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HAROLD L. ICKES, Secretary
GEOLOGICAL SURVEY
W. C. MENDENHALL, Director

Water-Supply Paper 874

SURFACE WATER SUPPLY *of the* UNITED STATES

1939

PART 4

ST. LAWRENCE RIVER BASIN

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SURFACE WATER SUPPLY OF ST. LAWRENCE RIVER BASIN, 1939

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, 1939. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of flow of streams and measurements of stage and contents of lakes and reservoirs have been made at about 8,240 gaging stations in the United States and also at many gaging stations in Alaska and Hawaii. In July 1939, 4,160 gaging stations were being maintained by the Geological Survey and cooperating organizations. Miscellaneous discharge measurements were made 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. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 9.

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

EXPLANATION OF DATA

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

measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Gaging station structures are shown on plate 1.

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

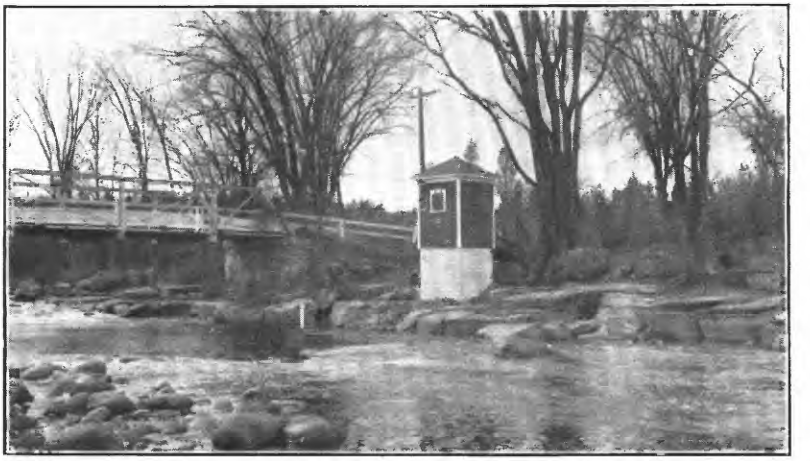
The data presented for each gaging station in the area covered by this report usually comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off. Skeleton rating tables are published except for those stations whose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

The description of the station gives the type of gage, its latitude and longitude dedetermined 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 (except when it is of no importance). Unless otherwise qualified, the maximum discharge corresponds to the crest stage, obtained by use of a water-stage recorder or a nonrecording gage read at the time of the crest. Likewise the minimum represents the lowest discharge, unless otherwise qualified. The peak discharge for the year with the time of its occurrence is given below the table of monthly discharge for some stations. Selected lower peaks are also given if the peak discharge exceeded the mean discharge for that day by more than 10 percent. This supplementary information is generally not given for stations having drainage areas of less than 10 square miles or more than 10,000 square miles.

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

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

A. LITTLE WOLF RIVER AT ROYALTON, WIS.



B. BLACK RIVER NEAR BOONVILLE, N.Y.

GAGING-STATION STRUCTURES.

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

Yield indicated by monthly means at some stations may vary widely from natural yield, owing to diversions, amount consumed, 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 "run-off in inches" are not published unless reservoir records are included indicating the extent of the regulation, or satisfactory adjustments can be made for changes in contents of reservoirs or for other changes incident to use and control. Figures of second-feet per square mile and run-off 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 divereions from those streams, so that the discharge recorded does not show the water supply available for further development, as prior appropriations below the station must first be satisfied.

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

PUBLICATIONS

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

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

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

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

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

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

East of the Mississippi River:
Albany, N. Y., 526 Federal Building.
Asheville, N. C., 220 Post Office Building.
Atlanta, Ga., Georgia School of Technology.
Augusta, Maine, Statehouse.
Boston, Mass., 945 Post Office Building.
Charlottesville, Va., House B, University Row, University of Virginia.
Chattanooga, Tenn., 442 Post Office Building.
College Park, Md., Engineering Building, University of Maryland.
Columbia, S. C., 119 United States Courthouse.
Columbus, Ohio, 404 Engineering Experiment Station, Ohio State University.
Harrisburg, Pa., 490 Education Building.
Hartford, Conn., 203 Federal Building.
Indianapolis, Ind., 316 Federal Building.
Louisville, Ky., 641 Federal Building.
Madison, Wis., 337 N. State Capitol.
Montgomery, Ala., 507 Post Office Building.
Ocala, Fla., Post Office Building.
St. Paul, Minn., 808 New Post Office Building.
South Charleston, W. Va., Naval Ordnance Plant.
Trenton, N. J., 228 Federal Building.
Urbana, Ill., 14 Post Office Annex.

West of the Mississippi River:
Austin, Tex., 300 State Highway Building.
Boise, Idaho, 429 Federal Building.
Denver, Colo., 230 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.
Los Angeles, Calif., G-31 Post Office and Courthouse.
Portland, Oreg., 606 Post Office Building.
Rolla, Mo., Missouri Geological Survey Building, Missouri School of Mines and Metallurgy.
St. Louis, Mo., 906 Customhouse, 1114 Market Street.
Salt Lake City, Utah, 303 Federal Building.
San Francisco, Calif., 208 Federal Office Building.
Santa Fe, N. Mex., 204 United States Courthouse.
Tacoma, Wash., 406 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.

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

Stream-flow data in reports of the Geological Survey

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information...	1884 to Sept. 1890.
12th A, pt. 2	....do.....	1884 to June 30, 1891.
13th A, pt. 3	....do.....	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871-93)..	1888 to Dec. 31, 1893.
B 131.....	Descriptions, measurements, gage heights, and ratings.	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11.....	Gage heights (also gage heights for earlier years).	1896.

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

Report	Character of data	Year
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895-96.
W 15.....	Descriptions, measurements, and gage heights for streams east of the Mississippi River and Missouri River and tributaries above Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights for 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 (also some long-time records).	1897.
W 27.....	Measurements, ratings, and gage heights for streams east of the Mississippi River and Missouri River and tributaries.	1898.
W 28.....	Measurements, ratings, and gage heights for streams west of the Mississippi River except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years).	1898.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.	1900.
22d A, pt. 4	Monthly discharge.....	1900.
W 65, 66.....	Descriptions, measurements, gage heights, and ratings.	1901.
W 75.....	Monthly discharge.....	1901.

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

The table on the following page gives, by years and drainage basins, the numbers of the papers on surface water supply published from 1899 to 1939. The data for any particular station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data 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, 503, which contain records for the Ohio River Basin for those years.

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

Numbers of water-supply papers containing results of stream measurements, 1899-1939

(For basins included see p. 3)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a...	35	b 35, 36	36	36	36	c 36, 37	37	37	d 37, 38	38, e 39	38, f 39	38	38	38
1900 g...	47, h 48	48	48, i 49	49	49	49, j 50	50	50	50	51	51	51	51	51
1901.....	65, 75	65, 75	65, 75	65, 75	k 65, 66, 75	66, 75	k 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902.....	82	b 82, 83	83	m 82, 83	k 83, 85	84	k 83, 84	84	85	85	85	85	85	85
1903.....	97	b 97, 98	98	97	k 98, 99, n 100	99	k 98, 99	99	100	100	100	100	100	100
1904.....	o 124, p 125, q 126	q 126, 127	128	129	k 128, 130	130, r 131	k 128, 131	132	133	133, s 134	134	135	135	135
1905.....	o 165, p 166, q 167	q 167, 168	169	170	171	172	k 169, 173	174	175, t 177	176, s 177	177	178	178	u 177, 178
1906.....	o 201, p 202, q 203	q 203, 204	205	206	207	208	k 205, 209	210	211, t 213	212, s 213	213	214	214	214
1907-8...	241	242	243	244	245	246	247	248	249	250, s 251	251	252	252	252
1909.....	261	262	263	264	265	266	267	268	269	270, s 271	271	272	272	272
1910.....	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911.....	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912.....	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913.....	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914.....	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915.....	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916.....	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917.....	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918.....	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20..	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921.....	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922.....	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923.....	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924.....	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925.....	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926.....	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927.....	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928.....	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929.....	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930.....	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931.....	711	712	713	714	715	716	717	718	719	720	721	722	723	724
1932.....	726	727	728	729	730	731	732	733	734	735	736	737	738	739
1933.....	741	742	743	744	745	746	747	748	749	750	751	752	753	754
1934.....	756	757	758	759	760	761	762	763	764	765	766	767	768	769
1935.....	781	782	783	784	785	786	787	788	789	790	791	792	793	794
1936.....	801	802	803	804	805	806	807	808	809	810	811	812	813	814
1937.....	821	822	823	824	825	826	827	828	829	830	831	832	833	834
1938.....	851	852	853	854	855	856	857	858	859	860	861	862	863	864
1939.....	871	872	873	874	875	876	877	878	879	880	881	882	883	884

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

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

Reports containing compilation of discharge by States and drainage basins

Water-Supply Paper	Year ending	State or drainage basin and title
		STATE
107	1903	Alabama, Water powers of, with an appendix on stream measurements in Mississippi.
298	1912	California, Water resources of, part 1, Stream measurements in Sacramento River Basin.
299	1912	California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.
300	1912	California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific coast river basins.
447	1918	California, Surface water supply of the southern Pacific slope of.
597-E	1927	California, Surface water supply of Sacramento River Basin.
636-D	1927	California, Surface water supply of San Joaquin River Basin.
636-E	1927	California, Surface water supply of Pacific slope basins in.
637-A	1927	California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.
74	1900	Colorado, Water resources of.
197	1905	Georgia, Water resources of.
415	1915	Massachusetts, Surface waters of.
230	1906	Nebraska, Surface water supply of.
370	1910	Oregon, Surface water supply of.
850	1937	Texas, Summary of records of surface waters of.
424	1916	Vermont, Surface waters of.
492	1919	Washington, Summary of hydrometric data in.
S70	1935	Washington, Summary of records of surface waters of.
469	1921	Wyoming, Surface waters of, and their utilization.
		DRAINAGE BASIN
395	1914	Colorado River (Ariz., Colo., N. Mex., Utah, Wyo.) and its utilization, 1916.
617	1927	Colorado River, upper (Colo., Utah), and its utilization, 1929.
517	1920	Great Salt Lake Basin, Water powers of, 1924.
618	1926	Green River (Utah, Wyo.) and its utilization, 1930.
198	1906	Kennebec River Basin (Maine), Water resources of, 1907.
		Milk River. (See St. Mary and Milk Rivers.)
536	1920	New-Kanawha River Basin (N. C., Va., W. Va.), Surface water supply of, 1925.
279	1909	Penobscot River Basin (Maine), Water resources of, 1912.
192	1906	Potomac River Basin (Md., Va., W. Va., etc.), 1907.
358	1913	Rio Grande Basin (Colo., N. Mex., Tex.), Water resources of, 1888-1913.
491	1917	St. Mary and Milk Rivers (Mont., Canada), Water supply of, 1920.
109	1904	Susquehanna River Basin (Pa., Md.), Hydrography of, 1905.

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

State reports containing compilation of records of discharge

State	Year ending	Report	Issued by
Alabama.....	1915	Bull. 17, Water powers of Alabama....	Geological Survey of Alabama.
Arkansas....	1928	Stream-gaging report 1.....	Arkansas Geological Survey.
Connecticut.	1926	Bull. 44, Water resources of Connecticut.	State Geological and Natural History Survey.
Georgia.....	1920	Bull. 38, Water powers of Georgia....	Geological Survey of Georgia.
Illinois....	1937	Stream-flow data of Illinois.....	Division of Waterways.
Do.....	1911	Water resources of Illinois.....	Rivers and Lakes Commission.
Indiana.....	1927	Pub. 72, Surface water supply of Indiana.	Department of Conservation.
Do.....	[a]1930	Pub. 112, Surface water supply of Indiana.	Do.
Iowa.....	1932	Stream-flow records of Iowa.....	Iowa State Planning Board.

[a] Includes records for the years 1927-30.

State reports containing compilation of records of discharge--Continued

State	Year ending	Report	Issued by
Kansas.....	[b]1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	[c]1924	....do.....	Do.
Do.....	[d]1928	....do.....	Kansas State Board of Agriculture.
Do.....	[e]1935	Stream-flow data of Kansas.....	Do.
Kentucky...	1920	Surface waters of Kentucky.....	Kentucky Geological Survey.
Minnesota..	1912	Water-resources investigation of Minnesota.	State Drainage Commission.
Missouri...	1926	Reports of Bureau of Geology and Mines, vol. 20, 2d eeries, Water Resources of Missouri.	Missouri Geological Survey and Water Resources.
Nebraska...	1914	1st hydrographic report.....	Bureau of Water Power, Irrigation and Drainage.
Do.....	[f]1928	2d hydrographic report.....	Do.
New Jersey.	1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do.....	[g]1934	Special Report 5, Surface water supply of New Jersey.	State Water Policy Commission.
New Mexico.	1925	Surface water supply of New Mexico.....	Office of the State Engineer.
North Carolina.	1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do.....	[h]1936	Bull. 39, Discharge records of North Carolina streams.	Do.
Oregon.....	1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	[i]1924	Bull. 7, Water resources of the State of Oregon.	Do.
Do.....	[j]1930	Bull. 8, Water resources of the State of Oregon.	Do.
Do.....	[k]1936	Bull. 9, Water resources of the State of Oregon.	Do.
Pennsylvania	1911	Report of Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do.....	[l]1932	Stream-flow records of Pennsylvania....	Department of Forests and Waters.
Tennessee..	1924	Bull. 34, Water resources of Tennessee.	Department of Education.
Do.....	[m]1930	Bull. 40, Surface waters of Tennessee..	Do.
Utah.....	1905	5th Biennial Report, State Engineer....	Office of the State Engineer.
Virginia...	1927	Bull. 31, Water resources of Virginia..	Conservation and Development Commission.
Washington.	1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin..	1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	[n]1923	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

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

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

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The table on the following page contains a list of gaging stations for the area covered by this report at which records of daily discharge were collected during the water year October 1938 to September 1939 by agencies other than the Geological Survey. The records for these stations are not contained in publications of the Geological Survey.

Records of daily discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Operated by
Cayuga Lake outlet.....	Lock 1 (Mud Lock), N. Y.	1926-39	State Department of Public Works, Albany, N. Y.
Clyde River.....	Clyde, N. Y.....	1924-39	Do.
Indian River.....	Theresa, N. Y.....	1934-39	Central New York Power Corporation, Syracuse, N. Y.
New York Barge Canal*..	Brewerton, N. Y.....	1925-39	State Department of Public Works, Albany, N. Y.
Oneida River.....	Caughdenoy, N. Y.....	1929-39	Oswego River Watershed Corporation, Fulton, N. Y.
Oswegatchie River, East Branch of.	Browns Falls, N. Y.....	1934-39	Central New York Power Corporation, Syracuse, N. Y.
Oswego River.....	Lower Dam, Fulton, N. Y.	1928-39	Oswego River Watershed Corporation, Fulton, N. Y.
Raquette River.....	Colton, N. Y.....	1934-39	Central New York Power Corporation, Syracuse, N. Y.
St. Regis River, West Branch of.	Parishville, N. Y.....	1934-39	Do.
Salmon River.....	Bennetts Bridge, near Altmar, N. Y.	1934-39	Do.
Saranac River.....	Kents Falls, N. Y.....	1934-39	System Properties, Inc., New York, N. Y.
Seneca River.....	Baldwinsville, N. Y.....	1928-39	Oswego River Watershed Corporation, Fulton, N. Y.
Seneca River.....	Jacks Reef, near Baldwinsville, N. Y.	1933-39	State Department of Public Works, Albany, N. Y.

*Record of 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.

COOPERATION

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

Indiana: Department of Public Works, V. M. Simmons, administrative officer.

Michigan: Michigan Stream Control Commission, M. D. Van Wagoner, chairman.

Minnesota: State Department of Conservation, Division of Drainage and Waters, W. S. Olson, director.

New York: State Department of Conservation, Lithgow Osborne, commissioner; State Department of Public Works, Frederick Stuart Greene, succeeded by A. W. Brandt, superintendent; State Water Power and Control Commission, Lithgow Osborne, chairman; Board of Black River Regulating District, Edwin S. Cullings, chief engineer; Commission for the Improvement of Oswegatchie River and the Hydraulic Power Thereon, J. J. Wallace, chairman; Buffalo Sewer Authority, D. H. McCarriagher, chairman; and Water Department, City of Auburn, A. J. Adams, chief engineer.

Ohio: Cooperative Topographic Survey, C. E. Sherman, inspector.

Vermont: State of Vermont, George D. Aiken, Governor.

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

Financial assistance was furnished by the Corps of Engineers, U. S. Army, in the operation of 11 gaging stations, of which 4 were in New York, 5 in Ohio, and 2 in Wisconsin.

Financial assistance was also furnished by the Biological Survey, United States Department of the Interior.

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

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 also rendered by the following municipalities, organizations, corporations, and individuals:

Michigan: City of Allegan and the Michigan Gas & Electric Co.

New York: Corps of Engineers, U. S. Army; the Central New York Power Corp.; International Paper Co.; Cornell University; New York & Pennsylvania Co.; Associated Gas & Electric System; Rochester Gas & Electric Corporation; and Deer River Power Co.

Wisconsin: Corps of Engineers, U. S. Army; Wisconsin Michigan Power Co.; and Wisconsin Public Service Corporation.

DIVISION OF WORK

The data for the stations in the several States were collected and prepared for publication under the supervision of district engineers as follows: In Indiana and Michigan, H. E. Grosbach; in Minnesota, C. L. Batchelder until Jan. 18, C. H. Prior, acting district engineer, Jan. 19 to May 30, P. R. Speer, May 31 to Sept. 30; in New York, A. W. Harrington; in Ohio, C. V. Youngquist; in Vermont, H. B. Kinnison; in Wisconsin, F. C. Christopherson.

ST. LAWRENCE RIVER MAIN STEM

Niagara River at Buffalo, N. Y.

Location.- Water-stage recorder at south pier of U. S. Lighthouse slip, lat. 42°52'40", long. 78°53'25", at head of Niagara River at Buffalo. Elevation of reference point is 590.22 feet above mean tide level at New York City. All water surface elevations are heights of water surface above mean tide at New York City.

Drainage area.- 263,500 square miles.

Records available.- January 1905 to September 1939 (prior to October 1935 monthly discharge only).

Average discharge.- 34 years, 190,800 second-feet (not including diversions from Lakes Michigan and Erie).

Extremes.- Maximum daily discharge during year, 232,000 second-feet Dec. 27, corresponding to an elevation of 574.85 feet on the Buffalo gage; minimum daily, 150,700 second-feet Feb. 9, corresponding to an elevation of 569.93 feet on the Buffalo gage.
1905-39: Maximum monthly mean discharge, 242,000 second-feet May 1929, corresponding to an elevation of 574.14 feet on the Buffalo gage; minimum monthly discharge, 117,000 second-feet February 1936, corresponding to an elevation of 569.48 feet on the Buffalo gage.

Remarks.- Records of daily discharge furnished by Corps of Engineers, U. S. Army. They do not include flow diverted from Lake Michigan by Chicago Sanitary Canal and from Lake Erie by Welland Canal, in Ontario, and Black Rock and New York State Barge (old Erie) Canals, at Buffalo.

Discharge, in thousands of second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	183	178	172	177	160	193	184	191	194	206	201	190
2	181	178	169	182	178	168	187	191	194	198	200	191
3	182	179	181	160	171	171	189	193	200	198	203	189
4	184	179	185	155	175	172	185	192	202	199	200	195
5	176	186	179	169	167	170	181	193	203	201	199	192
6	168	178	192	177	170	196	184	195	199	200	197	187
7	180	178	189	176	175	183	191	193	199	200	196	189
8	188	208	174	177	173	162	182	196	201	206	197	195
9	182	191	173	172	151	174	178	201	198	203	216	184
10	184	177	186	185	174	172	175	204	197	203	203	199
11	184	181	178	185	176	154	188	201	212	205	193	190
12	183	177	192	176	155	158	203	199	215	203	197	182
13	186	207	201	163	164	180	190	198	197	203	198	185
14	184	214	200	160	163	169	185	197	202	204	196	188
15	184	190	177	172	164	178	188	199	201	203	195	187
16	182	174	174	176	163	198	171	199	196	201	194	189
17	183	184	182	170	162	182	172	198	195	199	188	183
18	182	175	175	160	173	179	177	192	191	196	188	177
19	188	174	174	175	164	174	172	197	196	192	191	187
20	192	187	173	173	174	181	179	197	202	187	201	186
21	184	176	182	177	166	175	177	198	198	192	203	183
22	178	185	171	211	174	176	184	198	200	194	202	190
23	184	167	179	183	163	177	189	198	208	198	194	192
24	202	169	186	178	175	178	192	197	204	195	194	176
25	192	178	179	190	167	177	189	196	200	195	192	189
26	194	179	168	151	169	179	191	196	197	196	187	176
27	182	188	252	151	168	170	193	199	199	196	186	183
28	176	203	188	168	172	176	182	200	200	195	188	181
29	177	204	185	167	-	172	185	201	201	194	190	188
30	170	181	182	127	-	185	190	202	208	201	188	179
31	175	-	181	161	-	182	-	201	-	208	190	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile*	Run-off in inches
		Maximum	Minimum	Mean		
October	5,669	202	168	183	0.694	0.80
November	5,525	214	167	184	.698	.78
December	5,657	232	168	182	.691	.80
Calendar year 1938	67,636	232	123	185	.702	9.43
January	5,294	211	161	171	.649	.75
February	4,706	178	151	168	.638	.66
March	5,461	198	154	176	.668	.77
April	5,533	203	171	184	.698	.78
May	6,112	204	191	197	.748	.86
June	6,009	215	191	200	.759	.85
July	6,171	208	187	199	.755	.87
August	6,067	216	186	196	.744	.86
September	5,602	199	176	187	.710	.79
Water year 1938-39	67,806	232	151	186	.706	9.57

*Expressed in second-feet.

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St. Lawrence River at Ogdensburg, N. Y.

Location.- Ogdensburg gage, lat. 44°41'55", long. 75°30'15". Oswego gage, lat. 43°27'45", long. 76°31'00". Reference point of the Ogdensburg gage is 251.02 feet above mean tide level at New York City; reference point of the Oswego gage is 251.90 feet above mean tide level at New York City. All water surface elevations are heights of water surface above mean tide at New York City.

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

Records available.- January 1919 to September 1939 (prior to October 1935, monthly discharge only).

Average discharge.- 20 years, 218,400 second-feet (does not include diversion from Lake Michigan).

Extremes.- Maximum daily discharge during year, 247,000 second-feet May 30, corresponding to an elevation of 245.45 feet on the Ogdensburg gage; minimum daily, 169,000 second-feet Feb. 21, corresponding to an elevation of 243.37 feet on the Ogdensburg gage.
1919-39: Maximum monthly mean discharge, 289,000 second-feet June 1929, corresponding to an elevation of 248.46 feet on the Oswego gage; minimum monthly discharge, 152,000 second-feet February 1936, corresponding to an elevation of 243.59 feet on the Ogdensburg gage.

Remarks.- Records of daily discharge furnished by Corps of Engineers, U. S. Army. They do not include flow diverted from Lake Michigan by Chicago Sanitary 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.

