....	12.8
15	....do.....	....do.....	....do.....	12.9
16	....do.....	....do.....	....do.....	12.6
17	....do.....	....do.....	....do.....	12.5
20	....do.....	....do.....	....do.....	12.7
22	....do.....	....do.....	....do.....	12.0
26	....do.....	....do.....	....do.....	8.91
July 1	....do.....	....do.....	....do.....	6.67
Nov. 29	Sylvan Lake outlet.	North Branch Elkhart River.	SE¼SW¼ sec. 9, T. 35 N., R. 10 E., at Home City, Ind.	12.1
Mar. 29	....do.....	....do.....	....do.....	16.2
May 9	....do.....	....do.....	....do.....	7.90
July 18	....do.....	....do.....	....do.....	6.32
Nov. 29	Sand Lake outlet.	South Branch Elkhart River.	SW¼NW¼ sec. 9, T. 33 N., R. 10 E., near Burr Oak, Ind.	2.46
May 13	....do.....	....do.....	....do.....	2.37
June 15	....do.....	....do.....	....do.....	28.2
Dec. 19	Bear Lake outlet.	Thumma ditch....	SW¼SW¼ sec. 8, T. 33 N., R. 9 E., near Wolflake, Ind.	5.57
June 19	....do.....	....do.....	....do.....	10.4
July 3	....do.....	....do.....	....do.....	.80
May 15	Skinner Lake outlet.	Croft ditch.....	NE¼SE¼ sec. 16, T. 34 N., R. 10 E., near Albion, Ind.	1.65
June 15	....do.....	....do.....	....do.....	87.0
18	....do.....	....do.....	....do.....	43.6
Dec. 5	Lower Long Lake outlet.	Kirkpatrick ditch.	NE¼NW¼ sec. 28, T. 34 N., R. 8 E., near Albion, Ind.	1.21
May 8	....do.....	....do.....	....do.....	.72
June 19	....do.....	....do.....	....do.....	4.95
Nov. 19	Eagle Lake outlet.	Willets ditch...	SW¼SW¼ sec. 6, T. 34 N., R. 9 E., near Kimmel, Ind.	1.51
May 8	....do.....	....do.....	....do.....	1.04
June 17	....do.....	....do.....	....do.....	2.95
19	....do.....	....do.....	....do.....	9.57
July 1	....do.....	....do.....	....do.....	.97
12	....do.....	....do.....	....do.....	.06
Nov. 15	Diamond Lake outlet.	....do.....	SW¼SE¼ sec. 31, T. 35 N., R. 8 E., near Wawaka, Ind.	3.06
Mar. 14	....do.....	....do.....	....do.....	6.58
May 17	....do.....	....do.....	....do.....	.20
June 17	....do.....	....do.....	....do.....	7.25
19	....do.....	....do.....	....do.....	7.86
July 1	....do.....	....do.....	....do.....	2.58
June 19	Sparta Lake outlet.	Sparta Lake ditch.	SE¼SE¼ sec. 14, T. 34 N., R. 8 E., near Kimmel, Ind.	.68
22	Syracuse Lake outlet.	Turkey Creek....	SW¼SW¼ sec. 5, T. 34 N., R. 7 E., at Syracuse, Ind.	8.94
July 18	....do.....	....do.....	....do.....	3.72
Mar. 20	Dewart Lake outlet.	....do.....	SE¼SW¼ sec. 25, T. 34 N., R. 6 E., near Leesburg, Ind.	4.78
June 21	....do.....	....do.....	....do.....	1.22
Nov. 2	Wabee Lake outlet.	....do.....	SW¼SE¼ sec. 16, T. 34 N., R. 6 E., near Milford, Ind.	5.60
Mar. 14	....do.....	....do.....	....do.....	12.0
May 23	....do.....	....do.....	....do.....	5.20
June 21	....do.....	....do.....	....do.....	11.2
Aug. 22	....do.....	....do.....	....do.....	4.75
Sept. 5	Narrow Lake outlet.	Battle Creek....	SW¼ sec. 27, T. 1 N., R. 4 W., near Springport, Mich.	.698
Aug. 16	Portage Creek.	Kalamazoo River.	S½ sec. 22, T. 2 S., R. 11 W., at Lake St. Bridge, Kalamazoo, Mich.	42.3
Sept.17	....do.....	....do.....	....do.....	33.8
Aug. 16	....do.....	....do.....	N½ sec. 22, T. 2 S., R. 11 W., at Vine St. Bridge, Kalamazoo, Mich.	39.4
Sept.17	....do.....	....do.....	....do.....	43.8
Aug. 16	Axtell Creek..	Portage Creek...	NE¼ sec. 28, T. 2 S., R. 11 W., at Maple St. Bridge, Kalamazoo, Mich.	.652
Sept.17	....do.....	....do.....	....do.....	.582
Aug. 16	....do.....	....do.....	SW¼ sec. 22, T. 2 S., R. 11 W., 50 ft. above mouth in Upjohn Park, Kalamazoo, Mich.	-1.28
23	Gun River.....	Kalamazoo River.	SE¼ sec. 14, T. 2 N., R. 11 W., near Martin, Mich.	10.4
Sept.17	....do.....	....do.....	....do.....	11.9
Apr. 9	Portage River.	Grand River.....	SW¼ sec. 21, T. 1 S., R. 2 E., near Munith, Mich.	12.5
May 17	....do.....	....do.....	....do.....	20.3
Apr. 9	Trist Branch Portage River.	Portage River...	SW¼ sec. 33, T. 1 S., R. 2 E., near Munith, Mich.	10.6
May 17	....do.....	....do.....	....do.....	30.3
Sept.13	....do.....	....do.....	....do.....	1.20
Apr. 9	Portage Lake inlet.	....do.....	SE¼ sec. 6, T. 2 S., R. 2 E., near Munith, Mich.	3.27
May 17	....do.....	....do.....	....do.....	7.07

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946--Continued

Streams tributary to Lake Michigan--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Sept.13	Portage Lake inlet.	Portage River...	SE¼ sec. 6, T. 2 S., R. 2 E., near Munith, Mich.	1.45
Mar. 7	Morrison Lake outlet.	Grand River.....	N½ sec. 36, T. 6 N., R. 8 W., near Clarksville, Mich.	51.2
13	....do.....	....do.....	....do.....	42.1
Apr. 18	....do.....	....do.....	....do.....	3.97
May 20	....do.....	....do.....	....do.....	2.84
Mar. 7	Jordan Lake outlet.	Thornapple River	Lake Odessa, Mich.....	148
13	....do.....	....do.....	....do.....	110
Apr. 18	....do.....	....do.....	....do.....	13.8
May 20	....do.....	....do.....	....do.....	10.1
Aug. 29	....do.....	....do.....	....do.....	1.71
Nov. 1	Backus Creek....	Houghton Lake...	Sec. 5, T. 22 N., R. 2 W., near Prudenville, Mich.	6.32
Jan. 28	....do.....	....do.....	....do.....	5.88
Mar. 27	....do.....	....do.....	....do.....	55.5
July 17	....do.....	....do.....	....do.....	.009
Sept.30	....do.....	....do.....	....do.....	.09
May 16	Clam River.....	Muskegon River..	SE¼ sec. 22, T. 22 N., R. 9 W., below Airport Road, near Cadillac, Mich.	1.42
16	....do.....	....do.....	SW¼ sec. 23, T. 22 N., R. 9 W., below Airport Road, near Cadillac, Mich.	1.06
16	....do.....	....do.....	NW¼ sec. 24, T. 22 N., R. 9 W., below Airport Road, near Cadillac, Mich.	1.24
16	....do.....	....do.....	SE¼ sec. 24, T. 22 N., R. 9 W., 300 feet above county line road bridge, near Cadillac, Mich.	3.10
Apr. 22	....do.....	....do.....	Sec. 21, T. 22 N., R. 8 W., near Jennings, Mich.	22.8
May 16	....do.....	....do.....	....do.....	15.0
July 8	....do.....	....do.....	....do.....	23.3
Aug. 5	....do.....	....do.....	....do.....	11.0
Sept.17	....do.....	....do.....	....do.....	11.1
May 16	....do.....	....do.....	On line between secs. 34 and 35, T. 22 N., R. 8 W., at bridge on State Highway 55, near Cadillac, Mich.	23.5
Apr. 18	Hess Lake outlet	....do.....	NW¼ sec. 33, T. 12 N., R. 12 W., near Newaygo, Mich.	11.4
Oct. 15	Fremont Lake outlet.	....do.....	NW¼ sec. 15, T. 12 N., R. 14 W., near Fremont, Mich.	10.5
Apr. 18	....do.....	....do.....	....do.....	15.7
May 21	....do.....	....do.....	....do.....	11.4
Aug. 20	....do.....	....do.....	....do.....	2.50
Sept.24	....do.....	....do.....	....do.....	3.08