Discharge, in thousands of second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	219	212	201	204	189	193	210	239	234	244	234	223
2	218	209	198	204	195	187	219	237	234	239	229	222
3	217	210	207	190	198	191	221	238	238	239	233	221
4	218	211	211	193	194	190	220	239	244	235	232	224
5	216	211	201	179	197	190	219	237	241	235	232	222
6	209	209	211	201	196	194	221	240	235	241	230	222
7	215	210	206	200	193	192	226	240	237	234	230	222
8	218	217	203	202	194	192	226	239	239	238	229	219
9	215	219	199	200	192	193	228	241	239	236	239	218
10	217	211	204	207	194	200	223	243	237	236	233	221
11	217	210	205	203	194	197	225	245	238	238	230	219
12	215	205	209	201	188	198	233	240	246	236	232	219
13	216	220	211	197	188	199	234	241	238	237	235	218
14	216	228	214	197	180	200	233	240	240	240	232	222
15	216	211	201	199	179	198	231	239	239	237	232	220
16	215	206	200	199	174	203	225	241	239	237	231	221
17	214	213	209	198	173	204	225	240	231	236	229	214
18	212	208	201	192	178	202	230	238	232	233	227	213
19	217	207	201	198	172	200	232	237	236	231	226	216
20	219	212	200	197	170	200	237	234	238	230	226	215
21	214	207	199	197	169	201	233	235	237	229	230	213
22	207	217	199	206	170	201	239	238	234	232	233	216
23	213	204	199	198	181	200	236	240	240	232	227	215
24	220	203	205	199	185	198	232	239	239	232	228	210
25	218	204	200	201	186	198	233	238	236	230	228	217
26	219	203	197	197	186	200	236	237	234	230	225	210
27	212	204	225	198	189	200	232	241	235	229	224	209
28	210	215	206	199	188	205	231	242	235	229	224	210
29	210	217	207	197	-	206	237	238	236	228	225	214
30	204	206	200	188	-	202	237	247	240	234	220	211
31	209	-	202	181	-	208	-	235	-	235	222	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile*	Run-off in inches
		Maximum	Minimum	Mean		
October	6,655	220	204	215	0.721	0.83
November	6,319	225	203	211	.708	.79
December	6,331	225	197	204	.684	.79
Calendar year 1938	79,550	255	180	218	.731	9.93
January	6,122	207	179	197	.661	.76
February	5,192	198	169	185	.621	.65
March	6,142	208	187	198	.664	.77
April	6,864	239	210	229	.768	.86
May	7,418	247	234	239	.802	.92
June	7,121	246	231	237	.795	.89
July	7,272	244	228	235	.788	.91
August	7,107	239	220	229	.768	.89
September	6,516	224	209	217	.728	.81
Water year 1938-39	79,059	247	169	217	.728	9.87

*Expressed in second-feet.

Pigeon River at International Bridge, Minn.

(International gaging station)

Location.- Wire-weight gage, lat. 48°01', long. 89°43', in sec. 20, T. 64 N., R. 6 E., fourth principal meridian, on International Bridge, 9.3 miles upstream from mouth. Zero of gage is 889.82 feet above mean sea level (preliminary general adjustment of 1929).

Drainage area.- 590 square miles.

Records available.- April 1924 to September 1939 in reports of Geological Survey. June 1921 to September 1923 in reports of Dominion Water and Power Bureau of Department of Mines and Resources of Canada, October 1923 to September 1932 in House Document 92, 73d Congress of United States, 1st session.

Average discharge.- 16 years (1923-39), 477 second-feet.

Extremes.- Maximum discharge observed during year, 4,600 second-feet Apr. 30, May 1; maximum gage height observed, 6.18 feet Apr. 22, affected by ice jam; minimum discharge observed, about 80 second-feet Dec. 21 to Jan. 3.

1923-39: Maximum discharge observed, 11,000 second-feet May 5, 1934 (gage height, 7.6 feet), from rating table extended above 7,000 second-feet; minimum discharge 30 second-feet Feb. 11 to Mar. 5, 1926.

Remarks.- Records fair except those for periods of ice effect, Nov. 7-9, 14-18, Nov. 20 to May 2 (computed on basis of seven discharge measurements, gage heights except Dec. 28 to Jan. 10, Jan. 29 to Apr. 10, field notes, and weather records), and those for May 3-19, 21 (computed on basis of two discharge measurements, and relation between observer's and engineers' gage readings), which are poor. Discharge for periods of missing gage heights, Dec. 28 to Jan. 10, Jan. 29 to Apr. 10, Apr. 22, computed on basis of four discharge measurements and records for Baptism River near Beaver Bay and Poplar River at Lutsen. Discharge for period of backwater from debris on control, July 26 to Sept. 10, computed on basis of one discharge measurement, gage heights, and engineers' notes. Gage read once daily. Gage-height record collected in cooperation with Corps of Engineers, U. S. Army. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	105	140	80	110	120	180	4,600	1,740	749	200	170
2	107	107	140	80	110	120	180	4,200	1,740	532	205	170
3	110	127	140	80	110	120	180	3,600	1,740	532	205	175
4	110	149	136	90	110	120	180	3,600	1,740	611	200	190
5	107	284	130	100	120	110	180	3,200	1,670	572	190	185
6	107	305	130	100	120	110	170	2,800	1,740	572	180	180
7	107	300	120	100	120	110	160	2,600	1,670	572	175	175
8	117	280	120	100	120	110	160	2,800	1,540	532	185	185
9	114	240	120	100	120	110	160	2,600	1,350	498	240	180
10	112	225	110	100	120	110	170	2,400	1,240	433	215	175
11	112	233	110	95	120	110	200	2,200	1,240	403	230	173
12	114	256	110	300	120	110	240	1,900	1,240	378	215	170
13	199	284	100	300	120	110	320	1,900	1,120	378	205	180
14	178	280	95	280	120	120	650	1,800	956	378	200	180
15	156	280	90	260	120	120	750	1,800	956	352	195	185
16	146	320	90	240	120	120	750	1,700	903	328	195	176
17	132	360	90	220	120	120	700	1,800	656	328	185	170
18	122	400	85	200	120	120	600	1,700	433	305	185	166
19	112	395	85	190	120	120	600	1,700	305	292	175	147
20	107	340	85	180	120	130	550	1,540	352	274	175	128
21	105	300	80	180	120	130	600	1,700	261	257	165	122
22	105	260	80	170	120	140	800	1,540	498	253	165	128
23	103	240	80	160	120	150	1,000	1,010	956	245	180	130
24	103	220	80	150	120	160	1,200	611	956	240	195	122
25	103	200	80	130	120	160	2,000	572	2,030	249	230	118
26	103	180	80	130	120	180	3,000	532	1,350	235	210	115
27	103	170	80	120	120	160	3,600	611	1,120	230	200	113
28	103	160	80	120	120	160	4,200	850	903	215	195	115
29	103	150	80	110	-	160	4,200	1,060	956	215	185	115
30	103	140	80	110	-	160	4,600	1,180	850	210	180	113
31	103	-	80	110	-	170	-	1,410	-	205	175	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,616	199	103	117	0.198	0.23
November	7,290	400	105	243	.412	.46
December	3,100	140	80	100	.169	.19
Calendar year 1938	185,738	4,430	80	509	.863	11.71
January	4,685	300	80	151	.256	.30
February	3,320	120	110	119	.202	.21
March	4,050	160	110	131	.222	.26
April	32,280	4,600	160	1,076	1.82	2.03
May	61,516	4,600	532	1,984	3.36	3.87
June	34,211	2,030	261	1,140	1.93	2.15
July	11,573	749	205	373	.632	.73
August	6,015	240	165	194	.329	.38
September	4,649	190	113	155	.263	.29
Water year 1938-39	176,305	4,600	80	483	.819	11.10

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., about 350 feet upstream from concrete bridge on U. S. Highway 61 at Lutsen and about 1,650 feet upstream from mouth. Zero of gage is 697.89 feet above mean sea level.

Drainage area.- 138 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 1939.

Extremes.- Maximum discharge during year, 1,100 second-feet May 1; maximum gage height, 5.90 feet Mar. 28 (affected by ice); minimum discharge, 19 second-feet Oct. 15 (gage height, 2.36 feet).

1912-17, 1928-39: Maximum discharge observed; 1,390 second-feet Apr. 25, 1916, from rating curve extended above 750 second-feet; maximum gage height observed, 10.02 feet May 1, 1937, former site and datum; minimum discharge, 4.0 second-feet Nov. 3, 1937.

Remarks.- Records good except those for periods of ice effect, Nov. 15 to Dec. 4, Dec. 9-19, Dec. 27 to Jan. 30, Feb. 3 to Mar. 10, Mar. 14-20, 22-24, Mar. 28 to Apr. 14 (computed on the basis of six discharge measurements, gage heights, weather records, engineers' notes, and hydrographic comparison with the Baptism River near Beaver Bay), which are fair.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov 1-5)

2.3	17	2.6	32	3.0	77	3.6	309	5.0	910
2.4	21	2.7	39	3.2	129	4.0	451	5.5	1,175
2.5	26	2.8	48	3.4	211	4.5	660		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	22	42	38	38	44	75	1,040	422	465	63	60
2	22	28	42	38	39	44	65	985	382	386	65	55
3	22	36	42	40	38	42	70	960	386	321	62	101
4	22	70	42	44	36	42	75	960	368	412	58	153
5	22	140	41	48	38	40	70	985	313	422	54	109
6	21	100	40	48	40	40	65	960	286	357	50	91
7	22	70	42	46	46	38	65	935	281	309	48	84
8	25	58	42	46	46	38	65	935	268	338	48	88
9	24	49	42	48	46	38	70	885	257	328	270	79
10	24	46	42	48	46	40	70	760	216	277	425	70
11	23	44	40	46	44	41	70	655	206	247	309	62
12	22	53	40	44	42	40	65	549	188	227	247	58
13	22	102	40	44	42	39	65	479	180	221	188	58
14	21	78	40	46	40	44	80	458	184	193	151	58
15	20	60	40	48	38	44	120	429	309	175	123	56
16	21	55	42	44	40	44	144	396	313	162	100	52
17	26	55	42	44	40	42	129	372	330	155	86	47
18	25	50	42	46	40	44	114	334	281	148	77	44
19	24	46	42	46	40	46	112	304	258	140	70	44
20	23	46	40	46	38	48	133	314	216	129	67	40
21	22	44	38	44	38	48	176	511	198	120	62	39
22	23	44	37	42	40	48	221	606	274	112	62	38
23	22	22	37	42	40	48	291	497	300	98	77	36
24	23	42	39	42	40	50	325	441	253	93	93	35
25	23	42	38	40	42	62	443	454	232	91	84	34
26	23	42	38	40	42	70	625	432	247	91	74	32
27	21	42	38	40	44	60	620	416	309	86	65	33
28	21	42	38	40	44	60	710	399	277	79	62	40
29	20	44	38	40	-	60	860	368	281	72	58	46
30	20	44	38	38	-	60	985	334	458	70	59	42
31	21	-	38	38	-	65	-	406	-	67	70	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	692	26	20	22.3	0.162	0.19
November	1,638	140	22	54.6	.396	.44
December	1,242	42	37	40.1	.291	.34
Calendar year 1938	40,088	885	20	110	.797	10.80
January	1,344	48	38	43.4	.314	.36
February	1,149	46	38	41.0	.297	.31
March	1,469	70	38	47.4	.343	.40
April	6,977	985	65	233	1.69	1.89
May	18,559	1,040	304	599	4.34	5.00
June	8,453	458	180	282	2.04	2.28
July	6,388	465	67	206	1.49	1.72
August	3,327	425	48	107	.775	.89
September	1,784	153	32	59.5	.431	.48
Water year 1938-39	53,022	1,040	20	145	.105	14.30

Peak discharge.- June 30 (7 p.m.) 524 sec.-ft.; Aug. 10 (12:05 a.m.) 468 sec.-ft.

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., about 260 feet upstream from highway bridge 6 miles northeast of Beaver Bay. Zero of gage is 609.97 feet above mean sea level.

Drainage area.- 136 square miles.

Records available.- July 1928 to January 1929, March 1930 to September 1939.

Extremes.- Maximum discharge during year, 9,350 second-feet Aug. 9 (gage height, 8.11 feet), from rating curve extended above 2,500 second-feet; minimum, 10 second-feet Aug. 8 (gage height, 2.05 feet).
1928-29, 1930-39: Maximum discharge, that of Aug. 9, 1939; minimum, 1.5 second-feet Aug. 13, 1934.

Remarks.- Records good except those for periods of ice effect or missing gage heights, Nov. 14-18, Nov. 21 to Dec. 4, Dec. 31 to Jan. 5, Jan. 10-25, Feb. 9-14, Mar. 12 to Apr. 10 (computed on basis of six discharge measurements, gage heights, and weather records), which are poor.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	17	24	20	22	22	220	2,200	246	610	16	193
2	11	20	26	20	23	21	220	1,640	206	395	17	143
3	11	38	26	20	25	21	200	1,380	198	372	17	113
4	11	82	26	22	25	21	220	1,330	176	1,080	13	101
5	11	140	27	22	25	21	220	1,230	153	750	12	83
6	11	127	25	22	25	21	220	1,080	127	486	12	73
7	12	99	27	22	25	21	200	945	149	317	11	70
8	12	79	27	22	25	21	180	795	133	252	32	91
9	12	64	26	23	24	22	180	708	108	198	6,550	80
10	12	54	26	24	24	22	200	564	92	168	3,460	69
11	12	47	25	26	24	22	206	421	81	133	1,990	57
12	13	54	24	26	24	22	193	317	72	108	1,400	56
13	12	84	24	26	24	22	206	246	62	99	1,040	54
14	12	46	22	26	24	20	245	208	61	77	598	48
15	12	42	21	24	24	20	355	198	151	62	348	42
16	16	42	22	24	24	20	427	180	176	52	213	35
17	33	44	23	26	23	20	370	163	235	46	163	31
18	28	44	23	24	23	20	308	153	218	41	122	28
19	24	42	22	24	24	20	298	143	185	41	95	26
20	22	36	22	24	24	22	370	278	146	36	108	25
21	20	30	23	24	23	24	472	587	115	33	99	21
22	21	30	23	24	22	32	700	587	328	30	78	20
23	20	28	24	24	23	40	876	440	371	27	78	20
24	19	26	24	24	23	75	999	324	257	24	101	19
25	19	26	24	24	22	75	1,490	332	336	22	93	19
26	18	26	23	24	22	85	1,980	356	416	25	70	19
27	18	24	22	24	22	240	1,890	610	506	22	57	20
28	17	24	22	23	22	170	1,870	666	356	20	49	31
29	17	24	20	22	-	160	2,200	516	376	18	43	48
30	17	24	20	22	-	180	2,810	395	722	17	103	41
31	17	-	20	22	-	220	-	317	-	17	264	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	501	33	11	16.2	0.119	0.14
November	1,463	140	17	48.8	.359	.40
December	733	27	20	23.6	.174	.20
Calendar year 1938	61,870.4	2,500	9.4	170	1.25	16.93
January	724	26	20	23.4	.172	.20
February	660	25	22	23.6	.174	.18
March	1,722	240	20	55.5	.408	.47
April	20,325	2,810	180	678	4.99	5.57
May	19,311	2,200	143	623	4.58	5.28
June	6,760	722	61	225	1.65	1.84
July	5,578	1,080	17	180	1.32	1.52
August	17,252	6,550	11	557	4.10	4.73
September	1,674	193	19	55.8	.410	.46
Water year 1938-39	76,703	6,550	11	210	1.54	20.99

Peak discharge.- Apr. 25 (11:30 p.m.) 2,350 sec.-ft.; May 1 (12:30 a.m.) 2,810 sec.-ft.; Aug. 9 (2 p.m.) 9,350 sec.-ft.

*Gage heights missing; discharge computed on basis of weather records and comparison with Poplar River at Lutsen.

Egge Lake near Finland, Minn.

Location.- Reference point, lat. 47°27', long. 91°13', in sec. 4, T. 57 N., R. 7 W., top of abutment of concrete dam at outlet, about 3 miles northeast of Finland.
Records available.- March 1938 to September 1939.
Extremes.- Maximum stage observed during period, -0.8 foot June 30, 1939; minimum observed, -2.4 feet October 14, 20, 28, November 4, 1938.
Remarks.- Stage of lake regulated by type-C concrete dam with one 5-foot bay, permitting a 2-foot control by stop logs. Measurements made from reference point, which is 4.00 above concrete sill of dam. Readings furnished by Minnesota Department of Conservation, Division of Drainage and Waters.

Gage height, in feet, 1938-39

1938		1938		1938		1939		1939	
Mar. 25	-2.0	June 10	-.85	Aug. 27	-2.0	May 13	-2.1	July 28	-2.2
Apr. 1	-1.1	17	-.9	Sept. 3	-2.0	20	-1.0	Aug. 4	-2.2
9	-1.8	24	-.95	9	-2.0	27	-1.4	12	-1.6
15	-1.6	July 1	-1.2	17	-2.0	June 2	-1.0	18	-2.0
23	-1.2	8	-1.15	23	-2.0	9	-1.0	25	-1.8
28	-.85	15	-1.2	29	-2.0	17	-1.0	Sept. 6	-2.0
May 7	-.9	22	-1.45	Oct. 7	-2.0	23	-1.0	16	-2.0
13	-.9	30	-1.7	14	-2.4	30	-.8	22	-2.1
20	-.9	Aug. 5	-1.85	20	-2.4	July 8	-2.3	30	-2.0
27	-.9	12	-2.0	28	-2.4	15	-2.1		
June 3	-.85	19	-2.1	Nov. 4	-2.4	21	-2.0		

Leppannen Lake at Finland, Minn.

Location.- Reference point, lat. 47°25', long. 91°14', in sec. 21, T. 57 N., R. 7 W., top of abutment of concrete dam at outlet, about 1 mile southeast of Finland.
Records available.- March 1938 to September 1939.
Extremes.- Maximum stage observed during period, -1.0 foot May 27, 1939; minimum observed, -2.1 feet Apr. 9, May 13, 1938, Aug. 4, 1939.
Remarks.- Stage of lake regulated by type-C dam with one 5-foot bay, permitting a 2-foot control by stop logs. Measurements made from reference point, which is 4.00 feet above concrete sill of dam. Readings furnished by Minnesota Department of Conservation, Division of Drainage and Waters.

Gage height, in feet, 1938-39

1938		1938		1938		1939		1939	
Mar. 25	-1.90	June 17	-1.5	Sept. 3	-2.0	May 13	-1.2	July 28	-2.0
Apr. 9	-2.1	24	-1.7	9	-1.85	20	-1.4	Aug. 4	-2.1
16	-1.6	July 1	-1.9	23	-1.9	27	-1.0	12	-1.7
23	-1.5	8	-1.75	29	-2.0	June 2	-1.6	18	-1.9
28	-1.15	15	-1.75	Oct. 7	-2.0	9	-1.75	25	-1.8
May 7	-1.5	22	-1.9	14	-2.0	17	-1.8	Sept. 6	-1.8
13	-2.1	30	-1.95	20	-2.0	23	-1.55	16	-1.9
20	-1.1	Aug. 5	-2.0	28	-1.95	30	-1.3	22	-1.9
27	-1.7	12	-2.0	Nov. 4	-1.85	July 8	-1.7	30	-1.9
June 3	-1.65	20	-1.8			15	-1.9		
10	-1.7	27	-1.9			21	-1.9		

Esquagama Lake near Biwabik, Minn.

Location.- Staff gage, lat. 47°27', long. 92°23', in sec. 4, T. 57 N., R. 16 W., on abutment of concrete dam at outlet of lake, about 5 miles southwest of Biwabik.
Records available.- April 1937 to September 1939.
Extremes.- Maximum stage observed during year, 5.80 feet Apr. 28; minimum observed, 4.30 feet Mar. 30.
1937-39: Maximum stage observed, slightly over 9.0 feet May 9, 1938; minimum observed, 3.20 feet June 22, 1937.
Remarks.- Stage of lake regulated by modified type-C concrete dam with twenty 5-foot bays, permitting a 4.5-foot control by stop logs. Zero of gage is at top of concrete sill of dam. Gage readings furnished by Minnesota Department of Conservation, Division of Drainage & Waters.

Gage height, in feet, water year October 1938 to September 1939

Oct. 7	4.78	Feb. 27	4.80	May 6	4.90	June 18	4.80	Aug. 5	4.78
15	4.78	Mar. 23	4.80	11	5.00	19	4.50	11	4.94
21	4.80	24	4.77	13	5.10	23	4.86	19	5.00
Nov. 5	4.86	30	4.30	19	4.80	30	4.88	26	4.90
11	4.90	Apr. 8	4.80	21	4.70	July 6	4.78	Sept. 2	4.90
18	4.86	15	4.80	24	4.80	11	4.94	8	5.18
Dec. 2	4.80	22	5.10	27	5.00	15	4.86	22	4.90
30	4.80	26	5.70	June 2	4.85	22	4.80	28	4.88
Jan. 27	4.80	28	5.80	9	4.70	29	4.78		

Perch Lake near Sawyer, Minn.

Location.- Reference point, lat. 46°41', long. 92°42', in sec. 36, T. 49 N., R. 19 W., sill of concrete dam about 3 miles northwest of Sawyer.
Records available.- February 1938 to September 1939.
Remarks.- Stage of lake regulated by type-C dam with four 5-foot bays, permitting a 4-foot control by stop logs. Readings furnished by Minnesota Department of Conservation, Division of Drainage and Waters.

Gage height, in feet, 1938-39

1938		1938		1938		1939		1939	
Feb. 26	0.90	June 17	3.50	Sept. 17	2.85	Mar. 31	3.15	July 7	3.40
Mar. 4	1.00	26	3.35	29	2.50	Apr. 9	3.40	20	3.30
19	1.35	July 10	3.15	Oct. 9	2.50	19	3.50	29	3.10
Apr. 9	4.00	23	3.10	21	2.50	30	3.25	Aug. 5	3.10
25	4.15	Aug. 5	3.00	Nov. 2	2.50	May 10	3.00	11	3.30
May 4	3.65	12	3.00	29	2.60	17	3.10	18	3.35
13	3.40	21	2.85	1939		29	3.60	25	3.35
21	3.40	30	2.15	Jan. 21	3.00	June 7	3.50	Sept. 6	3.35
28	3.65	Sept. 6	2.00	Feb. 27	3.20	24	3.50	13	3.25
June 7	3.35	9	2.60	Mar. 25	3.25	30	3.35	24	3.25

Pequaywan Lake near Brimson, Minn.

Location.- Staff gage, lat. 47°10', long. 91°55', in sec. 18, T. 54 N., R. 12 W., on abutment of dam at outlet, about 7½ miles southwest of Brimson.
Records available.- November 1938 to September 1939.
Remarks.- Stage of lake is regulated by type-C dam with four 5-foot bays, permitting a 2-foot control by stop logs. Zero of gage is at top of concrete sill of dam. Gage readings furnished by Minnesota Department of Conservation, Division of Drainage and Waters.