Oct. 16	Silver Lake outlet.	Lake Michigan...	NE¼ sec. 36, T. 15 N., R. 19 W., near Mears, Mich.	11.8
Aug. 20	....do.....	....do.....	....do.....	9.25
Oct. 3	North Branch Manistee River	Manistee River..	Kalkaska, Mich.....	5.21
Jan. 4	....do.....	....do.....	....do.....	5.61
Mar. 26	....do.....	....do.....	....do.....	10.4
July 11	....do.....	....do.....	....do.....	3.56
Sept.18	....do.....	....do.....	....do.....	1.40
Oct. 3	Fife Lake outlet	....do.....	Fife Lake, Mich.....	4.19
Jan. 4	....do.....	....do.....	....do.....	6.45
Mar. 26	....do.....	....do.....	....do.....	10.7
June 28	....do.....	....do.....	....do.....	4.47
Sept.18	....do.....	....do.....	....do.....	2.09
Oct. 17	Betsie River....	Lake Michigan...	Karlin, Mich.....	84.8
Jan. 30	....do.....	....do.....	....do.....	109
Apr. 23	....do.....	....do.....	....do.....	83.4
July 10	....do.....	....do.....	....do.....	45.6
Nov. 5	Crystal Lake outlet.	Betsie River....	Beulah, Mich.....	23.3
Jan. 31	....do.....	....do.....	....do.....	30.3
Apr. 23	....do.....	....do.....	....do.....	31.7
July 10	....do.....	....do.....	....do.....	27.0
Sept.27	....do.....	....do.....	....do.....	4.91
26	Platte River....	Lake Michigan...	Sec. 27, T. 27 N., R. 15 W., near Beulah, Mich.	139
Aug. 23	Crystal River...	....do.....	Sec. 24, T. 29 N., R. 14 W., near Cedar, Mich.	12.5
Sept.26	....do.....	....do.....	....do.....	20.0
Oct. 17	Bear River.....	....do.....	Walloon Lake, Mich.....	26.5
Jan. 30	....do.....	....do.....	....do.....	47.3
Apr. 24	....do.....	....do.....	....do.....	28.2
June 27	....do.....	....do.....	....do.....	24.3
Sept.26	....do.....	....do.....	....do.....	12.7
Mar. 25	Six Tile Creek..	Jordan River....	Sec. 6, T. 30 N., R. 5 W., near Alba, Mich...	11.2
25	Five Tile Creek.	....do.....	....do.....	5.95
Oct. 17	Carp Lake River.	Lake Michigan...	Carp Lake, Mich.....	2.74
Jan. 24	....do.....	....do.....	....do.....	22.6
Apr. 18	....do.....	....do.....	....do.....	26.4
June 27	....do.....	....do.....	....do.....	24.3
Sept.25	....do.....	....do.....	....do.....	1.32
Oct. 17	East Branch Maple River.	Maple River.....	Pellston, Mich.....	1.66
Apr. 18	....do.....	....do.....	....do.....	42.1
June 27	....do.....	....do.....	....do.....	32.5
Sept.25	....do.....	....do.....	....do.....	6.78

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to Setpember 1946--Continued

Streams tributary to Lake Huron*

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
1945				
Oct. 22	Grand Lake outlet	Lake Huron	Rogers City, Mich.	4.78
1946				
Jan. 9	....do	....do	....do	49.9
Apr. 9	....do	....do	....do	83.6
June 18	....do	....do	....do	19.4
Sept.10	....do	....do	....do	.15
1945				
Aug. 14	Thunder Bay River	....do	Four Mile Dam near Alpena, Mich.	683
15	....do	....do	....do	34.8
Oct. 24	....do	....do	....do	338
Nov. 27	....do	....do	....do	890
Dec. 19	....do	....do	....do	747
1946				
Apr. 10	....do	....do	....do	661
1945				
Aug. 8	Lower South Branch Thunder Bay River.	Thunder Bay River.	Sec. 22, T. 30 N., R. 7 E., near Alpena, Mich.	207
Sept.20	....do	....do	....do	185
Oct. 23	....do	....do	....do	243
Nov. 27	....do	....do	....do	153
1946				
Apr. 9	....do	....do	....do	169
May 8	....do	....do	....do	275
June 18	....do	....do	....do	1,130
July 10	....do	....do	....do	248
Jan. 3	McCormick Lake outlet.	....do	Atlanta, Mich.	23.1
Mar. 28	....do	....do	....do	27.3
June 17	....do	....do	....do	29.7
July 8	....do	....do	....do	24.3
Sept.12	....do	....do	....do	24.1
1945				
Oct. 4	Hunt Creek	....do	Sec. 25, T. 29 N., R. 2 E., near Lewiston, Mich.	23.0
Nov. 13	....do	....do	....do	30.1
Dec. 4	....do	....do	....do	26.5
1946				
Jan. 3	....do	....do	....do	23.1
Feb. 5	....do	....do	....do	24.4
Mar. 28	....do	....do	....do	28.6
June 20	....do	....do	....do	24.1
Sept. 9	....do	....do	....do	34.6
1945				
Oct. 4	East Fish Lake outlet.	Fuller Creek	NE¼ sec. 34, T. 29 N., R. 2 E., near Lewiston, Mich.	1.22
Nov. 13	....do	....do	....do	2.34
Dec. 4	....do	....do	....do	1.45
1946				
Jan. 3	....do	....do	....do	1.43
Feb. 5	....do	....do	....do	1.37
Mar. 28	....do	....do	....do	1.69
June 20	....do	....do	....do	1.58
Sept. 9	....do	....do	....do	2.60
1945				
Oct. 4	Fuller Creek	Hunt Creek	S½NE¼ sec. 35, T. 29 N., R. 2 E., near Lewiston, Mich.	7.08
Nov. 13	....do	....do	....do	10.2
Dec. 4	....do	....do	....do	6.34
1946				
Jan. 3	....do	....do	....do	4.11
Feb. 5	....do	....do	....do	7.24
Mar. 28	....do	....do	....do	6.92
June 20	....do	....do	....do	6.47
Sept. 9	....do	....do	....do	8.60
1945				
Oct. 29	Lake St. Helen outlet.	Au Sable River	St. Helen, Mich.	80.8
1946				
Jan. 29	....do	....do	....do	5.90
Mar. 21	....do	....do	....do	140
July 17	....do	....do	....do	11.3
Sept.30	....do	....do	....do	10.5
1945				
Oct. 30	Au Gres River	Lake Huron	Sec. 28, T. 23 N., R. 4 E., near Lupton, Mich.	3.17
1946				
Jan. 5	....do	....do	....do	8.72
Apr. 2	....do	....do	....do	41.6
July 1	....do	....do	....do	3.04
1945				
Oct. 31	East Branch Au Gres River.	Au Gres River	E½ sec. 8, T. 22 N., R. 6 E., near Whittemore, Mich.	22.3
1946				
Jan. 16	....do	....do	....do	47.1
Apr. 3	....do	....do	....do	47.7
July 2	....do	....do	....do	30.4
Sept.18	....do	....do	....do	17.3
1945				
Oct. 31	Guiley Creek	East Branch Au Gres River.	W½ sec. 9, T. 22 N., R. 6 E., near Whittemore, Mich.	9.66

* Includes measurements made during the water year October 1944 to September 1945 but not heretofore published.