Gage height, in feet, 1938-39

Nov. 29	1.06	Apr. 1	1.64	May 25	1.60	July 7	1.40	Aug. 23	1.70
Dec. 8	1.46	25	1.60	June 3	1.70	13	1.38	31	1.40
14	1.52	27	1.60	7	1.64	20	1.40	Sept. 7	1.42
Jan. 24	1.56	May 2	1.60	15	1.65	27	1.47	14	1.50
Feb. 28	1.56	9	1.40	22	1.40	Aug. 3	1.42	21	1.50
Mar. 30	1.60	17	1.30	29	1.50	15	2.55	28	1.40

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.
Records available.- August 1936 to September 1939 (fragmentary).
Extremes, 1937-39: Maximum elevation of water surface observed, 1,197.87 feet May 8, 1938; minimum observed, 1,196.04 feet Aug. 24, Oct. 3, 1936.
Remarks.- Gage heights have been reduced to mean sea-level datum on basis of levels of Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-					-	7.23	6.90	6.92	6.40	-
2	-	-					-	-	-	-	-	-
3	6.75	-					-	7.21	6.88	6.94	-	6.86
4	-	-					7.27	-	6.88	-	-	6.84
5	-	6.79					-	-	-	6.94	6.36	6.82
6	-	-					-	7.19	6.86	-	-	6.80
7	6.71	-					-	7.19	-	-	-	6.78
8	-	-					7.27	-	6.84	6.92	-	6.76
9	-	-					-	-	-	6.88	6.82	6.74
10	6.67	-					-	-	6.82	-	-	6.74
11	-	-					-	7.07	6.82	-	-	-
12	-	6.79					-	7.04	-	6.82	6.98	-
13	-	-					-	7.00	6.82	-	-	-
14	-	-					-	6.98	-	6.70	-	6.72
15	6.65	-					7.07	-	6.80	6.66	6.90	-
16	-	-					-	6.96	-	6.64	-	6.68
17	6.65	-					-	-	6.88	-	-	6.54
18	-	-					-	-	6.88	-	-	-
19	-	6.79					7.19	-	6.82	6.60	6.98	-
20	-	-					-	6.90	-	-	-	6.60
21	-	-					-	-	6.96	-	-	-
22	6.63	-					7.23	-	-	6.54	-	-
23	-	-					-	-	6.96	-	6.96	6.56
24	-	-					-	-	6.94	-	-	-
25	-	-					7.23	6.88	6.94	6.52	-	-
26	-	-					-	-	-	-	6.92	-
27	-	-				6.87	-	6.94	-	-	-	6.50
28	-	-					-	6.96	6.94	-	-	-
29	6.65	6.79					7.23	-	-	6.46	7.00	-
30	-	-					-	-	-	-	-	6.44
31	-	-					-	-	-	-	6.88	-

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

Montreal River near Saxon, Wis.

Location.- Water-stage recorder, lat. 46°32', long. 90°23', 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 1939.

Extremes.- Maximum discharge during year, 7,350 second-feet Apr. 26, from rating curve extended above 1,800 second-feet by logarithmic plotting; maximum gage height, 6.48 feet Mar. 26 (stage-discharge relation affected by ice); minimum discharge, 2 second-feet Sept. 21 (gage height, 0.98 foot).

Remarks.- Records good except those for periods of ice-effect, Nov. 26-28, Dec. 15 to Mar. 26 (computed on basis of two discharge measurements, gage heights, observer's notes, and weather records), and those for periods of missing gage heights, Oct. 1-12, Dec. 12-14 (computed on basis of records for Pine River near Florence, Wis.), all of which are poor. Diurnal fluctuation caused by operation of Saxon Falls Power Plant, 1½ miles upstream. Water-stage recorder inspected by employee of the Lake Superior District Power Co.

Rating table, Sept. 12, 1938, to Sept. 30, 1939, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.4	16	2.0	124	3.0	580	3.7	1,180	5.0	4,290
1.6	36	2.3	247	3.2	713	4.0	1,560	5.5	5,980
1.8	67	2.6	381	3.4	880	4.5	2,650	6.0	7,700

Discharge, in second-feet, September 1938

Sept. 12	81	Sept. 14	53	Sept. 16	69	Sept. 18	81		
13	77	15	42	17	64	19	423		

Note.- Mean discharge, Sept. 12-19, 111 second-feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	376	213	60	114	58	3,170	1,430	746	542	35	44
2	41	353	205	60	108	58	2,910	1,160	1,060	442	37	42
3	41	367	205	60	104	57	2,560	961	1,220	358	49	43
4	42	678	213	60	100	57	2,560	829	1,020	353	47	37
5	42	2,750	197	62	100	56	4,160	729	795	386	50	37
6	42	3,530	180	90	98	55	3,170	692	564	340	49	37
7	43	2,970	193	100	96	55	1,960	795	623	304	64	40
8	44	1,900	201	90	93	54	1,460	804	898	317	67	39
9	45	1,380	197	100	90	54	1,180	713	795	286	117	39
10	45	1,110	226	110	85	56	990	599	729	239	94	42
11	46	970	205	130	82	58	916	501	2,650	230	111	49
12	47	880	150	180	78	66	738	419	3,630	193	91	43
13	50	795	120	290	76	74	713	358	2,620	117	72	39
14	50	611	95	290	73	70	863	322	1,920	114	60	37
15	62	553	85	260	70	62	1,000	281	1,560	148	53	37
16	57	486	81	230	68	60	1,420	247	1,550	104	49	39
17	64	409	79	215	66	64	1,340	230	1,860	81	40	28
18	67	400	77	200	65	90	1,030	209	1,460	79	44	18
19	72	363	75	190	64	150	1,090	193	1,810	77	46	28
20	67	335	73	180	63	250	1,430	213	1,830	74	30	33
21	74	312	72	170	63	350	1,620	738	1,570	58	49	24
22	91	239	71	162	62	520	1,620	990	1,620	60	44	25
23	156	286	70	155	62	620	2,650	754	1,420	67	42	26
24	197	317	68	150	61	720	4,030	692	1,180	65	52	24
25	290	326	65	146	60	820	5,470	1,750	898	65	57	26
26	452	310	63	144	60	940	6,490	2,050	692	58	64	26
27	553	280	62	140	60	1,110	5,470	2,870	611	50	53	26
28	564	250	61	137	59	1,240	3,800	3,760	526	39	47	27
29	531	213	61	130	-	1,280	2,340	2,460	531	52	46	27
30	476	213	60	124	-	1,520	1,670	1,560	605	29	43	27
31	419	-	60	118	-	2,150	-	1,050	-	29	47	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,811	564	41	155	0.552	0.64
November	23,967	3,530	213	799	2.84	3.17
December	3,783	226	60	122	.434	.50
Calendar year	-	-	-	-	-	-
January	4,533	290	60	146	.520	.60
February	2,180	114	59	77.9	.277	.29
March	12,774	2,150	54	412	1.47	1.70
April	69,820	6,490	713	2,327	8.28	9.24
May	30,359	3,760	193	979	3.48	4.01
June	38,993	3,630	526	1,300	4.63	5.17
July	5,356	542	29	173	.616	.71
August	1,749	117	30	56.4	.201	.23
September	1,009	49	18	33.6	.120	.13
Water year 1938-39	199,334	6,490	18	546	1.94	26.39

Peak discharge.- Nov. 5 (7 p.m.) 3,960 sec.-ft.; Apr. 5 (9 p.m.) 4,620 sec.-ft.; Apr. 26 (6 a.m.) 7,350 sec.-ft.; May 27 (11 p.m.) 4,220 sec.-ft.; June 11 (11 p.m.) 4,790 sec.-ft.

Tenderfoot Lake near Land O'Lakes, Wis.

Location.- Staff gage, lat. 46°13', long. 89°31', in lot 1, SE¼SE¼ sec. 8, T. 43 N., R. 8 E., 20 miles west of village of Land O'Lakes.

Records available.- June 1938 to September 1939.

Extremes.- Maximum gage height observed during year, 2.72 feet Apr. 29; minimum observed, 1.60 feet Aug. 6.
1938-39: Maximum gage height observed, that of Apr. 29, 1939; minimum observed, that of Aug. 6, 1939.

Remarks.- Records good.

Gage height, in feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.40	2.56	1.97				2.08	2.67	-	2.46	1.64	1.92
2	2.40	2.52	1.96				2.10	2.64	-	2.40	1.70	1.92
3	2.40	2.50	1.95				2.12	2.61	2.26	2.36	1.68	2.16
4	2.39	2.60	1.94				2.13	2.57	2.26	2.32	1.64	2.20
5	2.38	2.64	1.93				2.18	2.54	2.26	2.28	1.62	2.24
6	2.37	2.66	1.92				2.22	2.50	2.26	2.26	1.60	2.24
7	2.36	2.63	1.91				2.24	2.50	2.36	2.24	1.68	2.26
8	2.35	2.58	1.90				2.26	2.48	2.34	2.22	1.78	2.28
9	2.36	2.56	1.89				2.26	2.44	2.38	2.18	1.90	2.30
10	2.36	2.53	1.88				2.26	2.42	2.46	2.14	2.16	2.30
11	2.37	2.50	1.87				2.24	2.35	2.62	2.10	2.10	2.30
12	2.37	2.50	1.86				2.22	2.30	2.62	2.06	2.04	2.34
13	2.36	2.46	1.85				2.22	2.24	2.60	2.01	1.98	2.32
14	2.38	2.42	1.84				2.22	2.20	2.62	1.96	1.92	2.32
15	2.37	2.37	1.85				2.22	2.16	2.62	1.92	1.88	2.32
16	2.38	2.32	1.82				2.22	2.13	2.58	1.88	1.84	2.30
17	2.37	2.28	1.81				2.24	2.09	2.55	1.84	1.80	2.28
18	2.37	2.25	1.80				2.32	2.04	2.60	1.82	1.76	-
19	2.38	2.22	1.79				2.32	2.01	2.62	1.80	1.72	-
20	2.38	2.20	1.79				2.32	1.99	2.58	1.76	-	-
21	2.41	2.18	1.79				2.36	2.16	2.56	1.72	-	-
22	2.52	2.16	1.79				2.36	2.14	2.58	1.70	-	-
23	2.64	2.14	1.79				2.39	2.15	2.56	1.68	-	-
24	2.54	2.10	1.79				2.44	2.18	2.52	1.68	-	-
25	2.55	2.07	1.78				2.54	2.20	2.46	1.66	-	-
26	2.56	2.05	-				2.64	2.26	2.48	1.68	-	-
27	2.57	2.03	-				2.69	-	2.48	1.68	-	-
28	2.58	2.02	-				2.71	2.28	2.46	1.70	-	-
29	2.58	2.00	-				2.72	-	2.46	1.68	-	-
30	2.58	1.98	-				2.70	-	2.50	1.68	-	-
31	2.58	-	-				-	2.24	-	1.66	-	-

Palmer Lake near Land O'Lakes, Wis.

Location.- Staff gage, lat. 46°12', long. 89°29', in lot 6, SE¼SW¼ sec. 15, T. 43 N., R. 8 E., 17 miles west of village of Land O'Lakes.

Records available.- June 1938 to September 1939.

Extremes.- Maximum gage height observed during year, 3.00 feet Sept. 30; minimum observed, 1.86 feet Aug. 4.
1938-39: Maximum gage height observed, that of Sept. 30, 1939; minimum observed, that of Aug. 4, 1939.

Remarks.- Records good.

Gage height, in feet, water year October 1938 to September 1939

Oct. 1	2.20	Nov. 4	2.60	June 10	2.20	July 14	1.90	Aug. 25	1.86
7	2.15	Apr. 30	2.81	12	2.60	21	1.70	Sept. 1	1.92
14	2.30	May 5	2.66	16	2.68	28	1.70	8	2.24
21	2.40	12	2.41	23	2.40	Aug. 4	1.66	16	2.30
28	2.55	24	2.17	30	2.44	11	1.80	23	2.80
		June 2	2.25	July 7	2.22	17	1.72	30	3.00

Big Lake near Land O'Lakes, Wis.

Location.- Staff gage, lat. 46°11', long. 89°27', in lot 4, sec. 23, T. 43 N., R. 8 E., 15 miles west of village of Land O'Lakes.

Records available.- June 1938 to September 1939 (fragmentary).

Extremes.- Maximum gage height observed during year, 6.20 feet Oct. 22; minimum observed, 5.40 feet Apr. 4, 5.
1938-39: Maximum gage height observed, that of Oct. 22, 1938; minimum observed, that of Apr. 4, 5, 1939.

Remarks.- Records fair.

Gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-					-	-		-	5.92	5.74
2	5.90	6.00					-	-		-	5.90	5.72
3	5.90	-					-	-		-	5.94	5.72
4	5.90	-					5.40	-		-	5.94	5.88
5	5.90	6.16					5.40	5.70		-	5.92	5.88
6	5.88	-					-	-		-	5.90	5.88
7	5.86	-					-	-		-	5.92	5.88
8	5.88	6.10					-	-		-	5.94	5.90
9	5.88	-					-	-		-	6.00	5.84
10	5.88	-					-	5.64		-	5.98	5.88
11	5.88	6.06					-	-		-	5.96	5.82
12	5.90	-					-	-		-	5.90	5.84
13	5.94	-					-	-		-	5.88	5.82
14	5.96	-					5.50	-		5.94	5.86	5.82
15	5.98	-					-	5.60		5.94	5.82	5.80
16	5.98	-					-	-		5.88	5.80	5.78
17	5.98	-					-	-		5.90	5.76	5.76
18	6.00	-					-	-		5.90	5.76	5.74
19	6.00	-					-	5.70		5.90	5.72	5.74
20	6.00	-					5.53	-		5.88	5.70	5.74
21	-	-					-	-		5.86	5.72	5.74
22	6.20	-					-	-		5.88	5.72	5.74
23	-	-					-	5.80		5.88	5.72	5.76
24	6.18	-					5.50	-		5.88	5.76	5.74
25	-	-					-	5.94		5.90	5.74	5.74
26	6.16	-					5.60	-		5.94	5.74	5.72
27	-	-					5.74	-		5.94	5.74	5.70
28	6.10	-					-	-		5.94	5.74	5.70
29	-	-					-	-		5.94	5.74	5.70
30	-	-					-	-		5.92	5.72	5.74
31	6.00	-					5.80	-		5.92	5.72	-

Mamie Lake near Land O'Lakes, Wis.

Location.- Staff gage, lat. 46°11', long. 89°24', in lot 4, NE¼SW¼ sec. 20, T. 43 N., R. 9 E., 12 miles west of village of Land O'Lakes.

Records available.- June 1938 to May 1939 (discontinued).

Extremes.- (1938-39) Maximum gage height observed, 6.12 feet June 17, 1938; minimum observed, 5.84 feet Sept. 7, 1938.

Remarks.- Records good.

Gage height, in feet	
Oct. 6, 1938	5.88
May 24, 1939	5.92

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. Prior to Dec. 29, 1938, staff gage 1,000 feet downstream at different datum.

Drainage area.- 341 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge during year, 1,910 second-feet Apr. 26 (gage height, 7.85 feet); minimum, 275 second-feet Sept. 25 (gage height, 1.80 feet).
1938-39: Maximum discharge observed, 2,130 second-feet Apr. 1, 1938 (gage height, 8.50 feet); minimum observed, 184 second-feet Aug. 27, 29, 30, Sept. 6, 1938.

Remarks.- Records good except those for periods of ice effect, Nov. 26-30, Dec. 15, 16, 22, Dec. 29 to Jan. 9, Jan. 22 to Mar. 11, Mar. 14-23 (computed on basis of three discharge measurements, gage heights, observer's notes, weather records, and comparison with record for station near Blaney), and those for periods of missing gage heights, Oct. 24, Dec. 2-4, 11, 19, 20, 25, 27 (computed on basis of comparison with record for station near Blaney), all of which are fair. Staff gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

		Dec. 29 to Sept. 30			
1.8	275	3.0	573	5.0	1,110
2.0	323	3.5	705	6.0	1,400
2.3	396	4.0	840	7.0	1,680
2.6	471	4.5	980	8.0	1,970

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	431	381	381	400	400	400	496	1,200	705	547	323	289
2	431	356	388	410	400	420	508	1,110	664	534	335	285
3	406	356	395	420	400	435	496	1,060	638	521	359	282
4	406	356	400	430	395	445	496	1,000	625	496	371	316
5	406	356	406	455	390	450	508	952	599	496	347	359
6	406	356	481	490	390	450	521	924	573	496	335	371
7	381	356	481	510	385	455	508	896	573	484	335	384
8	381	406	456	535	380	455	508	868	599	496	335	371
9	381	481	456	545	380	449	508	840	586	496	335	359
10	381	481	456	560	380	420	521	813	560	484	335	359
11	381	456	430	573	380	390	534	786	625	458	335	384
12	381	456	406	599	375	371	534	759	759	446	323	396
13	381	456	406	612	375	359	534	732	759	434	316	384
14	381	406	381	625	375	360	547	732	732	421	309	371
15	381	381	390	508	370	355	573	732	759	408	299	359
16	356	406	400	547	370	355	625	705	813	396	292	335
17	456	406	406	586	370	350	664	692	840	384	287	316
18	456	406	406	573	360	350	732	678	840	384	285	304
19	481	381	395	651	360	350	813	651	813	371	285	297
20	481	381	388	573	355	350	868	651	786	371	292	289
21	456	381	381	458	355	350	1,060	651	732	359	304	282
22	456	381	380	460	350	345	1,110	664	705	371	323	280
23	456	381	381	455	350	345	1,230	651	705	408	323	277
24	470	381	356	450	350	347	1,400	638	692	396	323	287
25	481	356	356	450	350	371	1,710	664	664	384	318	285
26	456	360	356	445	360	421	1,910	732	625	371	309	277
27	456	370	370	438	370	458	1,850	732	599	371	299	277
28	431	375	381	430	380	458	1,710	759	573	359	289	277
29	406	380	390	420	-	458	1,480	759	547	347	292	335
30	406	380	395	410	-	471	1,280	759	534	347	299	384
31	381	-	395	402	-	484	-	732	-	335	297	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,000	481	356	419	1.23	1.42
November	11,765	481	356	392	1.15	1.28
December	12,449	481	356	402	1.18	1.36
Calendar year	-	-	-	-	-	-
January	15,420	651	400	497	1.46	1.68
February	10,455	400	350	373	1.09	1.14
March	12,477	484	345	402	1.18	1.36
April	26,234	1,910	496	874	2.56	2.86
May	24,522	1,200	638	791	2.32	2.68
June	20,224	840	534	674	1.98	2.21
July	13,171	547	335	425	1.25	1.44
August	9,809	371	285	316	.927	1.07
September	9,771	396	277	326	.956	1.07
Water year 1938-39	179,297	1,910	277	491	1.44	19.57

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, 7 miles southwest of Blaney. Prior to July 25, 1939, chain gage at same site and datum.
Drainage area.- 704 square miles.
Records available.- March 1938 to September 1939.
Extremes.- Maximum discharge observed during year, 6,850 second-feet Apr. 27 (gage height, 18.89 feet); minimum discharge, 395 second-feet several times in August and September. 1938-39: Maximum discharge observed, 9,300 second-feet (revised) Apr. 1, 1938 (gage height, 19.42 feet); minimum observed, 345 second-feet Aug. 28-30, 1938 (gage height, 6.11 feet).
Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 4, Dec. 11 to Apr. 14 (computed on basis of five discharge measurements, gage heights, observer's notes, weather records, and comparison with records for stations at Germfask and near Manistique), and those for periods of missing gage heights, Oct. 24, 29, Dec. 11 (determined by comparison with Germfask and near Manistique stations), all of which are fair. Chain gage read once daily. Records collected in cooperation with U. S. Biological Survey.
Revisions.- Revised figures of discharge, in second-feet, for high-water period in water year 1937-38, superseding those published in Water-Supply Paper 854, are given below.

Mar. 28	4,490	Apr. 1	9,300
29	4,390	2	7,300
30	5,620	3	5,840
31	6,850	4	4,390

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
Mar. 24-31.....	34,870	6,850	2,930	4,359	6.19	1.84
April.....	76,350	9,300	1,330	2,540	3.61	4.03

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	546	625	700	680	650	510	930	4,020	1,270	924	478	413
2	546	606	730	680	650	530	1,000	3,420	1,190	901	478	404
3	526	606	760	710	640	530	1,050	2,650	1,120	857	507	395
4	526	606	820	730	640	530	1,080	2,570	1,070	835	526	431
5	526	606	857	760	640	530	1,120	2,250	994	813	507	478
6	526	586	924	800	640	520	1,150	2,100	947	791	486	507
7	507	606	901	840	630	520	1,190	1,950	924	770	476	526
8	488	686	857	900	620	510	1,210	1,800	994	749	469	526
9	488	835	835	970	620	500	1,260	1,710	970	770	469	507
10	488	857	820	1,020	620	490	1,300	1,630	901	749	478	526
11	488	835	740	1,050	610	480	1,330	1,520	1,170	728	478	546
12	488	835	680	1,050	600	480	1,380	1,440	1,570	686	469	566
13	488	813	600	1,050	600	470	1,400	1,340	1,680	666	460	566
14	488	791	500	1,020	580	460	1,440	1,290	1,570	646	450	546
15	488	707	560	970	570	460	1,470	1,270	1,470	626	440	526
16	507	686	600	930	560	450	1,570	1,270	1,570	606	422	488
17	566	707	610	910	550	450	1,890	1,190	1,600	586	422	469
18	606	707	620	890	550	450	2,130	1,170	1,600	566	413	450
19	626	686	620	870	540	450	2,610	1,120	1,550	566	395	431
20	626	666	620	840	530	450	3,050	1,070	1,470	546	395	440
21	646	646	620	820	520	450	3,490	1,070	1,340	526	404	431
22	666	666	620	780	510	460	4,290	1,120	1,270	526	431	413
23	686	646	620	750	500	490	4,490	1,120	1,290	566	440	404
24	718	626	620	730	500	520	4,850	1,070	1,240	566	440	404
25	749	646	620	710	490	560	5,650	1,090	1,170	546	431	413
26	749	670	620	700	490	610	6,400	1,320	1,090	526	422	404
27	726	680	630	690	490	650	6,850	1,370	1,020	526	404	395
28	707	700	640	680	510	700	6,400	1,390	970	507	395	395
29	676	700	650	670	-	760	5,000	1,420	924	507	395	440
30	646	700	660	660	-	820	4,600	1,370	901	488	404	546
31	646	-	670	660	-	880	-	1,340	-	488	413	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	18,155	749	488	586	0.832	0.96
November.....	20,733	857	586	691	.982	1.10
December.....	21,324	924	500	688	.977	1.13
Calendar year	-	-	-	-	-	-
January.....	25,520	1,050	660	823	1.17	1.35
February.....	16,050	650	490	573	.814	.85
March.....	16,670	880	450	538	.764	.88
April.....	81,580	6,850	930	2,719	3.86	4.31
May.....	50,660	4,020	1,070	1,634	2.32	2.68
June.....	36,845	1,680	901	1,228	1.74	1.94
July.....	20,173	924	488	651	.925	1.07
August.....	13,801	526	395	445	.632	.73
September.....	13,986	566	395	466	.662	.74
Water year 1938-39	335,497	6,850	395	919	1.31	17.74

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 mouth of West Branch of Manistique River and 6 miles northeast of Manistique. Prior to July 15, 1939, chain gage 1,600 feet upstream at different datum.

Drainage area.- 1,100 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 9,680 second-feet Apr. 27 (gage height, 12.72 feet); minimum discharge, 530 second-feet Sept. 3 (gage height, 1.74 feet).
1938-39: Maximum discharge observed, 9,720 second-feet Apr. 1, 1938 (gage height, 12.70 feet, former site and datum); minimum observed, 411 second-feet Aug. 30, 1938 (gage height, 1.32 feet, former site and datum).