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Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946--Continued

Streams tributary to Lake Huron*--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
1946				
Jan. 16	Guiley Creek.....	East Branch Au Gres River.	W½ sec. 9, T. 22 N., R. 6 E., near Whittemore, Mich.	12.2
Apr. 3	....do.....	....do.....	....do.....	19.3
July 2	....do.....	....do.....	....do.....	11.6
Sept.18	....do.....	....do.....	....do.....	11.1
1945				
Oct. 30	Rifle River.....	Lake Huron.....	Devoe Dam near Lupton, Mich.....	30.6
Nov. 14	....do.....	....do.....	....do.....	52.1
Dec. 5	....do.....	....do.....	....do.....	35.4
1946				
Jan. 15	....do.....	....do.....	....do.....	37.2
Feb. 6	....do.....	....do.....	....do.....	35.9
Mar. 5	....do.....	....do.....	....do.....	35.4
Apr. 2	....do.....	....do.....	....do.....	42.0
May 2	....do.....	....do.....	....do.....	29.4
June 5	....do.....	....do.....	....do.....	31.2
July 1	....do.....	....do.....	....do.....	38.3
Aug. 12	....do.....	....do.....	....do.....	22.0
Sept.19	....do.....	....do.....	....do.....	22.4
1945				
Oct. 30	....do.....	....do.....	The Ranch, near Lupton, Mich.....	77.1
Nov. 14	....do.....	....do.....	....do.....	115
Dec. 5	....do.....	....do.....	....do.....	81.3
1946				
Jan. 15	....do.....	....do.....	....do.....	100
Feb. 6	....do.....	....do.....	....do.....	91.6
Mar. 5	....do.....	....do.....	....do.....	89.0
Apr. 2	....do.....	....do.....	....do.....	98.0
May 2	....do.....	....do.....	....do.....	68.0
June 5	....do.....	....do.....	....do.....	72.4
July 1	....do.....	....do.....	....do.....	149
Aug. 12	....do.....	....do.....	....do.....	61.0
Sept.19	....do.....	....do.....	....do.....	60.7
1945				
Oct. 30	Gamble Creek.....	Rifle River.....	Devoe Lake, near Lupton, Mich.....	27.4
Nov. 14	....do.....	....do.....	....do.....	45.1
Dec. 5	....do.....	....do.....	....do.....	30.0
1946				
Jan. 15	....do.....	....do.....	....do.....	30.2
Feb. 6	....do.....	....do.....	....do.....	33.7
Mar. 5	....do.....	....do.....	....do.....	32.0
Apr. 2	....do.....	....do.....	....do.....	37.6
May 2	....do.....	....do.....	....do.....	25.7
June 5	....do.....	....do.....	....do.....	27.2
July 1	....do.....	....do.....	....do.....	59.8
Aug. 12	....do.....	....do.....	....do.....	20.7
Sept.19	....do.....	....do.....	....do.....	19.5

* Includes measurements made during the water year October 1944 to September 1945 but not heretofore published.