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 8, Dec. 14 to Apr. 17 (computed on basis of five discharge measurements, gage heights, observer's notes, weather records, and hydrographic comparison with station near Blaney), and those for days of missing gage heights, Apr. 20, July 1 (interpolated), all of which are fair. Chain gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating tables, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to July 14

1.0	325	4.0	1,370	8.0	3,840	12.0	8,660
2.0	622	5.0	1,850	9.0	4,730	13.0	10,100
2.5	787	6.0	2,420	10.0	5,880		
3.0	973	7.0	3,080	11.0	7,260		

July 15 to Sept. 30

1.0	308	2.2	700
1.4	418	2.6	860
1.8	547	3.0	1,020

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	752	935	1,150	1,000	1,070	760	1,380	7,960	2,360	1,420	661	547
2	718	897	1,180	1,000	1,060	760	1,460	7,400	2,180	1,370	680	547
3	718	897	1,220	1,010	1,030	760	1,550	6,560	2,010	1,330	720	530
4	685	860	1,300	1,060	1,030	760	1,640	6,280	1,790	1,290	740	584
5	685	823	1,360	1,110	1,020	760	1,730	5,490	1,640	1,250	740	622
6	653	860	1,400	1,180	1,010	760	1,810	5,030	1,550	1,210	700	720
7	653	860	1,440	1,280	1,000	760	1,900	4,440	1,500	1,170	700	760
8	653	935	1,450	1,400	990	750	1,950	4,000	1,550	1,170	680	760
9	653	1,130	1,460	1,500	970	750	2,000	3,680	1,500	1,130	680	760
10	653	1,250	1,420	1,580	960	740	2,070	3,440	1,460	1,130	680	760
11	653	1,290	1,370	1,620	940	730	2,130	3,220	1,640	1,090	680	800
12	653	1,290	1,250	1,640	920	710	2,200	2,940	2,420	1,050	680	820
13	653	1,290	1,210	1,650	910	700	2,300	2,740	2,880	1,010	661	840
14	622	1,250	1,180	1,650	900	700	2,400	2,490	2,940	973	642	820
15	622	1,170	1,100	1,620	890	700	2,600	2,360	2,810	1,000	622	780
16	653	1,090	1,000	1,600	870	700	2,800	2,300	2,880	960	603	740
17	685	1,090	1,030	1,580	860	690	3,200	2,120	2,940	920	584	680
18	752	1,090	1,100	1,520	830	690	3,680	2,010	3,010	880	566	642
19	823	1,050	1,120	1,500	810	700	4,170	1,950	2,940	860	547	622
20	860	1,010	1,120	1,460	800	710	4,770	1,850	2,740	820	547	603
21	860	1,010	1,120	1,400	780	730	5,370	1,740	2,490	800	547	603
22	935	935	1,100	1,330	770	750	6,010	1,850	2,240	780	584	566
23	935	897	1,090	1,310	770	730	7,120	1,950	2,180	800	603	547
24	973	910	1,060	1,280	770	820	7,680	1,790	2,120	820	603	547
25	1,010	930	1,050	1,230	760	860	8,380	1,850	2,010	800	603	547
26	1,050	970	1,040	1,210	760	920	8,940	2,060	1,850	780	584	547
27	1,050	1,010	1,030	1,190	760	970	9,680	2,300	1,740	760	566	530
28	1,050	1,070	1,010	1,170	760	1,050	9,530	2,360	1,640	740	547	530
29	1,050	1,090	1,010	1,120	-	1,140	9,380	2,490	1,500	720	530	603
30	1,010	1,110	1,000	1,100	-	1,210	8,520	2,550	1,460	700	530	720
31	973	-	1,000	1,090	-	1,300	-	2,490	-	700	547	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	24,695	1,050	622	797	0.725	0.84
November	30,999	1,290	823	1,033	.939	1.05
December	36,370	1,460	1,000	1,173	1.07	1.23
Calendar year	-	-	-	-	-	-
January	41,390	1,650	1,000	1,335	1.21	1.40
February	25,010	1,070	760	893	.812	.85
March	25,130	1,300	690	811	.737	.85
April	128,350	9,680	1,380	4,278	3.89	4.34
May	101,590	7,960	1,740	3,277	2.98	3.44
June	63,970	3,010	1,460	2,132	1.94	2.16
July	30,433	1,420	700	982	.893	1.03
August	19,357	740	530	624	.567	.65
September	19,677	840	530	656	.596	.66
Water year 1938-39	546,971	9,680	530	1,499	1.36	18.50

Holland Creek near Seney, Mich.

Location.- Staff gage, lat. 46°20'45", long. 86°03'00", in NW¼ sec. 34, T. 46 N., R. 14 W., 4¼ miles west of Seney.

Drainage area.- 13 square miles.

Records available.- May 1938 to September 1939.

Extremes.- Maximum discharge observed during period May 18, 1938, to Sept. 30, 1939, 572 second-feet Apr. 24 (gage height, 4.25 feet); minimum observed, 0.8 second-foot Aug. 24, 1939 (gage height. 0.33 foot).

Remarks.- Records fair. Discharge for periods of ice effect Dec. 14, Dec. 27 to Jan. 6, Jan. 22 to Feb. 2, Feb. 8 to Mar. 12, and Mar. 14-28, computed on basis of three discharge measurements, gage heights, observer's notes, and weather records. Gage read once daily except Nov. 29 to Mar. 23, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Rating tables, water years 1937-39 (gage height, in feet, and discharge, in second-feet)

May 18, 1938, to Apr. 24, 1939 (Shifting-control method used Apr. 23, 24)				Apr. 25 to Sept. 30, 1939 (Shifting-control method used Apr. 27 to May 1, July 6 to Sept. 30)					
0.6	1	1.6	64	0.3	1	1.3	88	3.0	338
.8	6	2.0	109	.5	13	1.6	124	3.7	477
1.0	15	2.5	175	.7	29	2.0	177		
1.3	36	3.0	250	1.0	56	2.5	252		

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	6.0	3.2	1.9	2.0
2								-	6.0	2.8	2.0	2.0
3								-	5.2	2.0	2.8	2.0
4								-	6.0	2.0	2.0	2.0
5								-	6.0	*2.0	2.0	2.0
6								-	9.2	2.0	2.0	2.0
7								-	9.2	2.0	2.0	2.4
8								-	8.4	5.2	2.0	2.4
9								-	7.6	3.6	2.0	2.0
10								-	6.8	3.6	2.8	2.4
11								-	6.0	3.6	2.0	2.4
12								-	5.2	2.0	2.0	4.4
13								-	5.2	2.0	2.0	3.2
14								-	6.8	2.8	2.0	5.2
15								-	*6.4	2.8	2.0	4.4
16								-	6.0	2.0	2.0	3.2
17								-	6.0	2.0	2.0	5.2
18								6.8	5.2	2.0	2.0	7.6
19								8.4	*4.8	2.0	4.4	9.2
20								14	4.4	2.0	2.0	10
21								14	4.4	2.0	2.0	9.2
22								11	3.6	2.0	2.0	8.4
23								10	3.6	1.9	2.0	8.4
24								8.4	2.8	2.0	2.0	7.6
25								*12	3.6	2.8	2.0	7.6
26								15	2.8	2.4	2.0	7.6
27								12	2.8	2.0	2.0	6.0
28								10	2.0	2.8	2.0	6.4
29								8.4	2.8	3.0	2.0	6.0
30								6.8	3.6	2.0	2.0	6.0
31								6.0	-	2.0	2.8	-

*Interpolated.

Discharge, in second-feet, of Holland Creek near Seney, Mich., 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.4	8.4	*7.8	7.3	15	7.0	15	61	32	19	3.8	1.0
2	5.6	8.0	7.6	7.4	15	6.9	15	44	23	15	3.0	1.0
3	5.2	8.4	*7.7	8.0	14	6.8	14	41	23	12	3.4	1.0
4	5.2	7.6	10	13	13	6.7	15	37	19	9.8	3.8	4.2
5	5.2	8.0	*15	20	*13	6.6	17	35	17	9.8	3.4	3.4
6	4.4	8.4	22	18	*12	6.5	17	35	17	9.0	3.4	3.0
7	4.8	10	*21	15	12	6.4	18	32	13	8.2	3.4	3.0
8	4.0	17	20	*15	12	6.4	16	34	13	16	3.4	3.0
9	4.0	16	19	18	11	6.5	17	33	9.8	12	3.4	3.0
10	4.0	*15	19	25	11	6.5	17	28	8.2	11	3.4	3.8
11	4.4	15	*18	*26	11	6.6	19	27	24	9.0	3.4	3.8
12	4.4	14	15	27	10	6.7	14	26	56	9.0	3.0	3.8
13	4.0	14	14	*27	10	6.8	19	23	46	9.8	2.6	3.8
14	3.6	*13	11	27	10	7.0	20	22	30	9.8	2.6	3.8
15	4.0	12	10	*26	9.6	7.0	24	26	49	9.0	2.6	3.4
16	7.6	11	10	*25	9.4	7.0	38	24	88	6.6	2.2	3.0
17	6.0	11	*9.5	24	9.0	7.0	43	23	88	6.6	1.8	3.0
18	6.0	11	8.8	*23	8.8	7.0	59	22	62	5.8	1.4	3.0
19	6.8	11	8.0	22	8.6	7.0	80	22	43	5.8	1.4	3.0
20	7.6	10	*7.8	*21	8.4	7.0	189	21	29	5.0	1.4	2.6
21	7.6	10	7.6	20	8.3	7.0	204	27	19	5.0	1.8	2.2
22	*10	11	8.4	20	8.1	7.0	250	30	27	5.0	1.4	2.2
23	14	10	7.2	19	8.0	7.0	395	27	31	5.0	1.4	2.2
24	12	10	8.0	19	7.8	7.0	572	24	21	5.0	.8	2.2
25	12	9.2	*7.8	20	7.6	8.0	456	31	15	4.6	1.4	2.2
26	11	9.2	7.2	19	7.4	9.0	376	50	13	4.2	1.8	2.2
27	10	8.4	7.2	19	7.2	10	236	45	12	3.8	1.0	1.8
28	10	8.4	7.2	18	7.0	11	177	60	12	3.8	1.4	1.8
29	9.2	*8.2	7.2	18	-	12	112	60	11	3.8	1.4	3.0
30	8.4	8.0	7.2	17	-	12	88	50	13	3.8	1.4	3.0
31	8.4	-	7.2	16	-	15	-	37	-	3.4	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
May 18-31, 1938	142.8	15	6.0	10.2	0.785	0.41
June	158.4	9.2	2.0	5.28	.406	.45
July	75.5	5.2	1.9	2.44	.188	.22
August	66.7	4.4	1.9	2.15	.165	.19
September	149.2	10	2.0	4.97	.382	.43
Water year	-	-	-	-	-	-
October 1938	215.8	14	3.6	6.96	.535	.62
November	321.2	17	7.6	10.7	.823	.92
December	343.4	22	7.2	11.1	.854	.98
Calendar year	-	-	-	-	-	-
January 1939	599.7	27	7.3	19.3	1.48	1.71
February	284.2	15	7.0	10.2	.785	.82
March	240.4	15	6.4	7.75	.596	.69
April	3,532	572	14	118	9.08	10.13
May	1,057	61	21	34.1	2.62	3.02
June	864.0	88	8.2	28.8	2.22	2.48
July	245.6	19	3.4	7.92	.609	.70
August	71.6	3.8	.8	2.31	.178	.21
September	82.4	4.2	1.0	2.75	.212	.24
Water year 1938-39	7,857.3	572	.8	21.5	1.65	22.52

*Interpolated.

Goose Pen outlet at Germfask, Mich.

Location.- Staff gage, lat. 46°14'00", long. 85°56'15", in S½ sec. 4, T. 44 N., R. 13 W., in southwest limits of Germfask.
Records available.- August to September 1939.
Extremes.- Maximum discharge observed during period, 21 second-feet Sept. 19, 20 (gage height, 0.94 foot); no flow Sept. 24, 26; minimum gage height, 0.33 foot Sept. 24.
Remarks.- Records fair except those for period Aug. 1-9 prior to collection of gage heights (computed on basis of information on gate opening and pond elevations), which are poor. Gage read once daily. Water diverted to Goose Pen Pond from left bank of Grays Creek, about 1 mile upstream from mouth. Goose Pen outlet discharges the overflow from Goose Pen Pond directly to Manistique River. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, 1939

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2.0	3.3	11	4.9	9.3	21	4.1	10
2	2.5	2.9	12	4.9	9.7	22	5.3	8.1
3	3.0	2.5	13	4.1	8.9	23	6.1	8.1
4	3.5	6.5	14	4.1	8.5	24	6.1	0
5	4.0	5.3	15	3.3	7.3	25	6.5	12
6	4.0	6.5	16	3.3	6.5	26	5.7	0
7	4.0	7.7	17	2.9	5.3	27	4.9	6.5
8	4.0	10	18	3.3	3.3	28	4.1	2.9
9	4.0	7.3	19	2.9	21	29	4.1	13
10	4.1	7.7	20	3.3	21	30	3.7	11
						31	3.7	-

Month	Second-foot-days	Maximum	Minimum	Mean
August.....	126.4	6.5	2.0	4.08
September.....	232.1	21	0	7.74

Grays Creek near Germfask, Mich.

Location.- Staff gage, lat. 46°13'45", long. 86°57'20", in NE¼ sec. 8, T. 44 N., R. 13 W., half a mile upstream from mouth and 1 mile southwest of Germfask.
Drainage area.- 36 square miles.
Records available.- April 1938 to September 1939.
Extremes.- Maximum discharge observed during period Apr. 1, 1938, to Sept. 30, 1939, 706 second-feet Apr. 26, 1939 (gage height, 9.04 feet); minimum observed, 0.69 second-foot Sept. 21, 1939, by discharge measurement.
Remarks.- Records fair. Discharge for period of ice effect, Dec. 11 to Apr. 16 (during which four discharge measurements were made), and for period when beaver dam obstructed channel, Sept. 1-30 (when one discharge measurement was made), computed on basis of discharge measurements, gage heights, observer's notes, weather records, and comparison with record for Walsh Creek near Seney. On June 15 diversion to Goose Pen Pond was started from Grays Creek, about 1 mile upstream from gage. Gage read once daily except during period Nov. 29 to Mar. 26, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							677	30	14	7.8	5.5	4.7
2							*570	31	13	7.5	7.8	4.6
3							*462	36	13	8.6	6.1	4.3
4							355	45	16	6.3	5.2	4.3
5							295	38	15	*6.1	5.5	3.9
6							195	36	28	5.9	5.0	3.1
7							212	34	19	5.8	4.2	5.0
8							129	32	16	5.8	4.2	4.7
9							104	30	15	6.9	4.3	4.5
10							60	26	15	6.3	5.8	5.0
11							32	*27	18	6.3	6.3	4.8
12							30	28	15	5.8	4.7	7.4
13							19	25	13	5.8	4.1	5.6
14							16	24	16	5.8	5.6	4.6
15							25	22	*17	5.2	4.1	4.1
16							19	20	18	4.7	3.6	3.8
17							18	19	9.4	5.0	7.4	7.5
18							16	16	11	4.7	5.4	22
19							16	24	*10	4.3	4.8	19
20							22	31	8.7	4.2	5.1	8.4
21							24	26	8.1	4.2	4.3	5.3
22							31	24	7.8	4.2	3.8	4.2
23							32	20	7.5	4.2	3.8	4.2
24							37	18	7.2	4.2	3.5	4.2
25							37	*23	7.5	5.8	4.2	3.3
26							31	28	8.1	5.8	4.3	2.9
27							25	22	7.8	4.7	3.8	3.1
28							25	19	6.6	4.7	3.3	3.3
29							32	19	6.3	4.6	3.3	3.5
30							31	16	6.9	4.7	3.9	4.1
31							-	15	-	4.2	5.2	-

*Interpolated.

Discharge, in second-feet, of Grays Creek near Germfask, Mich., 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	16	*20	30	50	24	120	135	6.1	15	4.2	1.5
2	3.5	18	20	30	50	24	110	77	5.1	14	4.5	1.5
3	4.0	18	*20	30	50	23	100	52	5.8	14	4.7	1.5
4	4.2	16	20	35	50	23	100	36	5.5	16	4.3	1.5
5	4.7	18	*21	40	50	23	98	26	4.3	14	4.1	1.5
6	3.5	16	*23	50	48	22	98	20	4.1	14	4.1	1.5
7	3.5	20	24	60	46	22	96	15	5.0	13	1.3	1.5
8	4.5	38	*23	60	44	22	94	13	7.2	13	2.3	2.0
9	4.5	31	22	60	42	21	92	12	5.2	12	2.8	3.0
10	4.5	*31	25	70	40	21	90	10	5.0	12	3.2	3.0
11	6.1	31	30	60	38	21	90	8.9	22	13	2.9	3.0
12	6.8	30	35	54	37	20	96	7.6	20	12	3.5	3.0
13	6.9	30	30	50	36	20	100	7.6	13	10	3.6	3.0
14	6.3	26	30	50	35	20	85	7.4	12	11	2.4	3.0
15	6.3	34	30	50	34	20	100	8.6	13	10	2.6	3.0
16	11	22	28	50	33	20	130	6.8	6.1	9.4	2.8	3.0
17	11	24	25	50	32	20	164	5.9	6.8	9.0	2.4	2.0
18	9.7	24	25	50	31	19	221	5.5	9.4	6.6	2.6	1.5
19	11	24	25	50	30	19	283	5.1	14	6.6	2.7	1.0
20	9.4	24	25	50	30	19	406	4.8	14	5.8	2.1	.8
21	38	19	25	50	29	19	517	5.1	11	3.5	1.7	.7
22	*28	25	27	50	28	19	447	6.5	14	3.8	2.1	.7
23	18	36	30	50	27	19	575	5.5	13	6.2	1.8	.7
24	20	37	30	50	26	25	*633	4.8	12	5.2	1.5	.7
25	*18	36	30	50	26	35	691	11	12	4.0	1.4	.7
26	16	34	30	50	25	50	706	12	13	4.6	1.6	.7
27	16	22	30	50	25	50	691	8.4	12	4.5	1.4	.7
28	16	22	30	50	25	50	604	11	13	4.6	1.3	.7
29	16	20	30	50	-	60	503	9.4	13	4.0	1.4	1.0
30	14	20	30	50	-	70	283	7.2	12	4.1	1.2	2.0
31	14	-	30	50	-	90	-	6.3	-	4.1	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
April 1938	3,577	677	16	119	3.31	3.69
May	802	43	15	25.9	.719	.83
June	373.9	28	6.3	12.5	.347	.39
July	168.1	7.8	4.2	5.42	.151	.17
August	148.1	7.8	3.3	4.78	.133	.15
September	169.4	22	2.9	5.65	.157	.18
Water year	-	-	-	-	-	-
October 1938	338.5	38	3.1	10.9	.303	.35
November	762	38	16	25.4	.706	.79
December	823	35	20	26.5	.736	.85
Calendar year	-	-	-	-	-	-
January 1939	1,529	70	30	49.3	1.37	1.58
February	1,017	50	25	36.3	1.01	1.05
March	910	90	19	29.4	.817	.94
April	8,325	706	85	277	7.69	8.58
May	551.4	135	4.8	17.8	.494	.57
June	308.6	22	4.1	10.3	.286	.32
July	279.0	16	3.5	9.00	.250	.29
August	79.9	4.7	1.2	2.58	.072	.08
September	50.4	3.0	.7	1.68	.047	.05
Water year 1938-39	14,971.8	706	.7	41.0	1.14	15.45

*Interpolated.

244322 O—40—3

Pine Creek near Germfask, Mich.

Location.- Cantilever chain gage, lat. 46°13'45", long. 86°58'25", in NE¼ sec. 7, T. 44 N., R. 13 W., about three-quarters of a mile upstream from mouth and 2½ miles southwest of Germfask.

Drainage area.- 11 square miles.

Records available.- April 1938 to September 1939.

Extremes.- Maximum discharge observed during period Apr. 1 to Sept. 30, 1938, 665 second-feet Apr. 1 (gage height, 12.88 feet); minimum observed, 2.6 second-feet Sept. 2, by discharge measurement.

Maximum discharge observed during water year 1938-39, 537 second-feet Apr. 26 (gage height, 11.49 feet); minimum observed, 2 second-feet Aug. 18 (gage height, 2.52 feet).

Remarks.- Records fair. Discharge for periods of ice effect or of beaver dam obstruction, May 15 to June 22, June 28, 1938 to Apr. 14, 1939, Aug. 30 to Sept. 30, 1939, computed on basis of 14 discharge measurements, gage heights, observer's notes, weather records, and comparison with record of Walsh Creek near Seney. Operation of Refuge pools upstream affects natural flow. Gage read once daily except during period Nov. 29 to Mar. 26, when it was read thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							665	46	10	5	3	3
2							527	44	10	5	4	3
3							390	44	9	4	5	3
4							252	46	11	4	4	3
5							184	44	10	4	3	3
6							124	46	13	4	3	3
7							109	40	12	4	3	4
8							99	38	10	4	3	4
9							90	38	9	4	3	4
10							76	36	8	5	4	4
11							60	33	9	4	4	4
12							50	30	8	4	3	4
13							46	27	8	4	3	4
14							40	23	10	5	3	3
15							50	21	13	5	3	3
16							48	18	12	4	3	3
17							50	16	11	4	3	4
18							52	16	10	4	3	5
19							54	18	9	3	3	5
20							64	18	8	3	3	6
21							68	16	7	3	4	6
22							68	14	6	3	4	6
23							68	14	6	3	3	5
24							68	13	6	3	3	4
25							72	15	5	5	3	4
26							72	17	5	4	3	4
27							56	13	5	3	3	4
28							48	13	5	3	3	3
29							48	12	4	3	3	3
30							48	12	5	3	3	4
31							-	10	-	3	3	-

Discharge, in second-feet, of Pine Creek near Germfask, Mich., 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4	6	8	12	21	11	15	130	44	32	4	3
2	5	6	8	12	20	11	17	104	40	28	3	3
3	5	6	9	12	19	11	19	85	37	27	9	7
4	4	6	10	12	19	11	21	72	36	26	6	13
5	4	6	13	14	18	11	23	64	32	22	5	12
6	4	6	17	17	17	11	24	60	30	21	4	11
7	4	6	20	20	17	11	24	54	28	20	4	11
8	4	10	19	22	16	11	24	52	32	26	4	11
9	4	10	19	23	15	11	24	50	28	22	4	10
10	4	9	22	27	14	11	24	44	27	22	5	10
11	4	8	22	28	14	11	25	38	42	20	4	10
12	4	7	22	29	13	11	27	36	50	18	4	10
13	4	6	20	30	13	12	30	34	48	17	4	18
14	4	6	19	31	13	12	35	32	44	16	4	10
15	4	7	18	32	12	12	44	34	50	13	3	9
16	6	8	17	32	12	12	56	30	56	11	3	8
17	6	9	16	33	12	12	64	30	68	10	3	7
18	6	10	16	34	12	12	80	27	80	8	2	6
19	7	10	15	34	12	12	119	27	85	7	3	6
20	7	10	15	35	12	12	130	26	76	11	3	6
21	7	10	16	35	11	12	184	26	60	12	4	6
22	8	9	16	35	11	12	214	26	64	11	5	6
23	9	9	15	35	11	12	305	26	54	15	5	5
24	10	8	14	34	11	12	474	25	52	9	5	5
25	10	8	14	32	11	12	528	28	48	7	4	5
26	9	8	14	30	11	12	537	40	42	6	4	5
27	8	8	13	28	11	12	474	40	38	6	4	5
28	8	7	13	26	11	12	329	46	36	5	3	5
29	7	7	13	25	-	13	214	48	34	5	3	8
30	7	7	13	23	-	14	145	48	34	4	3	7
31	6	-	12	22	-	14	-	46	-	4	3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
April 1938	3,646	665	40	122	11.1	12.38
May	791	46	10	25.5	2.32	2.68
June	254	13	4	8.5	.773	.86
July	119	5	3	3.8	.345	.40
August	101	5	3	3.3	.300	.35
September	117	6	3	3.9	.355	.40
Water year	-	-	-	-	-	-
October 1938	183	10	4	5.9	.536	.62
November	253	10	6	7.8	.709	.79
December	478	22	8	15.4	1.40	1.61
Calendar year	-	-	-	-	-	-
January 1939	814	35	12	26.3	2.39	2.76
February	389	21	11	13.9	1.26	1.31
March	365	14	11	11.8	1.07	1.23
April	4,229	537	15	141	12.8	14.28
May	1,426	130	23	46.0	4.18	4.82
June	1,395	85	27	46.5	4.23	4.72
July	461	32	4	14.9	1.35	1.56
August	124	9	2	4.0	.364	.42
September	230	13	3	7.7	.700	.78
Water year 1938-39	10,327	537	2	28.3	2.57	34.90

Sand Creek near Germfask, Mich.

Location.- Cantilever chain gage, lat. 46°13'55", long. 86°50'40", in NE¼ sec. 7, T. 44 N., R. 13 W., half a mile upstream from mouth and 3 miles southwest of Germfask.

Drainage area.- 6 square miles.

Records available.- April 1938 to September 1939.

Extremes.- Maximum discharge observed during period Apr. 1, 1938, to Sept. 30, 1939, 319 second-feet Apr. 1, 1938 (gage height, 10.58 feet); no flow July 31 and many times in August 1938.

Remarks.- Records fair. Discharge for periods of ice effect or of backwater from beaver dams, Apr. 7 to May 10, 1938, Nov. 23 to Apr. 15, 1939, and June 19 to Sept. 30, 1939, computed on basis of 12 discharge measurements, gage heights, observer's notes, weather records, and comparison with record for Walsh Creek near Seney. Dike constructed across channel 2 miles upstream about Aug. 2. After this date, natural stream flow was affected by operation of Refuge pools above. Gage read once daily except during period Nov. 29 to Mar. 25, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							319	11	3	2	0	1
2							215	11	3	2	0	1
3							*130	11	2	1	1	1
4							46	12	3	1	0	1
5							22	14	2	*1	0	1
6							26	14	4	1	1	1
7							22	12	3	1	1	1
8							19	10	3	1	1	1
9							17	9	2	1	1	1
10							16	8	2	1	1	1
11							15	*7	2	1	1	1
12							14	5	2	1	1	1
13							13	5	2	1	1	1
14							13	5	2	1	1	1
15							18	4	*2	1	1	1
16							16	4	3	1	1	1
17							14	4	3	1	1	2
18							14	4	3	1	1	5
19							14	5	*2	1	1	4
20							15	6	2	1	1	6
21							14	6	2	1	1	3
22							13	5	2	1	0	2
23							12	5	2	1	0	2
24							11	4	2	1	0	2
25							12	*5	2	1	0	2
26							12	6	2	1	0	2
27							11	5	2	1	1	2
28							11	5	2	1	0	1
29							13	4	1	1	0	1
30							13	4	2	1	0	1
31							-	3	-	0	1	-

*Interpolated.

Discharge, in second-feet, of Sand Creek near Germfask, Mich., 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1	2	7	8	11	4	13	70	19	15	2	1
2	2	2	7	8	12	5	13	62	16	14	2	1
3	1	2	8	8	11	5	12	54	13	11	2	1
4	1	2	9	9	10	5	12	48	12	10	2	1
5	1	2	10	10	9	5	13	46	11	13	2	1
6	1	2	10	11	9	5	13	40	11	13	1	1
7	1	3	11	12	9	4	13	36	13	15	1	1
8	2	5	12	13	9	5	13	38	15	18	1	1
9	2	4	13	14	9	5	13	36	14	16	1	1
10	2	*4	18	22	9	5	13	33	14	16	1	1
11	2	4	15	26	9	5	14	30	39	12	1	1
12	2	4	14	29	8	5	15	28	40	11	1	1
13	1	4	13	32	7	5	15	28	22	10	1	1
14	1	4	12	30	6	5	15	27	18	8	1	1
15	1	4	11	30	6	5	30	34	34	7	1	1
15	2	4	11	29	6	5	85	30	30	7	1	1
17	2	4	11	28	6	5	95	28	25	6	1	1
18	2	4	10	26	6	5	95	27	21	6	1	1
19	3	4	9	23	6	5	150	27	16	6	1	1
20	2	5	9	22	6	6	136	26	14	5	1	1
21	3	5	9	21	6	6	231	26	12	4	1	1
22	*3	6	9	20	6	6	185	28	16	4	1	1
23	3	6	9	19	6	7	193	27	16	5	1	1
24	4	6	9	17	6	9	164	25	12	6	1	1
25	*4	6	9	16	6	11	130	39	11	3	1	1
26	3	6	9	15	5	13	157	39	10	3	1	1
27	3	7	9	14	5	14	143	32	11	3	1	1
28	3	7	9	13	4	13	106	34	13	2	1	1
29	3	7	9	12	-	13	85	30	12	2	1	1
30	2	7	9	11	-	14	80	26	15	2	1	2
31	2	-	9	11	-	14	-	22	-	2	1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
April 1938	1,100	319	11	36.7	6.12	6.85
May	213	14	3	6.9	1.15	1.33
June	69	4	1	2.3	.383	.43
July	32	2	0	1.0	.167	.19
August	19	1	0	.6	.100	.12
September	51	6	1	1.7	.283	.32
Water year	-	-	-	-	-	-
October 1938	65	4	1	2.1	.350	.40
November	132	7	2	4.4	.733	.82
December	319	18	7	10.3	1.72	1.98
Calendar year	-	-	-	-	-	-
January 1939	659	32	8	18.0	3.00	3.46
February	208	12	4	7.4	1.23	1.28
March	219	14	4	7.1	1.18	1.36
April	2,252	231	12	75.1	12.5	14.0
May	1,076	70	22	34.7	5.78	6.66
June	525	40	10	17.6	2.92	3.26
July	255	18	2	8.2	1.37	1.58
August	36	2	1	1.2	.200	.23
September	31	2	1	1.0	.167	.19
Water year 1938-39	5,677	231	1	15.6	2.60	35.22

*Interpolated.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Driggs River near Seney, Mich.

Location.- Staff gage, lat. 46°20'45", long. 86°07'30", in N½ sec. 36, T. 46 N., R. 15 W., 2 miles upstream from Walsh Creek and 8½ miles west of Seney.

Drainage area.- 70 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 518 second-feet Apr. 27 (gage height, 11.08 feet); minimum observed, 35 second-feet Apr. 13 (gage height, 7.09 feet).
1938-39: Maximum discharge observed, that of Apr. 27, 1939; minimum observed, that of Apr. 13, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 22, Dec. 15, 16, Dec. 28 to Jan. 5, Jan. 25 to Mar. 11, Mar. 16-24, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Gage read once daily except Dec. 1 to Mar. 23, when it was read about thrice weekly. Records collected in cooperation with Biological Survey.

Rating tables, water year 1938-39 except periods of ice effect, (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 22-25, Aug. 1-10)

Oct. 1 to Apr. 25				Apr. 26 to Sept. 30			
7.1	36	8.4	160	7.2	41	9.0	246
7.4	62	9.0	227	7.4	58	10.0	374
7.8	98	10.0	353	7.8	101	11.0	505
				8.4	173		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	48	53	67	52	60	62	296	143	101	55	46
2	45	48	53	68	49	60	56	258	125	98	56	46
3	43	48	52	70	49	60	51	233	125	90	62	43
4	43	48	51	70	55	60	49	221	113	90	58	54
5	43	48	57	70	53	57	66	221	107	90	53	56
6	43	50	62	70	50	55	58	221	101	84	51	55
7	43	50	60	71	48	60	43	221	101	84	50	59
8	43	62	60	71	51	66	53	233	107	84	52	56
9	43	56	61	71	55	72	44	221	96	84	54	53
10	43	*59	61	71	60	70	48	197	96	78	57	56
11	43	62	†56	*73	64	65	53	179	119	78	57	56
12	43	62	53	76	64	†60	51	161	179	72	58	56
13	43	61	57	*76	60	58	35	149	173	78	54	56
14	43	*57	60	76	64	*59	55	143	149	72	55	54
15	40	53	60	*71	62	*60	53	149	161	67	55	51
16	50	53	56	*66	60	60	58	137	185	65	54	47
17	54	55	*54	62	60	60	61	131	197	65	53	47
18	52	56	53	*73	60	60	80	125	173	64	51	46
19	50	54	51	84	60	60	89	119	149	63	52	45
20	50	54	*51	*64	60	60	84	113	137	62	51	45
21	50	51	51	53	60	60	103	137	119	62	51	45
22	*54	50	54	*56	60	59	123	131	125	60	52	44
23	58	49	58	*59	60	57	144	131	155	60	51	45
24	59	48	51	*61	60	56	251	125	137	58	52	45
25	58	66	*50	64	60	55	301	131	119	59	52	45
26	56	71	49	64	60	53	505	185	113	58	49	44
27	56	66	†53	64	60	48	518	173	107	58	49	44
28	54	57	64	63	60	58	439	197	101	60	47	44
29	52	*56	65	62	-	51	348	197	96	59	47	51
30	50	53	66	60	-	42	335	179	101	58	47	53
31	50	-	66	56	-	49	-	155	-	58	47	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,499	59	40	48.4	0.691	0.80
November	1,650	71	48	55.0	.786	.88
December	1,748	66	49	56.4	.806	.93
Calendar year	-	-	-	-	-	-
January	2,082	84	53	67.2	.960	1.11
February	1,616	64	48	57.7	.824	.86
March	1,810	72	42	58.4	.834	.96
April	4,216	518	35	141	2.01	2.24
May	5,469	296	113	176	2.51	2.89
June	3,909	197	96	130	1.86	2.08
July	2,217	101	58	71.5	1.02	1.18
August	1,632	62	47	52.6	.751	.87
September	1,487	59	43	49.6	.709	.79
Water year 1938-39	29,335	518	35	80.4	1.15	15.59

*Gage heights missing; discharge interpolated.
†Gage heights missing; discharge based on comparison with records for station near Germfask.

Driggs River near Germfask, Mich.

Location.- Cantilever chain gage, lat. 46°12'00", long. 86°00'00", in N½ sec. 24, T. 44 N., R. 14 W., three-quarters of a mile upstream from mouth and 5 miles southwest of Germfask.

Drainage area.- 114 square miles.

Records available.- April 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 1,040 second-feet Apr. 27 (gage height, 9.88 feet); minimum observed, 34 second-feet Aug. 27-29 (gage height, 3.18 feet).

1938-39: Maximum discharge observed, that of Apr. 27, 1939; minimum observed, that of Aug. 27-29, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 27 to Dec. 1, Dec. 11 to Apr. 14, which were computed on basis of six discharge measurements, gage heights, observer's notes, weather records, and comparison with records for Driggs River near Seney and are fair. Gage read once daily except during Nov. 29 to Mar. 26, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Rating tables, water year 1938-39 except of ice-effected periods (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 14		Apr. 15 to Sept. 30					
3.2	47	3.0	21	4.6	196	8.0	720
3.4	60	3.2	35	5.0	256	9.0	886
3.8	96	3.5	58	5.5	332	10.0	1,060
4.2	141	3.8	85	6.0	408		
		4.2	138	7.0	562		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	72	94	90	86	62	51	454	188	138	67	52
2	62	72	96	90	84	61	52	393	166	131	67	52
3	63	72	*94	90	82	61	53	347	166	124	76	52
4	62	72	91	90	80	61	54	317	159	124	72	67
5	63	72	*93	110	79	60	55	302	145	110	67	67
6	60	68	*94	150	76	60	56	287	138	110	67	67
7	62	77	96	170	75	60	57	287	138	110	67	67
8	63	86	91	180	74	59	58	287	138	117	67	67
9	63	86	91	180	73	59	59	287	131	110	67	67
10	62	88	91	170	72	58	59	256	124	110	67	67
11	62	86	90	135	71	58	60	241	196	96	67	67
12	63	*82	90	128	70	58	70	218	248	96	67	67
13	63	77	90	124	70	57	80	204	248	96	62	67
14	63	77	100	121	69	57	98	196	211	90	82	67
15	61	82	100	120	68	56	117	196	218	85	62	62
16	72	107	100	110	67	56	159	188	271	85	62	58
17	72	82	97	198	66	56	204	174	271	85	62	56
18	72	77	90	107	66	56	256	166	248	80	47	56
19	72	72	84	107	66	55	363	159	211	80	36	67
20	68	72	81	106	66	55	347	152	188	80	35	54
21	68	77	80	106	66	54	531	166	166	76	36	55
22	77	67	80	104	65	54	546	174	174	76	38	55
23	77	77	80	102	65	54	624	166	188	80	36	56
24	*77	72	80	101	64	54	720	159	188	76	38	56
25	77	59	80	100	64	54	800	181	166	76	35	55
26	77	66	80	98	63	53	886	234	152	76	35	54
27	77	71	80	98	63	53	1,040	234	145	76	34	53
28	77	75	90	96	62	52	868	241	138	72	34	53
29	*74	78	90	94	-	52	672	256	131	72	34	67
30	72	89	90	93	-	51	546	234	131	72	52	62
31	68	-	90	90	-	50	-	211	-	72	52	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,112	77	60	68.1	0.597	0.69
November	2,308	107	69	76.9	.675	.75
December	2,773	100	80	89.5	.785	.91
Calendar year	-	-	-	-	-	-
January	3,568	180	90	115	1.01	1.16
February	1,972	86	62	70.4	.618	.64
March	1,746	62	50	56.3	.494	.57
April	9,541	1,040	51	318	2.79	3.11
May	7,367	454	152	238	2.09	2.41
June	5,382	271	124	179	1.57	1.76
July	2,881	138	72	92.9	.815	.94
August	1,670	76	34	53.9	.473	.55
September	1,801	67	52	60.0	.526	.59
Water year 1938-39	43,121	1,040	34	118	1.04	14.07

*Interpolated.

Walsh Creek near Seney, Mich.

Location.- Staff gage, lat. 46°20'55", long. 86°10'40", in NW¼ sec. 34, T. 46 N., R. 15 W., 3½ miles upstream from Driggs River and 11 miles west of Seney.

Drainage area.- 12 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 598 second-feet Apr. 25 (gage height, 7.35 feet); minimum observed, 0.7 second-foot Sept. 3 (gage height, 0.38 foot).
1938-39: Maximum discharge observed, that of Apr. 25, 1939; minimum observed, that of Sept. 3, 1939.

Remarks.- Records fair. Discharge for periods of ice effect, Dec. 14-16, Dec. 27 to Jan. 3, Jan. 22-25, Feb. 10-24, Mar. 14-23, computed on basis of three discharge measurements, gage heights, observer's notes, and weather records. Gage read once daily except during period Nov. 29 to Mar. 23, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 23				Mar. 24 to Sept. 30					
0.8	3.3	1.7	18	0.3	0.1	2.0	28	5.5	252
1.0	5.1	2.0	24	.4	.9	2.5	40	6.0	330
1.2	9.1	2.4	34	.6	3.0	3.0	54	6.5	420
1.4	12			.8	5.7	3.5	76	7.0	518
				1.0	8.8	4.0	104	7.4	598
				1.2	12	4.5	141		
				1.5	18	5.0	188		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.7	8.2	*9.2	9	*12	*7.5	25	104	28	15	2.3	0.9
2	4.6	8.2	9.0	9	11	*7.6	24	76	19	12	2.7	.9
3	4.4	7.8	*10	9	11	7.6	24	62	16	10	4.0	.7
4	4.4	7.6	11	9.3	11	*7.5	25	48	14	9.8	3.3	5.3
5	4.1	9.0	*18	13	*11	*7.6	27	45	12	9.5	2.8	3.3
6	4.1	8.5	25	*16	*10	7.6	26	43	10	9.4	2.7	3.6
7	4.1	11	23	20	9.9	*7.6	28	40	14	8.9	2.4	3.6
8	4.1	20	*22	*22	*9.5	*7.6	26	40	12	13	2.3	3.3
9	4.1	18	21	23	9.1	7.6	25	38	9.8	10	2.7	2.9
10	4.1	*18	21	31	9	*7.6	26	30	9.4	10	2.7	4.3
11	4.1	19	*20	*32	8	*7.5	27	25	33	8.9	2.2	3.9
12	4.1	18	18	32	8	*7.4	25	22	66	8.0	2.1	4.0
13	4.4	17	15	*31	8	7.3	25	19	45	8.2	1.9	4.0
14	4.3	*14	13	30	8	8	27	17	32	6.9	1.7	3.8
15	4.1	12	12	*28	8	8	30	21	51	6.2	1.6	3.1
16	7.9	12	12	*27	8	8	35	19	92	5.6	1.5	2.8
17	5.8	12	*12	25	8	8	40	17	81	5.3	1.4	2.4
18	7.3	12	12	*23	8	8	48	14	54	4.9	1.3	2.3
19	7.9	11	11	21	8	8	48	15	35	4.7	1.4	2.1
20	8.2	11	*11	*20	8	8	58	15	26	4.3	1.6	1.9
21	8.4	11	11	19	8	8	76	20	20	4.2	1.9	1.9
22	*10	12	10	18	8	8	86	23	28	3.9	1.9	1.8
23	11	11	11	17	8	9	108	23	36	3.9	1.5	1.7
24	13	11	10	16	8	12	439	20	25	3.5	1.7	1.7
25	13	10	*10	15	7.6	14	598	24	21	3.4	1.3	1.7
26	12	10	9.5	14	*7.6	15	518	51	18	3.1	1.2	1.7
27	11	9.5	9	*14	*7.6	17	382	51	18	4.9	1.1	1.5
28	11	9.5	9	13	7.6	17	296	71	17	3.1	1.1	1.5
29	9.9	*9.4	9	*13	-	18	188	66	15	2.9	1.1	3.8
30	9.1	9.3	9	*12	-	20	141	51	15	2.7	1.1	3.0
31	8.5	-	9	12	-	23	-	35	-	2.4	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	218.7	13	4.1	7.05	0.588	0.68
November	357.0	20	7.6	11.9	.992	1.11
December	411.7	25	9.0	13.3	1.11	1.28
Calendar year	-	-	-	-	-	-
January	593.3	32	9	19.1	1.59	1.83
February	245.9	12	7.6	8.78	.732	.76
March	315.2	23	7.3	10.2	.850	.98
April	3,533	598	24	118	9.83	10.97
May	1,145	104	14	37.0	3.08	3.55
June	874.2	92	9.4	29.1	2.42	2.70
July	208.5	15	2.4	6.73	.561	.65
August	59.5	4.0	1.0	1.92	.160	.18
September	79.4	5.3	.7	2.65	.221	.25
Water year 1938-39	8,042.5	598	.7	22.0	1.83	24.94

*Interpolated.

Marsh Creek near Shingleton, Mich.

Location.- Staff gage, lat. 46°20'45", long. 86°14'20", in NW¼ sec. 31, T. 46 N., R. 15 W., 11 miles east of Shingleton.

Drainage area.- 20 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 240 second-feet Apr. 24 (gage height, 4.10 feet); no flow at times; minimum gage height, .53 foot Sept. 3. 1938-39: Maximum discharge observed, 268 second-feet Mar. 31, 1938 (gage height, 4.20 feet); no flow at times in 1938 and 1939; minimum gage height, that of Sept. 3, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 25 to Dec. 1, Dec. 13 to Jan. 8, Jan. 11 to Apr. 5, which were computed on basis of four discharge measurements, gage heights, observer's notes, and weather records and are fair. Discharge for days of missing gage heights, Oct. 22, Nov. 10, 14, Dec. 3, 5, 8, 11, computed on basis of comparison with station near Germfask. Gage read once daily except during Nov. 29 to Mar. 23, when it was read about thrice weekly. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	3.7	6	6	7	3	5	99	19	6.0	0	0
2	.8	3.7	6.0	6	6	3	5	81	13	5.6	.1	0
3	.8	3.7	6.4	6	6	3	5	62	12	5.0	.5	0
4	.8	3.7	6.8	6	6	3	5	45	9.4	4.8	.4	0
5	.8	4.2	8.6	7	6	3	7	39	7.6	4.8	.3	0
6	.8	4.0	12	7	5	3	9.6	34	6.4	5.0	.3	0
7	1.1	5.2	13	8	5	3	10	34	8.6	4.8	.1	0
8	1.1	7.6	12	8	5	3	9.6	34	6.6	5.4	0	0
9	1.1	5.6	12	9	5	3	10	31	5.4	5.4	.3	0
10	1.1	7.1	11	11	5	3	11	27	5.2	5.0	.2	.3
11	1.1	8.8	10	11	4	3	11	23	26	4.6	.1	.2
12	1.1	8.2	9.4	11	4	3	12	20	48	4.4	0	.4
13	1.3	8.8	8	12	4	3	12	18	29	4.0	0	.4
14	1.2	7.9	8	13	4	3	12	16	19	3.3	0	.3
15	1.2	6.4	7	13	4	3	14	18	39	2.6	0	.2
16	2.4	6.0	7	12	4	3	15	18	71	2.1	0	.1
17	2.2	6.2	6	12	4	3	18	15	54	1.9	0	.1
18	2.4	6.2	6	12	4	3	26	13	36	1.7	0	0
19	2.4	6.8	6	12	4	3	42	11	21	1.4	0	0
20	2.4	6.4	6	12	4	3	106	11	14	1.2	0	0
21	2.4	6.4	6	12	3	3	106	12	10	1.0	0	0
22	2.6	6.8	6	12	3	3	122	18	13	.8	0	0
23	2.9	6.4	6	12	3	3	212	18	21	.7	0	0
24	2.7	6.0	6	12	3	4	240	15	20	.6	0	0
25	2.5	5	6	12	3	5	212	19	12	.6	0	0
26	3.3	5	6	10	3	6	212	39	9.6	.4	0	0
27	2.7	5	6	10	3	6	212	34	8.6	.6	0	0
28	4.0	5	6	9	3	6	174	52	7.6	.3	0	0
29	4.0	5	6	8	-	6	141	54	7.0	.2	0	0
30	4.0	6	6	8	-	6	132	39	7.0	.1	0	.1
31	4.0	-	6	7	-	5	-	26	-	.1	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	62.0	4.0	0.8	2.00	0.100	0.12
November	176.8	8.8	3.7	5.89	.294	.33
December	233.2	13	6.0	7.52	.376	.43
Calendar year	-	-	-	-	-	-
January	306	13	6	9.9	.495	.57
February	120	7	3	4.3	.215	.22
March	112	6	3	3.6	.180	.21
April	2,108.2	240	6	70.3	3.52	3.93
May	974	99	11	31.4	1.57	1.81
June	565.0	71	5.2	18.8	.940	1.05
July	84.1	6.0	.1	2.71	.136	.16
August	2.3	.6	0	.07	.0035	.004
September	2.1	.4	0	.07	.0035	.004
Water year 1938-39	4,745.7	240	0	13.0	.650	8.84

Marsh Creek near Germfask, Mich.

Location.- Water-stage recorder, lat. 46°10'00", long. 86°00'50", in E½ sec. 35, T. 44 N., R. 14 W., 1 mile upstream from mouth and 7 miles southwest of Germfask. Prior to Feb. 23, 1939, staff gage at same site and datum.

Drainage area.- 15 square miles, not including diversions to Duck Creek.

Records available.- April 1938 to September 1939.

Extremes.- Maximum discharge during year, 319 second-feet Apr. 27 (gage height, 8.39 feet); minimum, 0.2 second-foot Aug. 15 (gage height, 0.80 foot).
1938-39: Maximum discharge, that of Apr. 27, 1939; minimum, that of Aug. 15, 1939.