Streams tributary to Lake Erie

Mar. 1	Union Lake outlet	Huron River.....	SE¼ sec. 1, T. 2 N., R. 8 E., near Commerce, Mich.	5.50
4	....do.....	....do.....	....do.....	6.27
12	....do.....	....do.....	....do.....	9.36
Apr. 8	....do.....	....do.....	....do.....	11.5
19	....do.....	....do.....	....do.....	5.95
May 14	....do.....	....do.....	....do.....	.410
June 21	....do.....	....do.....	....do.....	5.52
July 19	....do.....	....do.....	....do.....	.591
Aug. 27	....do.....	....do.....	....do.....	.151
Sept.12	....do.....	....do.....	....do.....	.186
Mar. 5	Horseshoe Lake outlet.	....do.....	SW¼ sec. 8, T. 1 S., R. 6 E., near Whitmore Lake, Mich.	52.9
12	....do.....	....do.....	....do.....	46.2
Apr. 8	....do.....	....do.....	....do.....	5.57
19	....do.....	....do.....	....do.....	2.86
May 13	....do.....	....do.....	....do.....	.520
Aug. 28	Hiland Lake outlet.	....do.....	NE¼ sec. 32, T. 1 N., R. 4 E., near Pickney, Mich.	1.72
Sept.17	....do.....	....do.....	....do.....	.656
Apr. 9	Portage Creek....	Portage River...	NW¼ sec. 34, T. 1 N., R. 3 E., near Unadilla, Mich.	19.5
Sept.13	....do.....	....do.....	....do.....	2.31
Apr. 9	North Fork Mill Creek.	Mill Creek.....	T. 2 S., on line between sec. 1, R. 3 E., and sec. 6, T. 4 E., near Chelsea, Mich.	4.92
Sept. 9	....do.....	....do.....	....do.....	.691
Apr. 9	....do.....	....do.....	NE¼ sec. 8, T. 2 S., R. 4 E., near Chelsea, Mich.	17.0
Sept. 9	....do.....	....do.....	....do.....	1.54
Apr. 9	Four Mile Lake outlet.	North Fork Mill Creek.	NW¼ sec. 9, T. 2 S., R. 4 E., near Chelsea, Mich.	.368
May 24	Hamilton Lake outlet.	Fish Creek.....	SE¼ sec. 33, T. 36 N., R. 14 E., at Hamilton, Ind.	2.29
Dec. 12	Cedar Lake outlet.	Cedar Creek.....	SW¼ sec. 30, T. 35 N., R. 13 E., near Waterloo, Ind.	4.23
Apr. 11	....do.....	....do.....	....do.....	6.83
May 24	....do.....	....do.....	....do.....	2.07
June 15	....do.....	....do.....	....do.....	98.6
17	....do.....	....do.....	....do.....	41.1

Miscellaneous discharge measurements in St. Lawrence River Basin during water year October 1945 to September 1946--Continued

Streams tributary to Lake Erie--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
June 18	Cedar Lake outlet.	Cedar Creek.....	SW¼ sec. 30, T. 35 N., R. 13 E., near Waterloo, Ind.	41.1
20	....do.....	....do.....	....do.....	64.5
11	Devils Lake outlet.	Bean Creek.....	NE¼ sec. 4, T. 6 S., R. 1 E., near Manitou Beach, Mich.	6.35
May 16	....do.....	....do.....	....do.....	2.18
Oct. 19	Miami & Erie Canal.	Auglaize River...	Delphos, Ohio.....	12.2
Nov. 30	....do.....	....do.....	....do.....	12.5
Jan. 10	....do.....	....do.....	....do.....	15.0
Feb. 19	....do.....	....do.....	....do.....	22.2
Apr. 24	....do.....	....do.....	....do.....	10.1
May 27	....do.....	....do.....	....do.....	22.2
June 28	....do.....	....do.....	....do.....	61.1
Aug. 13	....do.....	....do.....	....do.....	13.4
Sept.24	....do.....	....do.....	....do.....	17.2
Oct. 18	....do.....	Maumee River.....	Florida, Ohio.....	25.5
Nov. 27	....do.....	....do.....	....do.....	29.4
Jan. 11	....do.....	....do.....	....do.....	32.9
Apr. 25	....do.....	....do.....	....do.....	19.2
June 6	....do.....	....do.....	....do.....	30.2
July 5	....do.....	....do.....	....do.....	34.0
Aug. 14	....do.....	....do.....	....do.....	26.7
Sept.25	....do.....	....do.....	....do.....	28.3
Feb. 27	Conneaut Creek.	Lake Erie.....	Cherry Hill, Pa.....	722
Aug. 4	....do.....	....do.....	....do.....	21.3
Dec. 14	Walnut Creek...	....do.....	Weis Library, Pa.....	16.5
Aug. 23	....do.....	....do.....	....do.....	2.25
Dec. 14	Mill Creek.....	....do.....	Erie, Pa.....	7.11
Feb. 27	....do.....	....do.....	....do.....	32.3
Aug. 4	....do.....	....do.....	....do.....	1.69

Streams tributary to Lake Ontario

Oct. 2	Black River....	Lake Ontario.....	Forestport, N. Y.....	9,260
2	South Branch Moose River.	Black River.....	8 miles northeast of McKeever, N. Y.	11,700

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