Remarks.- Records good except those for period Oct. 1 to Mar. 21, which are fair. Stage-discharge relation affected by ice Feb. 4 to Mar. 21. Discharge for period Nov. 26 to Mar. 21 computed on basis of four discharge measurements, gage heights, observer's notes, and weather records. Staff gage read once daily except from Nov. 26 to Feb. 23, when it was read once weekly. Flow originating upstream from line between R. 14 W. and 15 W. is diverted from Marsh Creek Basin through drainage canal into Duck Creek and is not included in these records. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	5.5	5.3	7.4	13	6	29	*134	9.8	S.0	0.9	0.9
2	2.5	5.3	5	7	13	6	30	86	8.4	6.9	1.2	.S
3	2.6	5.1	6	8	12	6	30	58	7.4	6.1	1.6	.S
4	2.5	5.1	6	8	11	6	33	42	7.8	5.6	1.2	1.7
5	2.5	5.3	10	11	11	6	32	32	6.5	5.6	1.2	1.6
6	2.4	5.3	13	12	10	6	35	*26	5.6	5.2	1.0	1.7
7	2.5	6.6	15	23	10	6	41	22	6.1	4.8	1.2	2.0
S	2.6	12	15	28	10	6	35	16	7.8	4.5	1.2	1.9
9	2.6	16	15	32	9	6	38	16	6.5	4.1	1.1	1.7
10	2.6	14	14	37	9	6	34	13	5.6	3.7	1.1	2.4
11	2.6	13	13	38	9	6	41	11	27	2.9	1.3	2.4
12	2.7	*12	13	37	9	6	44	9.6	54	2.6	1.2	2.4
13	2.6	11	12	36	9	6	44	S.7	44	2.7	.e	2.4
14	2.4	9.5	11	32	9	6	4S	S.4	31	2.5	.4	2.3
15	2.4	e6.6	10	29	9	6	56	8.8	32	2.3	.2	2.0
16	2.6	7.8	e.9	26	S	6	92	S.2	40	2.3	.4	1.8
17	3.3	7.S	8	23	8	7	127	7.6	37	2.2	.8	1.5
18	3.3	7.7	S	22	S	7	157	7.1	29	2.1	.e	1.4
19	4.1	7.6	7	21	8	7	231	6.4	22	1.7	.8	1.3
20	4.0	7.6	7	20	7	7	253	6.1	17	1.5	1.0	1.2
21	4.3	7.1	7	20	7	8	258	6.7	13	1.5	1.2	1.1
22	4.6	S.9	6.6	19	7	10	258	8.7	16	1.5	1.5	1.0
23	5.9	7.8	7	18	7	11	264	8.0	18	1.5	1.6	1.0
24	8.6	7.4	7	17	7	16	269	6.9	14	1.4	1.4	1.0
25	*8.4	6.6	7	17	7	22	280	11	12	1.4	1.2	1.0
26	8.1	6	7	16	7	28	302	22	10	1.2	1.1	1.0
27	7.7	6	7	16	7	32	319	18	9.2	1.1	1.1	1.0
28	6.8	6	7	15	6	26	302	21	S.6	1.0	1.0	1.1
29	*6.5	6	7	14	-	25	258	19	7.8	1.0	1.0	2.7
30	*6.1	5	7.4	14	-	28	182	15	8.1	1.0	1.0	3.S
31	*5.8	-	7	14	-	30	-	12	-	1.0	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	128.4	8.6	2.4	4.14	0.276	0.32
November	239.6	16	5.1	7.99	.533	.59
December	2S1.2	15	5	9.07	.605	.70
Calendar year	-	-	-	-	-	-
January	637.4	38	7	20.6	1.37	1.58
February	247	13	6	8.82	.588	.61
March	360	32	6	11.6	.773	.89
April	1,124	319	29	137	9.13	10.19
May	674.2	134	6.1	21.7	1.45	1.67
June	521.2	54	5.6	17.4	1.16	1.29
July	90.9	8.0	1.0	2.93	.195	.22
August	32.5	1.6	.2	1.05	.070	.08
September	48.4	3.3	.8	1.61	.107	.12
Water year 1938-39	7,384.8	319	.2	20.2	1.35	18.26

*Interpolated.

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. Prior to May 9, 1939, staff gage 2¾ mile downstream at different datum.

Drainage area.- 92 square miles, including diversions to Duck Creek from Walsh Creek and Marsh Creek.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during period from Mar. 24, 1938, to Sept. 30, 1939, 1,740 second-feet Apr. 26, 1939 (gage height, 11.70 feet, former site and datum); minimum observed, 9 second-feet Aug. 9, 1938.

Remarks.- Records good except those for periods of ice effect, Mar. 24, 28, Nov. 25-30, Dec. 11-31, 1938, Jan. 1 to Apr. 19, 1939 (computed on basis of six discharge measurements, gage heights, observer's notes, and weather records), and those for periods of missing gage heights, Mar. 25-27, Mar. 29 to Apr. 8, Apr. 10, 14, 28, May 10-16, 26, Sept. 19, Oct. 24, 29, Dec. 2-4, 10, 1938, Apr. 22, July 14, 1939 (interpolated or computed by comparison with records for Driggs River near Germfask and Manistique River near Blaney), all of which are fair. Staff gage read once daily except during period Dec. 1 to Apr. 5, when it was read twice weekly or oftener. Record includes 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 upstream from station. Records collected in cooperation with U. S. Biological Survey.

Rating table, May 9 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

1.6	4	4.0	160	8.0	560
2.0	17	4.5	210	9.0	717
2.5	38	5.0	260	10.0	981
3.0	67	6.0	365		
3.5	110	7.0	470		

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	880	188	67	34	15	19
2						-	820	132	62	32	14	24
3						-	810	176	59	32	14	22
4						-	720	182	59	29	14	21
5						-	620	182	59	28	11	22
6						-	470	188	59	28	10	15
7						-	430	182	64	26	10	20
8						-	370	171	62	23	10	20
9						-	348	165	59	26	9	17
10						-	300	148	54	26	13	18
11						-	269	130	54	26	15	24
12						-	251	120	52	24	18	27
13						-	233	105	49	24	20	28
14						-	260	95	44	22	13	26
15						-	282	87	62	23	12	24
16						-	308	80	62	22	12	24
17						-	315	75	54	22	16	27
18						-	321	70	52	20	25	34
19						-	321	81	52	18	25	50
20						-	328	89	49	18	27	81
21						-	321	97	46	16	25	72
22						-	308	97	42	16	25	62
23						-	289	92	40	16	19	54
24						300	239	81	38	15	18	49
25						335	239	81	40	18	18	44
26						390	216	96	40	24	16	40
27						500	199	103	35	22	15	38
28						600	189	94	34	18	16	35
29						680	188	84	32	20	14	33
30						790	186	75	32	16	15	32
31						900	-	70	-	15	18	-

Discharge, in second-feet, of Duck Creek near Blaney, Mich., 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	54	89	70	85	58	110	800	170	107	15	12
2	29	54	94	70	83	59	120	593	145	91	16	11
3	29	54	98	76	81	59	130	501	130	79	26	10
4	29	52	103	84	78	58	140	427	140	70	23	22
5	28	54	108	92	76	58	150	362	125	75	19	27
6	27	54	120	103	75	57	160	328	110	79	18	25
7	27	62	120	110	73	56	175	296	91	69	19	29
8	28	78	114	120	72	55	180	269	91	74	18	27
9	27	97	114	140	70	54	195	230	76	76	21	24
10	27	103	111	160	69	52	200	225	70	74	22	31
11	26	97	108	170	68	50	205	190	210	67	19	36
12	27	103	101	180	67	49	210	165	255	62	17	33
13	27	103	93	180	67	48	210	150	230	67	16	32
14	27	97	88	175	66	46	215	135	210	53	15	29
15	26	84	77	175	65	45	220	130	210	39	14	26
16	29	94	84	175	64	44	235	130	220	33	12	23
17	40	92	86	170	64	43	265	110	230	38	12	21
18	40	92	86	165	62	42	310	102	240	32	12	19
19	44	84	87	160	61	41	420	100	240	31	12	18
20	44	81	88	160	60	41	662	91	205	29	13	17
21	44	78	87	140	59	40	1,000	100	175	27	15	16
22	44	86	85	135	59	40	1,120	110	175	26	20	16
23	52	86	83	130	58	40	1,240	104	160	30	18	15
24	58	84	82	125	57	40	1,460	96	160	28	19	15
25	64	84	79	115	56	40	1,680	120	145	25	16	15
26	62	84	77	110	57	45	1,740	165	120	24	14	15
27	62	85	75	105	57	51	1,680	170	108	24	13	15
28	56	85	74	100	58	61	1,570	190	106	21	12	15
29	55	86	73	95	-	70	1,240	190	95	19	13	31
30	54	87	72	92	-	80	1,100	195	104	17	13	42
31	52	-	71	88	-	98	-	186	-	16	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
March 24-31, 1938	4,495	900	300	562	6.11	1.82
April	11,032	880	188	368	4.00	4.46
May	3,666	188	70	118	1.28	1.48
June	1,513	67	32	50.4	.548	.61
July	699	34	15	22.5	.245	.28
August	502	27	9	16.2	.176	.20
September	1,002	81	15	33.4	.363	.40
Water year	-	-	-	-	-	-
October 1938	1,215	64	26	39.2	.426	.49
November	2,454	103	52	81.1	.882	.98
December	2,827	120	71	91.2	.991	1.14
Calendar year	-	-	-	-	-	-
January 1939	3,960	180	70	128	1.39	1.60
February	1,867	85	56	66.7	.725	.76
March	1,618	96	40	52.2	.567	.65
April	18,342	1,740	110	611	6.64	7.41
May	6,958	800	91	224	2.43	2.80
June	4,746	255	70	158	1.72	1.92
July	1,502	107	16	48.5	.527	.61
August	504	26	12	16.3	.177	.20
September	667	42	10	22.2	.241	.27
Water year 1938-39	46,640	1,740	10	128	1.39	18.83

*Interpolated.

West Branch of 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 mouth of Stutts Creek and 10 miles northeast of Manistique. Prior to Apr. 15, 1939, chain gage 500 feet upstream at different datum.

Drainage area.- 322 square miles.

Records available.- April 1938 to September 1939.

Extremes.- Maximum discharge observed during period Apr. 11 to Sept. 30, 1938, 1,740 second-feet Apr. 19, 20; minimum observed, 100 second-feet Aug. 30.
Maximum discharge during water year ending Sept. 30, 1939, 5,300 second-feet Apr. 29, 1939 (gage height, 12.9 feet); minimum, 121 second-feet Sept. 3 (gage height 2.00 feet).

Remarks.- Records good except those for days of missing gage heights, May 30, 31, June 18, Sept. 6, 24, 1938 (interpolated), those for Oct. 15, 24, 29, 31, Nov. 1, 3, 11, 1938, Apr. 27, 28, 30, May 1, 2, July 27, 29, 30, 1939 (computed on basis of hydrographic comparison with records for Manistique River near Blaney and Manistiqus River near Manistique), and those for period of ice effect, Nov. 15 to Apr. 14 (computed on basis of six discharge measurements, gage heights, observer's notes, weather records, and comparison with records for Manistique River near Manistique), all of which are fair. Chain gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating tables, Apr. 11, 1938, to Sept. 30, 1939, except period of ice effect (gage height, in feet, and discharge, in second-feet)

Apr. 11, 1938, to Apr. 14, 1939				Apr. 15 to Sept. 30 (Shifting-control method used May 24 to July 20)					
2.3	100	4.5	611	1.9	110	4.0	551	9.0	2,350
2.5	156	5.0	754	2.2	146	4.5	706	10.0	2,800
3.0	239	6.0	1,060	2.5	196	5.0	870	11.0	3,360
3.5	351	7.0	1,360	2.8	252	6.0	1,210	12.0	4,230
4.0	477	8.0	1,700	3.2	334	7.0	1,570	12.9	5,300
				3.6	456	8.0	1,960		

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	783	401	208	137	128
2							-	754	376	208	128	128
3							-	754	351	208	116	118
4							-	725	351	208	128	118
5							-	696	376	197	128	109
6							-	667	376	186	118	114
7							-	696	401	176	128	118
8							-	667	401	176	109	118
9							-	639	401	176	109	118
10							-	611	376	197	137	118
11							1,170	584	351	208	146	128
12							1,110	557	351	208	146	137
13							1,050	503	376	197	146	146
14							1,060	451	327	186	128	146
15							1,170	451	339	208	118	137
16							1,270	426	339	208	118	128
17							1,490	401	339	197	109	128
18							1,630	376	339	176	146	156
19							1,740	376	327	176	146	186
20							1,740	376	316	166	146	218
21							1,670	376	293	156	146	239
22							1,560	401	282	146	137	260
23							1,460	401	260	146	128	260
24							1,300	401	250	146	128	244
25							1,170	426	250	166	118	228
26							1,080	451	239	166	118	208
27							990	477	228	176	118	208
28							930	503	228	156	118	197
29							870	503	218	156	109	186
30							841	469	208	146	100	176
31							-	456	-	137	128	-

Discharge, in second-feet, of West Branch of Manistique River near Manistique, Mich., 1938-39—Con.

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	298	310	270	300	210	270	3,500	936	464	152	127
2	166	293	320	270	300	205	280	3,000	837	436	170	125
3	166	280	325	270	295	205	300	2,750	738	422	171	123
4	156	260	330	280	290	205	315	2,390	643	396	171	145
5	156	260	336	290	285	205	335	2,110	581	370	168	154
6	156	250	350	315	285	205	355	1,870	536	358	163	192
7	156	271	400	330	280	200	375	1,720	506	346	166	194
8	166	304	451	350	280	200	390	1,570	492	334	160	191
9	166	339	470	400	275	200	410	1,460	450	334	164	192
10	156	376	480	435	270	200	430	1,350	422	334	168	202
11	156	390	480	470	265	200	460	1,250	566	323	171	206
12	156	401	470	490	260	200	490	1,140	804	312	170	213
13	156	401	460	510	255	195	520	1,040	903	302	161	215
14	156	401	450	520	250	195	560	936	970	285	155	211
15	160	390	360	510	245	195	612	870	1,040	273	149	204
16	166	360	340	510	240	195	674	820	1,110	262	143	189
17	176	360	360	500	235	195	754	788	1,140	250	141	175
18	186	340	380	480	230	195	903	738	1,140	242	140	164
19	208	320	375	470	230	195	1,140	690	1,110	231	138	160
20	218	300	365	460	225	190	1,280	643	1,040	224	140	154
21	218	290	350	440	220	195	1,530	612	936	206	143	148
22	228	275	330	420	217	195	1,870	612	854	198	149	145
23	228	270	320	405	215	195	2,270	612	788	198	146	145
24	245	270	315	390	210	198	2,800	628	738	192	143	142
25	260	270	310	370	210	200	3,670	643	722	185	140	141
26	293	280	305	350	210	205	4,790	722	690	183	138	141
27	304	290	300	334	210	210	5,000	771	643	180	136	140
28	316	295	290	325	210	220	5,200	837	581	176	133	140
29	310	300	285	320	-	230	5,300	903	536	168	132	164
30	304	305	280	315	-	240	4,100	936	506	160	129	173
31	300	-	270	305	-	255	-	936	-	158	128	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
April 11-30, 1938	25,291	1,740	841	1,265	3.93	2.92
May	16,336	785	376	527	1.64	1.89
June	9,670	401	208	322	1.00	1.12
July	5,567	208	137	180	.559	.64
August	3,937	146	100	127	.394	.45
September	4,903	260	109	163	.506	.56
Water year	-	-	-	-	-	-
October 1938	6,364	316	156	205	0.637	0.73
November	9,459	401	250	315	.978	1.09
December	11,167	480	270	360	1.12	1.29
Calendar year	-	-	-	-	-	-
January 1939	12,094	520	270	390	1.21	1.40
February	6,997	300	210	250	.776	.81
March	6,333	255	190	204	.634	.73
April	47,383	5,300	270	1,579	4.90	5.47
May	38,847	3,500	612	1,253	3.89	4.48
June	22,958	1,140	422	765	2.38	2.66
July	8,502	464	168	274	.851	.98
August	4,678	171	128	151	.469	.54
September	5,015	215	123	167	.519	.58
Water year 1938-39	179,797	5,300	123	493	1.53	20.76

Creighton River near Shingleton, Mich.

Location.- Staff gage, lat. 46°20'45", long. 86°16'35", in NW¼ sec. 35, T. 46 N., R. 16 W., 8 miles upstream from confluence with West Branch of Manistique River and 9½ miles east of Shingleton.

Drainage area.- 35 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 552 second-feet Apr. 26 (gage height, 6.10 feet); minimum observed, 5 second-feet Sept. 3 (gage height, 2.14 feet).

1938-39: Maximum discharge observed, that of Apr. 26, 1939; minimum observed, 4 second-feet Aug. 30, 1938 (gage height, 2.22 feet).

Remarks.- Records good except thoee for periode of ice effect, Nov. 25-27, Dec. 11-15, 19, 22, Dec. 27 to Jan. 6, Jan. 11 to Mar. 12, Mar. 14-24, which were computed on basis of four diecharge measurements, gage heights, observer's notes, weather records and are fair. Discharge Dec. 5 based on comparison with West Branch of Manistique River near Manistique. Gage read once daily except during Nov. 29 to Mar. 23, when it was read about thrice weekly. Records collected in cooperation with Biological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	30	*25	21	33	25	40	487	128	48	10	6
2	12	30	24	20	32	25	44	428	96	46	12	6
3	12	29	*26	20	32	24	53	357	68	42	15	5
4	11	28	28	20	30	24	40	314	71	40	11	21
5	10	30	40	29	29	23	48	296	63	38	11	17
6	10	30	58	35	28	22	53	280	53	38	10	17
7	10	56	60	42	27	22	80	264	56	36	10	18
8	10	56	*58	*45	27	23	56	280	53	40	10	16
9	10	53	56	48	27	23	63	264	48	36	11	14
10	10	*56	53	63	27	22	56	232	46	36	13	18
11	10	60	50	70	27	20	50	202	80	32	11	20
12	10	58	46	80	26	19	53	174	128	29	11	20
13	10	58	42	64	26	18	60	144	136	29	10	21
14	10	*52	39	60	26	19	46	136	136	26	10	18
15	10	46	35	57	26	21	53	136	154	23	9	16
16	24	42	34	55	26	22	60	122	187	22	8	12
17	28	40	*32	52	26	23	63	110	187	27	8	11
18	28	40	30	50	26	24	77	96	154	11	7	9
19	30	38	31	45	26	24	88	88	128	17	7	8
20	29	34	*30	46	25	24	110	80	100	16	8	8
21	29	32	28	50	25	24	161	104	80	16	9	7
22	*30	34	27	50	25	23	187	104	80	16	9	7
23	32	32	26	46	25	23	296	100	115	16	8	8
24	48	36	24	43	25	23	487	92	88	17	9	7
25	48	34	*24	40	25	23	530	96	74	16	9	7
26	53	31	24	39	25	24	552	144	66	17	8	6
27	48	29	24	38	25	34	487	154	60	16	7	6
28	46	28	24	36	25	29	508	202	56	14	6	6
29	42	*27	25	35	-	28	466	202	50	13	6	15
30	36	26	22	34	-	32	487	187	50	12	6	16
31	32	-	22	33	-	36	-	144	-	11	6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	741	53	10	23.9	0.683	0.79
November	1,155	60	26	38.5	1.10	1.23
December	1,065	60	22	34.4	.983	1.13
Calendar year	-	-	-	-	-	-
January	1,366	80	20	44.1	1.26	1.45
February	752	33	25	26.9	.769	.80
March	746	36	18	24.1	.689	.79
April	5,354	552	40	178	5.09	5.68
May	6,047	487	80	195	5.57	6.42
June	2,611	187	46	93.7	2.68	2.99
July	790	48	11	25.5	.729	.84
August	285	15	6	9.2	.263	.30
September	366	21	5	12.2	.349	.39
Water year 1938-39	21,478	552	5	58.8	1.68	22.81

*Gage heights missing; discharge interpolated.

Indian River near Manistique, Mich.

Location.- Chain gage, lat. 45°59'30", long. 86°17'15", in NE¼ sec. 34. T. 42 N., R. 16 W., at Indian Lake outlet, 2 miles from Manistique.

Drainage area.- 302 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge observed during year, 1,000 second-feet Apr. 30; maximum gage height, 6.48 feet; minimum observed, 106 second-feet Aug. 6, 7; minimum gage height, 3.38 feet Mar. 25.
1938-39: Maximum discharge observed, that of Apr. 30, 1939; minimum observed, that of Aug. 6, 9, 1939.

Remarks.- Records good. Flow during the summer regulated by dam 1½ miles downstream from gage. Gage read once daily. Records collected in cooperation with Biological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	271	365	375	358	341	309	325	962	556	575	301	190
2	271	365	375	358	341	309	325	925	537	575	282	190
3	260	365	375	341	341	309	341	889	575	575	301	190
4	260	348	375	341	341	309	358	889	575	556	301	190
5	250	348	375	341	341	309	358	889	575	575	301	190
6	250	348	375	341	341	309	375	889	556	575	106	211
7	250	348	375	325	341	309	392	855	556	556	106	211
8	250	348	375	341	341	309	392	855	556	537	127	232
9	250	348	375	341	341	309	410	822	556	519	127	232
10	482	368	375	341	341	309	410	822	537	519	127	253
11	482	365	375	341	341	309	410	790	575	500	148	388
12	464	365	392	341	341	293	428	760	575	500	148	366
13	464	365	392	341	341	293	428	731	595	482	148	366
14	446	382	392	341	341	293	446	704	614	500	169	366
15	428	382	375	341	341	293	446	704	614	341	169	366
16	446	317	375	358	341	293	464	704	614	341	169	366
17	428	368	375	358	341	293	464	679	614	321	169	366
18	428	385	375	358	341	309	500	656	634	321	190	366
19	428	385	375	375	341	309	519	634	656	321	190	344
20	428	385	375	375	341	309	575	634	634	321	169	344
21	410	385	375	375	341	293	634	634	634	321	169	344
22	365	385	375	375	341	293	656	634	614	301	169	323
23	365	368	375	375	341	293	731	614	614	301	190	323
24	365	368	375	375	341	293	760	614	614	301	190	323
25	365	368	358	375	341	293	822	614	614	301	190	323
26	365	368	358	375	325	293	855	614	614	301	211	303
27	365	368	358	358	325	293	889	614	614	301	211	303
28	365	358	358	358	325	293	925	614	595	301	211	303
29	365	375	358	358	-	309	962	614	595	301	211	303
30	365	375	358	358	-	309	1,000	614	595	301	211	323
31	365	-	358	358	-	309	-	595	-	301	190	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	11,296	482	250	364	1.21	1.40
November	10,975	385	317	366	1.21	1.35
December	11,557	392	358	373	1.24	1.43
Calendar year	-	-	-	-	-	-
January	10,997	375	325	355	1.18	1.36
February	9,500	341	325	339	1.12	1.17
March	9,355	309	293	302	1.00	1.15
April	16,600	1,000	325	553	1.83	2.04
May	22,568	962	595	728	2.41	2.78
June	17,807	656	537	594	1.97	2.20
July	12,841	575	301	414	1.37	1.58
August	5,901	301	106	190	.629	.73
September	8,898	388	190	297	.983	1.10
Water year 1938-39	146,295	1,000	106	406	1.34	18.29

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

Location.- Lat. 45°52', long. 88°04', 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 1939.

Average discharge.- 25 years, 1,761 second-feet.

Extremes.- Maximum daily discharge during year, 10,600 second-feet Apr. 28; minimum daily, 714 second-feet Oct. 2.
1914-39: 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 is regulated by power plant at which station is located and also by plant on Brule River, about 5 miles upstream from station, where drainage area is 58 percent of that at station. Records of daily discharge computed by Wisconsin Michigan Power Company, on basis of load-discharge rating of hydroelectric units as developed by Geological Survey in 1932-33 and checked within 1 percent by two discharge measurements made in September 1939.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	735	2,510	1,680	1,020	1,310	1,080	5,350	7,400	3,410	2,960	1,450	1,340
2	714	2,570	1,880	915	1,460	1,060	5,730	6,860	3,520	3,120	1,370	1,210
3	903	2,460	1,640	1,240	1,370	1,150	6,480	6,820	3,390	2,540	1,210	1,040
4	865	2,490	1,510	1,230	1,230	1,460	5,100	6,350	2,750	2,110	1,170	1,050
5	1,030	2,900	1,710	1,410	1,180	1,220	5,860	6,000	2,240	2,800	1,120	1,200
6	1,020	3,390	1,770	1,800	1,360	1,340	6,400	6,070	2,980	1,910	985	1,640
7	1,020	3,900	1,740	2,010	1,340	1,350	6,320	5,820	2,340	2,550	1,090	1,320
8	1,170	3,560	1,740	1,940	1,400	1,230	5,650	4,940	2,620	6,940	1,260	1,840
9	1,100	3,360	1,780	1,450	1,360	1,210	4,940	5,320	2,800	3,050	1,800	1,330
10	1,340	3,110	1,450	1,910	1,320	1,270	4,670	5,140	2,880	2,410	1,910	1,210
11	1,330	3,060	1,220	1,920	1,150	1,240	4,090	4,730	3,750	2,850	2,720	1,540
12	1,070	3,010	1,340	2,070	1,060	1,050	4,140	4,370	6,370	3,060	2,710	1,670
13	1,050	3,050	1,270	2,060	1,300	1,100	4,550	4,310	6,660	2,610	1,560	1,770
14	1,050	2,630	1,610	1,990	1,370	1,340	3,840	3,960	5,900	2,690	1,500	1,770
15	955	2,490	1,510	1,540	1,260	1,370	3,920	3,080	5,600	2,050	1,670	1,770
16	898	2,500	1,060	1,700	1,140	1,400	4,600	2,740	5,410	1,690	1,590	1,440
17	1,190	2,470	1,140	1,990	1,160	1,140	5,030	3,080	5,320	1,460	1,350	929
18	1,130	2,480	1,080	1,920	1,230	899	6,080	2,700	4,830	1,620	1,210	1,250
19	1,220	2,510	1,200	1,780	1,080	846	6,350	2,570	4,470	1,610	975	1,300
20	1,200	1,950	1,290	1,540	1,250	1,400	5,980	2,550	4,520	1,590	905	1,340
21	1,240	1,950	1,410	1,480	1,330	1,500	6,450	2,540	4,350	1,460	1,100	1,190
22	2,200	1,930	1,510	1,460	1,180	1,160	6,560	3,000	3,970	1,310	1,240	1,110
23	2,180	1,960	1,400	1,430	1,300	1,300	6,110	3,640	3,940	1,050	1,360	991
24	2,280	1,370	1,340	1,500	1,200	1,890	6,500	3,610	4,010	1,360	1,340	935
25	2,420	1,340	1,360	1,390	1,100	2,480	6,850	3,920	3,720	1,580	1,410	985
26	2,610	1,400	1,230	1,680	998	2,360	8,500	4,580	3,180	1,820	1,220	982
27	3,090	1,270	1,480	1,590	967	3,480	10,300	5,200	2,860	1,830	1,100	960
28	3,170	1,560	1,200	1,460	1,350	3,810	10,600	5,820	2,410	1,550	1,280	1,090
29	3,300	1,660	1,230	1,320	-	4,160	9,170	5,840	2,920	1,350	1,600	1,330
30	2,590	1,590	1,230	1,410	-	4,170	8,870	5,170	3,350	1,100	1,290	1,570
31	2,680	-	1,400	1,420	-	4,730	-	4,470	-	1,200	1,360	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	48,750	3,300	714	1,573	0.879	1.01
November	72,450	3,900	1,270	2,415	1.35	1.51
December	44,390	1,880	1,060	1,432	.800	.92
Calendar year 1938	831,682	11,900	679	2,279	1.27	17.27
January	49,576	2,070	916	1,599	.893	1.03
February	34,735	1,460	967	1,242	.694	.72
March	55,205	4,730	846	1,781	.995	1.15
April	184,990	10,600	3,840	6,166	3.44	3.84
May	142,400	7,400	2,540	4,594	2.57	2.96
June	116,470	6,600	2,240	3,882	2.17	2.42
July	67,240	6,940	1,060	2,169	1.21	1.40
August	43,853	2,720	905	1,415	.791	.91
September	39,600	1,840	929	1,320	.737	.82
Water year 1938-39	899,709	10,600	714	2,465	1.38	18.69

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Menominee River below Koss, Mich.

Location.- Lat. 45°22', long. 87°39', in sec. 9, T. 34 N., R. 27 W., at power plant of Wisconsin Public Service Corporation, 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 1939.

Average discharge.- 26 years, 3,162 second-feet.

Extremes.- Maximum daily discharge during year, 16,900 second-feet May 30; minimum daily, 1,010 second-feet Sept. 25.
1913-39: Maximum daily discharge, 23,200 second-feet Apr. 23, 25, 1916; minimum daily, 162 second-feet Sept. 15, 1931.

Remarks.- Records fair. Discharge determined from powerhouse records. Flow regulated above station by six dams, which are used for developing power. Records of daily discharge computed by Wisconsin Public Service Corporation on basis of average daily load, and load-discharge rating of combined hydroelectric units. Computed discharge was checked within 5 percent by one discharge measurement made October 1931 and within 15 percent by two discharge measurements made in September 1939 by U. S. Geological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,020	4,470	2,990	1,800	2,230	1,690	10,700	16,100	9,330	5,470	2,300	2,290
2	1,640	4,330	2,790	1,870	2,600	1,670	12,100	13,800	7,180	5,070	1,970	2,210
3	1,570	4,450	3,240	2,310	2,580	2,020	13,600	11,700	6,410	4,710	2,020	2,110
4	2,160	4,100	3,120	2,080	2,280	1,970	16,000	10,600	6,500	4,840	2,300	1,210
5	1,730	4,330	3,300	1,910	2,100	2,240	15,200	10,700	5,090	4,230	2,020	1,150
6	2,090	3,840	2,920	2,470	2,150	1,870	12,100	9,730	4,920	4,430	1,820	2,100
7	1,660	4,710	2,920	2,610	2,000	2,060	12,500	9,600	4,550	4,540	1,200	2,160
8	1,800	5,960	2,890	3,910	2,500	1,940	12,600	8,860	5,220	4,350	1,820	2,260
9	1,580	5,260	3,150	3,250	2,010	1,920	12,100	7,460	4,240	4,280	2,440	2,280
10	1,870	4,780	2,460	2,950	1,900	2,010	10,300	7,060	5,110	4,590	1,800	2,410
11	1,940	5,120	3,100	3,230	2,230	2,100	9,990	6,920	6,230	4,190	2,520	1,770
12	1,800	6,550	1,850	3,430	2,460	2,390	9,400	6,720	7,120	3,950	2,720	2,040
13	2,700	5,340	2,080	3,430	2,040	1,860	8,370	5,570	9,200	3,960	3,290	2,000
14	2,400	4,670	2,390	4,390	1,920	2,010	8,660	5,460	12,100	3,660	3,020	2,500
15	1,550	4,420	1,940	4,180	1,930	2,160	8,550	5,270	11,600	3,470	2,330	2,300
16	1,370	4,220	2,020	4,040	1,980	2,240	8,150	5,030	10,300	3,140	1,840	2,490
17	1,580	4,190	2,460	3,180	1,950	2,070	9,420	4,830	9,420	2,480	2,020	1,820
18	1,590	4,240	2,400	4,040	2,010	2,030	9,760	4,000	9,280	2,950	2,400	2,110
19	1,730	4,270	2,120	2,680	2,620	1,750	11,600	4,160	7,170	2,360	2,300	2,240
20	2,260	4,120	2,440	2,400	2,380	1,500	12,700	3,220	6,350	1,760	1,860	2,110
21	2,160	3,240	2,440	2,870	1,670	1,230	13,800	4,300	6,600	2,290	1,150	1,630
22	2,280	3,320	2,300	3,400	1,550	2,150	14,100	4,000	6,740	2,210	2,140	1,630
23	4,550	3,000	2,300	2,530	2,110	2,390	14,500	4,260	6,300	2,020	2,300	1,300
24	3,780	3,160	2,110	2,310	1,900	2,900	14,500	4,700	2,430	1,820	1,820	1,580
25	4,500	1,920	2,500	2,220	1,910	3,600	14,100	5,020	6,340	2,110	1,920	1,010
26	6,410	2,320	2,120	2,900	2,410	4,710	14,200	5,480	5,800	2,180	2,240	1,660
27	4,950	2,590	1,940	2,900	1,580	4,550	15,800	9,230	5,390	1,780	2,500	1,580
28	5,580	2,160	1,940	2,460	1,820	6,230	15,800	9,100	4,940	2,500	2,330	1,510
29	5,940	2,590	2,210	2,900	-	7,660	14,700	10,500	4,240	2,880	1,930	2,160
30	5,820	3,040	2,160	2,670	-	9,170	15,900	16,900	4,420	2,400	1,730	1,710
31	4,950	-	1,940	2,370	-	9,930	-	10,900	-	1,440	2,400	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	87,830	6,410	1,370	2,833	0.747	0.86
November	120,870	6,550	1,920	4,029	1.06	1.18
December	76,520	3,300	1,830	2,468	.651	.75
Calendar year 1938	1,474,160	20,700	1,010	4,039	1.07	14.44
January	89,690	4,390	1,800	2,893	.763	.88
February	59,120	2,620	1,580	2,111	.557	.58
March	94,020	9,930	1,230	3,033	.800	.92
April	371,200	15,900	8,150	12,373	3.26	3.64
May	241,180	16,900	3,220	7,780	2.05	2.36
June	201,020	12,100	2,430	6,701	1.77	1.98
July	102,050	5,470	1,440	3,292	.869	1.00
August	66,450	3,290	1,150	2,144	.566	.65
September	57,330	2,500	1,010	1,911	.504	.56
Water year 1938-39	1,567,280	16,900	1,010	4,294	1.13	15.36

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

Location.- Lat. 45°49', long. 88°15', 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 1939. January 1914 to September 1923 at site 4 miles upstream, where drainage area is 511 square miles.

Average discharge.- 16 years (1923-39), 427 second-feet.

Extremes.- Maximum daily discharge during year, 2,380 second-feet Apr. 26; minimum daily, 163 second-feet Sept. 24.
1923-39: Maximum daily discharge, 4,380 second-feet Apr. 9, 1929; no flow at times in 1924, 1926, 1927, 1930, 1931, 1933.

Remarks.- Records good for medium and low stages, fair for high stages. Discharge determined from powerhouse records. Flow regulated by power plant at station, but pondage is small and monthly discharge is very nearly natural flow. 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 1931-32 and checked within 9 percent by two discharge measurements made in September 1939.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	382	798	388	296	417	245	1,300	1,500	1,470	918	411	282
2	339	723	462	339	360	260	1,250	1,280	1,340	918	351	274
3	395	678	426	389	358	309	1,340	1,180	1,060	770	263	227
4	339	718	424	366	364	318	1,370	940	1,090	662	288	359
5	347	918	433	343	330	305	1,400	940	993	675	226	245
6	384	918	466	452	361	319	1,420	809	878	673	318	240
7	328	998	465	577	376	280	1,340	801	678	678	226	339
8	377	909	445	562	371	329	1,250	768	739	678	226	339
9	339	960	398	617	332	224	1,120	672	689	678	569	311
10	380	918	475	626	339	318	1,060	700	1,860	663	675	226
11	334	798	339	649	339	329	1,060	700	2,320	668	678	339
12	325	916	432	664	339	325	990	700	2,360	503	624	339
13	325	738	449	845	275	263	940	700	2,290	447	395	339
14	313	739	361	549	282	293	940	689	1,960	555	385	339
15	325	664	302	566	364	237	1,010	678	1,840	346	395	342
16	323	664	315	492	339	225	1,060	678	1,700	339	372	271
17	325	678	404	519	373	321	1,150	678	1,660	378	338	224
18	323	678	339	446	348	254	1,420	565	1,660	397	240	339
19	417	628	353	499	327	336	1,540	481	1,640	365	339	234
20	327	565	342	446	339	334	1,540	565	1,490	339	310	193
21	334	542	334	497	322	323	1,540	565	1,400	261	269	226
22	311	488	363	412	223	239	1,640	678	1,620	339	369	216
23	744	407	280	450	339	448	1,780	688	1,480	225	309	226
24	756	346	376	401	339	622	1,900	700	1,400	222	398	163
25	961	425	355	453	339	640	2,010	714	1,230	336	417	226
26	1,130	425	362	413	317	829	2,380	1,060	1,230	634	351	198
27	1,160	414	274	395	259	1,160	2,360	1,220	1,160	667	339	226
28	1,140	412	339	424	332	1,230	2,210	1,810	1,160	518	360	226
29	1,140	430	305	394	-	1,290	2,120	1,870	1,160	381	339	226
30	1,040	427	353	397	-	1,300	1,880	1,740	1,170	339	226	339
31	901	-	324	395	-	1,300	-	1,660	-	310	352	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,564	1,160	311	534	0.983	1.13
November	19,922	998	346	664	1.22	1.36
December	11,683	475	274	377	.694	.80
Calendar year 1938	240,201	2,590	27	658	1.21	16.44
January	14,673	664	296	473	.871	1.00
February	9,403	417	223	336	.619	.64
March	15,205	1,300	224	490	.902	1.04
April	44,320	2,380	940	1,477	2.72	3.04
May	28,729	1,870	481	927	1.71	1.97
June	42,727	2,360	678	1,424	2.62	2.92
July	15,882	918	222	512	.943	1.09
August	11,358	678	226	366	.674	.78
September	8,073	359	163	269	.495	.55
Water year 1938-39	238,539	2,380	163	654	1.20	16.32

Pike River at Amberg, Wis.

Location.- Staff gage, lat. 45°29', long. 88°00', 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 of Pike River.

Drainage area.- 250 square miles.

Records available.- February 1914 to September 1939.

Average discharge.- 25 years, 231 second-feet.

Extremes.- Maximum discharge observed during year, 1,660 second-feet June 13 (gage height, 5.64 feet), from rating curve extended above 900 second-feet; minimum observed, 131 second-feet Oct. 11-15, Aug. 6, 7, Sept. 16, 21, 22, 26.
1914-39: Maximum discharge observed, 2,730 second-feet Apr. 10, 1922 (gage height, 7.68 feet, former site and datum), from rating curve extended above 1,100 second-feet; minimum observed, 26 second-feet Dec. 27, 1925 (gage height, 1.30 feet, former site and datum).

Remarks.- Records good except those for periods of ice effect, Nov. 24-26, Dec. 12 to Mar. 27, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Gage read once daily.

Rating table, water year 1938-39 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 23, Nov. 27 to Dec. 11)

1.8	114	2.4	249	3.0	432	4.2	872	5.7	1,730
2.0	150	2.6	306	3.4	572	4.7	1,110		
2.2	196	2.8	367	3.8	719	5.2	1,400		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	222	161	168	180	144	914	399	572	306	150	150
2	140	209	161	167	178	145	794	367	501	277	150	150
3	140	209	184	170	175	145	794	336	416	263	150	150
4	150	196	196	172	172	145	756	321	383	283	140	172
5	140	209	209	205	170	145	794	306	336	249	140	172
6	140	222	209	240	168	145	794	306	306	263	131	184
7	140	249	209	255	166	146	645	292	306	249	131	184
8	140	277	196	260	164	146	572	292	399	263	140	184
9	140	263	196	265	162	146	501	277	501	249	196	172
10	140	263	196	250	160	147	501	263	501	236	222	161
11	131	263	222	245	158	150	501	249	872	222	209	150
12	131	263	285	240	156	155	416	236	1,400	209	184	172
13	131	277	290	235	154	160	432	236	1,660	196	172	172
14	131	249	280	230	152	160	466	236	1,220	196	161	172
15	131	236	270	230	150	165	466	277	832	184	150	161
16	140	222	260	225	150	170	601	277	645	172	150	131
17	150	196	255	225	150	170	608	249	608	172	140	140
18	150	209	245	225	152	170	872	236	536	172	150	150
19	150	196	240	220	150	186	960	222	536	172	150	150
20	150	196	240	220	150	190	832	236	501	161	150	140
21	150	196	238	215	149	190	832	236	466	161	172	131
22	196	196	235	215	148	190	792	292	466	172	196	131
23	399	184	230	215	147	210	719	336	501	161	196	140
24	466	184	220	210	146	290	645	321	466	150	222	140
25	432	186	210	210	145	460	645	367	399	150	222	140
26	399	190	195	210	145	720	608	501	367	150	196	131
27	362	196	180	200	144	790	572	645	367	150	184	140
28	306	196	175	195	144	832	536	960	336	150	172	140
29	292	209	171	190	-	719	601	1,220	321	150	172	161
30	263	161	170	185	-	756	432	1,010	321	140	161	161
31	236	-	168	180	-	872	-	756	-	150	161	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,296	466	131	203	0.812	0.94
November	6,523	277	161	217	.868	.97
December	6,696	290	161	216	.864	1.00
Calendar year 1938	95,974	1,810	100	263	1.05	14.28
January	6,662	260	167	215	.860	.99
February	4,385	180	144	157	.628	.66
March	9,158	872	144	295	1.18	1.36
April	19,401	960	416	647	2.59	2.89
May	12,257	1,220	222	395	1.58	1.82
June	17,041	1,660	306	568	2.27	2.53
July	6,158	306	140	199	.796	.92
August	5,220	222	131	168	.672	.77
September	4,632	184	131	154	.616	.69
Water year 1938-39	104,429	1,660	131	286	1.14	15.53

Peshtigo River at High Falls, near Crivitz, Wis.

Location.- Lat. 45°17', long. 88°12', in sec. 1, T. 32 N., R. 18 E., at High Falls powerhouse of Wisconsin Public Service Corporation, 1 mile upstream from Thunder River and 10 miles west of Crivitz.

Drainage area.- 571 square miles.

Records available.- August 1912 to September 1939.

Average discharge.- 27 year, 494 second-feet.

Extremes.- Maximum daily discharge during year, 2,520 second-feet May 29; minimum daily, 7 second-feet many times during year.
1912-39: Maximum daily discharge, 3,860 second-feet Apr. 11, 1922 (gage height, 7.80 feet); no flow several days during 1925, 1928, 1929, 1932, 1933.

Remarks.- Records fair. Discharge determined from powerhouse records. Flow regulated by storage in service reservoir at plant (capacity, 7,940 second-foot days) and in Caldron Falls Reservoir (capacity, 5,785 second-foot days). Records of daily discharge computed by Wisconsin Public Service Corporation on basis of average daily load, head, and plant efficiency. Discharge as computed was checked within 10 percent by two discharge measurements made during September 1939 by U. S. Geological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	247	904	374	161	565	435	1,710	1,200	1,690	742	150	579
2	7	759	421	228	368	562	1,470	1,020	1,720	333	347	96
3	246	752	477	666	278	554	1,980	1,040	1,180	716	395	67
4	64	783	154	382	130	132	1,480	1,100	738	685	319	14
5	112	569	347	607	7	7	2,030	1,140	1,380	986	113	482
6	134	188	251	437	285	507	1,580	966	1,150	956	43	586
7	323	859	324	272	301	667	1,710	393	925	835	318	611
8	141	549	315	7	375	591	1,600	888	1,080	938	395	692
9	166	395	887	583	279	516	1,010	897	1,150	266	848	405
10	333	586	572	766	172	516	1,240	771	1,000	927	694	196
11	231	816	7	609	211	212	1,190	737	1,760	792	686	604
12	217	696	559	562	7	22	1,190	637	1,780	807	224	344
13	239	496	417	708	390	643	1,080	370	2,400	536	101	289
14	477	956	459	795	454	537	1,080	46	2,830	478	741	465
15	706	396	630	372	293	356	904	821	2,270	52	447	243
16	7	460	343	652	532	556	799	798	2,050	7	488	479
17	353	793	438	351	293	476	1,440	642	1,210	447	285	31
18	304	715	350	656	198	161	1,640	707	1,080	583	360	518
19	196	569	530	778	68	7	1,460	784	1,510	486	54	390
20	286	162	201	610	560	770	1,500	223	1,310	634	19	328
21	396	847	146	497	405	711	1,730	30	1,320	571	800	198
22	586	898	297	9	238	680	1,810	631	1,360	274	806	315
23	520	887	314	687	237	828	1,270	744	1,270	7	506	281
24	971	7	95	607	406	721	2,030	635	1,460	636	533	116
25	748	628	108	763	151	580	1,610	714	1,100	251	525	484
26	798	16	110	597	7	117	1,620	1,080	1,140	134	232	340
27	648	51	169	532	444	845	1,820	1,590	1,320	263	7	241
28	795	429	309	238	414	858	1,540	1,900	1,060	122	505	251
29	817	358	225	7	-	877	1,470	2,520	1,060	147	497	559
30	371	361	418	641	-	794	1,140	1,730	1,060	7	590	360
31	968	-	247	559	-	1,280	-	2,290	-	287	610	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	12,407	971	7	400	0.701	0.81
November	16,865	956	7	562	.984	1.10
December	10,494	887	7	339	.594	.68
Calendar year 1938	219,886	3,430	7	602	1.05	14.32
January	15,329	795	7	494	.865	1.00
February	8,048	565	7	287	.503	.52
March	16,518	1,280	7	533	.933	1.08
April	44,133	2,030	799	1,471	2.58	2.88
May	29,044	2,520	30	937	1.64	1.89
June	41,763	2,400	738	1,392	2.44	2.72
July	14,905	986	7	481	.842	.97
August	12,638	848	7	408	.715	.82
September	10,564	692	14	352	.616	.69
Water year 1938-39	232,708	2,520	7	638	1.12	15.16

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 1939.

Average discharge.- 26 years (1908, 1914-39), 602 second-feet.

Extremes.- Maximum discharge during year, 3,500 second-feet Mar. 28; maximum gage height, 9.31 feet Mar. 26 (backwater from ice); minimum discharge, 320 second-feet Jan. 1-3.
1906-09, 1914-39: 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 observed, 95 second-feet June 3, 6, 1907 (gage height, 0.1 foot).

Remarks.- Records excellent except those for periods of ice effect, Nov. 25 to Dec. 1, Dec. 13 to Mar. 29 (computed on basis of four discharge measurements, recorder record, observer's notes, and weather records), and those for period of missing record, July 31 to Aug. 6 (computed on basis of one gage reading Aug. 3 and comparison with record for Pike River at Amberg), which are fair.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.8	258	1.5	550	2.6	1,150	4.0	2,180
1.0	331	1.8	700	3.0	1,440		
1.2	413	2.2	910	3.5	1,800		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	650	480	320	510	410	2,020	1,180	1,370	938	430	375
2	550	635	526	320	505	410	1,900	1,080	1,330	855	420	367
3	531	640	555	320	500	410	1,840	1,020	1,220	770	396	405
4	508	640	599	325	500	410	1,730	910	1,120	725	370	489
5	485	640	609	375	495	410	1,700	828	992	745	355	457
6	475	640	635	630	490	410	1,700	800	882	790	350	453
7	457	660	550	615	490	410	1,560	775	828	828	347	439
8	444	705	640	640	490	410	1,580	740	938	828	371	417
9	436	745	640	675	485	410	1,480	715	992	785	422	409
10	426	780	655	725	480	415	1,370	670	1,050	740	508	405
11	431	795	635	710	470	420	1,260	775	1,290	700	579	400
12	431	780	503	670	465	420	1,180	594	1,610	660	545	480
13	475	745	485	650	460	425	1,120	574	1,940	629	508	545
14	466	715	470	640	450	430	1,050	560	2,140	594	462	555
15	457	685	460	620	445	430	965	545	2,180	526	384	555
15	480	560	450	605	440	430	910	517	2,100	503	379	503
17	508	640	445	590	435	430	965	512	1,980	494	400	457
18	508	635	425	580	430	430	1,050	496	1,840	489	409	426
19	508	640	410	570	425	440	1,220	475	1,730	480	379	405
20	480	619	395	560	420	460	1,400	462	1,700	466	371	396
21	466	589	385	550	410	500	1,580	536	1,660	448	417	384
22	503	545	380	550	410	560	1,660	609	1,580	435	448	375
23	660	503	375	540	405	700	1,700	665	1,510	426	448	371
24	800	417	370	530	405	850	1,660	725	1,440	417	485	363
25	652	390	360	520	400	1,100	1,620	735	1,370	409	517	363
25	910	390	360	520	405	2,000	1,540	720	1,290	400	505	359
27	910	405	360	520	405	3,000	1,480	790	1,220	388	475	359
28	882	415	350	515	410	3,500	1,400	882	1,120	396	483	359
29	800	435	345	515	-	2,500	1,330	966	1,050	409	439	422
30	755	460	335	515	-	2,500	1,260	1,080	992	417	431	480
31	700	-	325	510	-	2,260	-	1,260	-	425	422	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	17,868	910	426	576	0.850	0.98
November	18,198	795	390	607	.895	1.00
December	14,592	660	325	471	.695	.80
Calendar year 1938	244,678	3,000	240	670	.988	13.43
January	16,825	725	320	543	.801	.92
February	12,635	510	400	451	.665	.69
March	27,890	3,500	410	900	1.33	1.53
April	43,330	2,020	910	1,444	2.13	2.38
May	23,197	1,260	462	748	1.10	1.27
June	42,364	2,180	328	1,412	2.08	2.32
July	18,115	938	388	584	.861	.99
August	15,423	579	347	433	.639	.74
September	12,783	565	359	426	.628	.70
Water year 1938-39	261,220	3,500	320	716	1.06	14.52

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.
Records available.- August 1936 to September 1939 (fragmentary).
Extremes.- Maximum elevation of water surface observed during year, 95.62 feet June 17, 21, July 5; minimum observed, 95.10 feet Sept. 27, 30.
1936-39: Maximum elevation of water surface observed, that of June 17, 21, July 5, 1939; minimum observed, 93.64 feet Oct. 9, 12, 1937.
Remarks.- Records good. Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	-	-	5.60	5.30	-
2							-	-	-	-	5.30	-
3							-	5.46	5.54	-	-	-
4							-	-	-	-	-	-
5							-	-	-	5.62	5.28	-
6							-	5.42	-	-	-	5.20
7							-	-	5.50	-	-	-
8							-	-	-	5.60	-	-
9							-	-	-	-	5.26	5.16
10							-	5.36	5.58	-	-	-
11							-	-	-	-	-	-
12							-	-	-	5.58	5.26	-
13							-	5.32	-	-	-	5.20
14							-	-	5.60	-	-	-
15							-	-	-	5.56	-	-
16							-	-	-	-	5.24	5.20
17							-	5.30	5.62	-	-	-
18							-	-	-	-	-	-
19							5.52	-	-	5.44	5.22	-
20							-	5.32	-	-	-	5.20
21							-	-	5.62	-	-	-
22							5.52	-	-	5.38	-	-
23							-	-	-	-	5.22	5.20
24							-	5.36	5.60	-	-	-
25							-	-	-	-	-	-
26							5.50	-	-	5.34	5.20	-
27							-	5.58	-	-	-	5.10
28							-	-	5.60	-	-	-
29							5.50	-	-	5.32	-	-
30							-	-	5.60	-	-	5.10
31							-	5.58	-	-	-	-

Note.- Add 90 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 small channel extending across north end of lake, 5½ miles southwest of Townsend.
Records available.- August 1936 to September 1939 (fragmentary).
Extremes.- Maximum elevation of water surface observed during year, 97.02 feet June 24; minimum observed, 96.46 feet May 10.
1936-39: Maximum elevation of water surface observed, that of June 24, 1939; minimum observed, 94.69 feet Oct. 31, Nov. 7, 1936.
Remarks.- Records good. Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1938 to September 1939

Apr.	19	96.49	May	22	96.47	June	17	96.92	Aug.	12	96.60
	25	96.54		31	96.75		24	97.02		28	96.62
May	2	96.52	June	9	96.76	July	4	97.00		31	96.60
	10	96.46		12	96.94		21	96.78			

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 2½ miles upstream from Barnes Creek.

Drainage area.- 1,430 square miles.

Records available.- January 1898 to September 1939.

Average discharge.- 41 years, 1,118 second-feet.

Extremes.- Maximum daily discharge during year, 4,910 second-feet Mar. 26; minimum daily, 490 second-feet July 18, 22, 23.
1898-1939: Maximum daily discharge, 6,620 second-feet Mar. 21, 23, 1929; minimum daily, 250 second-feet Feb. 1-4, 1900.

Remarks.- Open-water records good; winter records fair. Daily-discharge records furnished by Corps of Engineers, U. S. Army. Occasional discharge measurements made by Geological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,670	1,420	1,620	830	1,310	935	3,440	2,100	645	590	535	645
2	4,450	1,360	1,460	805	1,310	935	3,350	2,040	675	615	510	615
3	4,230	1,360	1,360	800	1,260	935	3,170	1,980	590	615	535	635
4	4,120	1,360	1,360	790	1,200	955	3,000	1,850	560	590	510	650
5	3,920	1,320	1,420	895	1,160	955	3,000	1,800	590	560	560	670
6	3,720	1,320	1,460	1,180	1,110	935	2,910	1,680	560	560	590	670
7	3,620	1,320	1,460	1,270	1,060	905	2,670	1,570	560	560	590	670
8	3,440	1,360	1,520	1,370	1,050	870	2,600	1,520	675	560	590	650
9	3,260	1,460	1,520	1,580	1,010	830	2,520	1,420	735	590	590	650
10	3,170	1,520	1,570	1,960	1,000	790	2,450	1,360	735	510	615	650
11	3,000	1,620	1,570	1,990	950	845	2,450	1,270	800	535	590	650
12	2,830	1,740	1,570	2,150	940	905	2,510	1,180	830	510	615	670
13	2,750	1,800	1,520	2,220	930	1,020	2,170	1,140	865	510	615	670
14	2,600	1,800	1,570	2,220	930	1,120	2,100	1,060	865	535	645	650
15	2,520	1,850	1,440	2,150	930	1,340	2,040	1,020	865	535	615	650
16	2,450	1,850	1,300	2,080	930	1,460	1,980	940	800	535	615	630
17	2,380	1,850	1,340	2,040	930	1,420	2,100	940	765	510	615	610
18	2,310	1,850	1,370	2,040	900	1,410	2,380	800	705	490	615	610
19	2,240	1,850	1,360	2,060	930	1,430	2,600	865	735	660	616	630
20	2,170	1,850	1,260	2,060	970	1,500	2,670	865	830	560	615	610
21	2,100	1,850	1,170	2,000	970	1,660	2,750	830	830	510	675	690
22	2,040	1,800	1,120	2,020	960	1,900	2,830	800	830	490	675	610
23	1,980	1,800	1,080	1,880	955	2,520	2,750	735	830	490	705	590
24	1,910	1,740	1,020	1,740	950	3,600	2,750	645	830	510	735	575
25	1,850	1,620	1,000	1,620	950	4,600	2,670	645	830	510	705	590
26	1,800	1,570	990	1,610	910	4,910	2,600	645	830	510	705	575
27	1,740	1,620	975	1,500	910	4,450	2,520	675	765	510	676	690
28	1,680	1,680	920	1,490	900	4,120	2,380	765	645	610	675	590
29	1,620	1,740	865	1,420	-	3,820	2,510	735	590	535	645	610
30	1,570	1,680	840	1,420	-	3,720	2,170	675	590	535	645	610
31	1,460	-	850	1,370	-	3,530	-	590	-	535	645	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	83,600	4,670	1,460	2,697	1.89	2.18
November	48,960	1,850	1,320	1,632	1.14	1.27
December	39,880	1,620	840	1,286	.899	1.04
Calendar year 1938	669,450	6,190	400	1,834	1.28	17.41
January	50,550	2,220	790	1,631	1.14	1.31
February	28,315	1,310	900	1,011	.707	.74
March	60,325	4,910	790	1,946	1.36	1.57
April	77,640	3,440	1,980	2,588	1.81	2.02
May	35,140	2,100	590	1,134	.793	.91
June	21,955	865	560	732	.512	.57
July	16,675	615	490	538	.376	.43
August	19,265	735	510	621	.434	.50
September	18,815	670	575	627	.438	.49
Water year 1938-39	501,120	4,910	490	1,373	.960	18.03

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 at Oshkosh. Zero of gage is 745.05 feet above mean sea level (Corps of Engineers, U. S. Army). Prior to 1882 lake levels referred to Deuchman gage at lake outlet, lat. 44°12'00", long. 88°26'50", above Menasha Dam. Deuchman gage, which is still in existence, has zero of gage at elevation 745.00 feet.
Drainage area.- 6,030 square miles at Menasha Dam.
Records available.- October 1938 to September 1939. Records from 1857 to 1938 in files of Corps of Engineers, U. S. Army. A report on Fox River by Corps of Engineers, U. S. Army, is published as House Document No. 146, 67th Congress, 2nd Session.
Extremes.- Maximum gage height observed during year, 3.50 feet Oct. 1; minimum observed, 0.46 foot Mar. 19, 22.
1857-1939: 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 21¼ inches above crest of Menasha Dam down to crest during navigation season, plus an additional 18 to 24 inches below crest during winter. The Oshkosh staff gage gives true level of lake, whereas Deuchman gage readings are affected by loss of head in channel between lake and dam. Gage read once daily. Gage readings, pool areas, and capacity table furnished by Corps of Engineers, U. S. Army.
The total pool area of Lake Winnebago includes Lake Winnebago, Lake Butte des Morts, Upper Fox River to Eureka Lock, Lake Winneconne, Lake Polygan, Partridge Lake, Cincoe Lake, Partridge Crop Lake, and Wolf River to mile 45.3. The total areas of the pool as given in the following table were determined from maps of the survey of 1916-17, scale 1"-400', and contour interval 1 foot, together with the United States Lake Survey chart of Lake Winnebago, issued July 18, 1908, scale 1:40,000.

Elevation, in feet, above mean sea level	Total pool area in square miles
744	234
745	242
746	268
747	265
748	277
749	288

Table of usable capacity (gage height, in feet, and contents, in millions of cubic feet)

-0.3	0	1.0	8,985	2.5	20,040
.0	1,995	1.5	12,615	3.0	23,871
.5	5,435	2.0	16,294	3.5	27,784

Gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.50	2.56	2.71	2.56	2.50	0.81	1.83	2.94	2.79	3.02	2.31	2.15
2	3.46	2.58	2.67	2.54	2.44	.77	2.02	2.92	2.79	3.00	2.29	2.15
3	3.40	2.56	2.73	2.50	2.40	.75	2.21	2.88	2.83	3.00	2.25	2.12
4	3.29	2.56	2.75	2.50	2.38	.75	2.33	2.88	2.79	3.00	2.25	2.19
5	3.25	2.50	2.75	2.50	2.35	.73	2.46	2.90	2.75	3.00	2.23	2.23
6	3.23	2.48	2.75	2.62	2.31	.71	2.54	2.92	2.77	3.00	2.21	2.27
7	3.12	2.73	2.73	2.67	2.27	.65	2.65	2.94	2.75	3.08	2.17	2.19
8	3.19	2.58	2.77	2.71	2.21	.62	2.73	3.02	2.65	3.06	2.17	2.19
9	3.12	2.67	2.77	2.73	2.17	.65	2.79	3.08	2.90	3.02	2.08	2.21
10	3.04	2.65	2.75	2.75	2.19	.58	2.83	2.96	2.96	3.00	2.10	2.17
11	3.00	2.67	2.79	2.79	2.15	.56	2.73	3.06	2.94	2.92	2.06	2.21
12	2.98	2.77	2.81	2.85	2.02	.52	2.75	3.00	2.96	2.94	2.04	2.29
13	2.85	2.65	2.81	2.81	1.96	.50	2.94	2.98	2.92	2.88	2.06	2.27
14	2.83	2.54	2.79	2.85	1.81	.50	2.96	3.00	2.96	2.92	2.08	2.29
15	2.90	2.62	2.75	2.85	1.77	.52	2.92	3.02	2.92	2.77	2.12	2.31
16	2.81	2.73	2.75	2.85	1.73	.50	2.96	2.98	2.92	2.75	2.08	2.35
17	2.77	2.69	2.71	2.83	1.58	.48	3.02	3.02	2.85	2.71	2.08	2.35
18	2.71	2.73	2.71	2.83	1.52	.48	3.02	2.94	2.94	2.67	2.10	2.35
19	2.67	2.75	2.69	2.81	1.46	.46	3.00	2.90	2.92	2.62	2.10	2.33
20	2.67	2.73	2.67	2.81	1.40	.48	3.06	2.90	2.98	2.58	2.12	2.35
21	2.65	2.71	2.65	2.77	1.35	.50	3.00	2.85	3.00	2.54	2.50	2.31
22	2.71	2.81	2.62	2.75	1.25	.46	3.04	2.85	2.94	2.50	2.15	2.29
23	2.69	2.81	2.65	2.73	1.21	.52	3.02	2.92	3.02	2.48	2.15	2.31
24	2.58	2.79	2.65	2.71	1.06	.58	3.00	3.00	3.02	2.46	2.08	2.29
25	2.60	2.75	2.65	2.69	1.04	.67	2.98	2.79	3.00	2.44	2.17	2.23
26	2.58	2.75	2.62	2.69	1.00	.81	2.85	2.73	3.02	2.46	2.19	2.17
27	2.60	2.73	2.65	2.67	.94	.96	2.98	2.75	3.02	2.46	2.17	2.15
28	2.56	2.71	2.62	2.60	.90	1.12	3.00	2.77	3.00	2.44	2.15	2.12
29	2.60	2.75	2.60	2.58	-	1.31	2.96	2.81	3.02	2.50	2.15	2.17
30	2.58	2.69	2.58	2.56	-	1.50	2.88	2.81	2.96	2.46	2.15	2.21
31	2.58	-	2.56	2.54	-	1.89	-	2.77	-	2.38	2.12	-

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 1939.

Average discharge.- 43 years, 4,296 second-feet.

Extremes.- Maximum daily discharge during year, 18,200 second-feet Oct. 1; minimum daily, 1,240 second-feet Sept. 10.
1918-39: Maximum daily discharge, 20,600 second-feet Apr. 4, 1929; minimum daily, 138 second-feet Aug. 2, 1936.

Remarks.- Records good. Flow regulated by storage in Lake Winnebago (capacity, 13,600,000,000 cubic feet). Daily discharge computed from power-house records by Corps of Engineers, U. S. Army. Occasional discharge measurements made by Geological Survey.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18,200	4,050	4,060	3,370	6,790	5,570	4,870	10,100	3,770	3,910	2,720	1,940
2	17,300	3,780	4,210	3,000	6,540	5,300	4,660	8,550	3,660	3,560	2,870	1,720
3	18,000	4,130	3,180	3,690	6,670	5,000	5,860	8,630	2,950	1,670	2,710	1,580
4	17,800	3,980	4,150	3,790	5,620	4,660	5,640	7,120	2,960	3,670	2,660	1,500
5	14,300	3,530	4,400	4,310	6,600	3,920	6,320	6,760	3,990	4,420	2,440	2,140
6	13,500	3,290	4,320	3,880	6,510	4,620	6,130	3,610	3,840	2,840	2,300	1,990
7	10,900	3,030	4,120	3,560	6,480	6,460	6,240	3,860	3,890	3,860	2,710	1,950
8	9,470	3,990	4,680	3,990	8,540	5,150	6,040	4,160	4,500	3,750	2,430	1,750
9	10,500	4,450	4,130	4,250	7,940	5,080	6,500	4,420	3,880	3,690	2,310	1,820
10	10,400	4,440	3,850	4,890	7,360	5,110	6,500	4,390	3,610	3,460	2,150	1,240
11	10,100	3,830	4,110	4,510	8,240	4,390	6,440	3,870	3,480	4,150	2,660	2,060
12	9,870	3,750	3,330	5,350	9,280	5,240	6,320	4,520	3,890	3,840	2,520	3,470
13	9,960	3,490	4,640	5,150	8,220	5,000	6,570	4,200	4,160	3,730	2,170	2,710
14	9,640	3,640	4,200	6,190	9,080	4,930	6,920	3,800	3,950	3,400	2,420	2,720
15	9,290	4,430	4,220	7,160	8,950	4,420	7,070	3,580	3,890	3,220	1,740	2,690
16	9,490	4,780	4,150	6,980	8,910	3,970	7,540	4,320	4,000	3,670	1,970	2,420
17	9,100	4,280	3,210	6,840	9,340	4,360	7,900	4,200	3,130	3,610	1,850	2,310
18	5,620	4,380	3,960	7,060	8,370	3,460	9,080	3,840	3,620	3,300	2,240	2,690
19	5,630	3,620	3,830	7,140	8,870	4,440	10,300	4,180	3,880	3,120	1,430	2,630
20	5,840	4,120	3,870	6,950	7,900	4,230	11,100	4,240	3,770	3,380	2,080	1,980
21	5,800	4,130	4,120	6,530	8,850	4,540	11,000	3,110	3,940	3,070	2,320	2,590
22	5,270	3,830	4,060	6,190	7,560	4,820	10,800	3,770	4,190	2,660	2,010	2,010
23	5,680	4,240	4,030	7,360	8,350	5,030	11,100	4,030	3,960	2,410	1,930	2,050
24	5,270	4,500	2,720	7,590	7,500	5,370	11,100	3,800	3,360	3,070	2,170	2,060
25	5,500	3,520	3,480	7,770	7,100	5,050	10,900	3,870	3,730	2,890	1,680	2,180
26	4,500	4,290	3,730	7,700	7,950	4,830	10,900	3,660	4,210	2,680	1,710	2,210
27	4,370	2,900	3,950	7,780	7,260	4,740	10,600	3,370	4,130	2,910	1,930	2,420
28	4,350	4,250	3,910	6,940	6,480	4,820	10,500	3,170	4,270	3,190	1,860	2,720
29	3,820	4,460	4,090	7,350	-	4,220	10,100	3,750	3,880	2,670	1,960	2,220
30	3,790	4,230	3,660	6,460	-	4,570	10,700	3,760	3,580	2,730	1,830	2,030
31	3,980	-	2,670	6,990	-	4,930	-	4,260	-	2,850	1,840	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	277,240	18,200	3,790	8,943	1.45	1.67
November	119,340	4,780	2,900	3,978	.647	.72
December	121,040	4,680	2,670	3,905	.635	.73
Calendar year 1938	2,134,570	18,200	1,710	5,848	.951	12.90
January	180,720	7,780	3,000	5,830	.948	1.09
February	219,260	9,340	5,620	7,831	1.27	1.32
March	148,230	6,460	3,460	4,782	.778	.90
April	245,700	11,100	4,660	8,190	1.33	1.48
May	142,900	10,100	3,110	4,610	.750	.86
June	114,050	4,500	2,930	3,802	.618	.69
July	101,380	4,420	1,670	3,270	.532	.61
August	67,620	2,870	1,430	2,181	.355	.41
September	65,800	3,470	1,240	2,193	.357	.40
Water year 1938-39	1,803,280	18,200	1,240	4,940	.803	10.88

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 and Son's ice house, on southeast end of lake.
Records available.- August 1936 to September 1939.
Extremes.- Maximum elevation of water surface observed during year, 92.90 feet Oct. 4 and 8; minimum observed, 91.58 feet Sept. 4.
1936-39: Maximum elevation of water surface obeerved, 93.00 feet Sept. 20, 24, 1938; minimum observed, 90.85 feet Aug. 22, 24, 1936.
Remarks.- Gage heights have been reduced to datum for this lake assumed by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1938 to September 1939

Oct. 1	92.80	Oct. 15	92.80	Oct. 29	92.80
4	92.90	18	92.80	May 26	92.42
8	92.90	22	92.80	Sept. 4	91.58
11	92.85	25	92.80		

Little Green Lake near Markesan, Wis.

Location.- Staff gage, lat. 43°44', long. 88°58', in sec. 32, T. 15 N., R. 13 E., within 50 feet of lake outlet and 1½ miles north of Markesan.
Records available.- August 1936 to September 1939.
Extremes.- Maximum elevation of water surface observed during year, 95.94 feet Oct. 1, 3, 5; minimum observed, 94.56 feet Sept. 27.
1936-39: Maximum elevation of water surface observed, 96.60 feet July 7, 1938; minimum observed, 94.28 feet Sept. 10, 11, 1936.
Remarks.- Records good. Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.94	-					-	5.52	5.38	5.42	5.04	4.78
2	-	5.60					-	5.50	-	5.40	5.02	4.78
3	5.94	-					-	-	5.36	5.38	5.02	4.76
4	-	-					-	5.48	5.34	5.38	5.00	4.86
5	5.94	5.58					-	5.48	5.32	5.36	4.98	4.86
6	-	5.62				5.50	-	5.46	5.32	5.36	4.96	4.84
7	5.90	-					5.48	-	5.32	5.42	4.94	4.84
8	5.90	5.64					5.48	5.50	5.58	5.42	4.94	4.82
9	-	-					5.48	-	5.58	-	4.92	4.82
10	5.90	5.64					5.46	-	5.56	5.36	4.90	-
11	-	-					-	-	-	-	4.90	4.76
12	5.88	5.60					-	5.42	5.54	5.32	4.88	4.78
13	-	-					5.45	5.40	5.52	5.28	4.90	-
14	5.86	5.56					5.46	5.40	5.50	5.26	4.88	4.76
15	5.84	-					5.48	5.42	-	5.24	4.88	4.76
16	-	5.50					5.48	5.40	5.48	-	4.88	4.76
17	5.82	-					5.56	5.38	5.46	5.20	4.86	4.74
18	-	-					5.62	5.38	5.56	5.20	4.86	4.74
19	-	-					-	5.36	-	5.18	4.86	4.72
20	5.80	-					5.62	5.34	5.48	5.18	4.84	4.70
21	-	-					-	5.34	5.46	5.16	4.88	4.68
22	5.78	-					5.60	5.34	5.46	5.14	4.88	4.66
23	-	-					5.58	5.32	5.48	5.12	4.86	4.64
24	-	-					-	5.30	5.48	5.10	4.86	4.62
25	5.76	-					5.56	5.30	5.48	5.10	4.84	-
26	-	-					-	5.38	5.48	5.08	4.84	4.58
27	5.70	-					5.56	5.38	5.48	5.08	4.82	4.56
28	-	-					5.56	5.38	5.48	5.08	4.82	4.58
29	5.66	-					5.54	5.38	5.46	-	4.80	4.58
30	5.64	-					5.52	5.38	-	5.06	4.80	4.58
31	5.60	-					-	5.38	-	5.06	4.78	-

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

Wolf River above West Branch of 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 of Wolf River and 4 miles north of Keshena. Zero of gage is 856.57 feet above mean sea level (by levels of Wisconsin Power & Light Co.).

Drainage area.- 633 square miles.

Records available.- March 1928 to September 1939.

Average discharge.- 11 years, 538 second-feet.

Extremes.- Maximum discharge observed during year, 2,070 second-feet Mar. 31 (gage height, 5.32 feet), from rating curve extended above 1,500 second-feet; minimum observed, 333 second-feet Nov. 24.

1928-39: Maximum discharge observed, 2,580 second-feet Apr. 8, 1929 (gage height, 6.10 feet), from rating curve extended above 1,500 second-feet; minimum observed, 199 second-feet Feb. 20, 1936 (stage-discharge relation affected by ice).

Remarks.- Records good except those for period of ice effect, Nov. 25 to Mar. 30, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Gage read once daily.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.8	333	2.9	748	4.5	1,600
2.0	396	3.2	889	5.0	1,890
2.3	500	3.6	1,090	5.6	2,260
2.6	619	4.0	1,310		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	578	538	505	340	485	440	2,010	1,090	1,540	988	464	396
2	538	538	505	345	480	440	1,660	1,040	1,420	938	464	396
3	538	578	470	355	480	440	1,420	988	1,310	889	450	396
4	538	578	505	365	480	440	1,310	938	1,310	889	450	538
5	538	619	505	380	480	440	1,370	889	1,250	794	413	464
6	538	704	505	390	475	440	1,310	889	1,040	794	396	450
7	500	748	505	400	475	440	1,310	841	1,200	704	396	450
8	500	794	505	415	475	440	1,200	794	1,150	619	464	450
9	464	748	505	420	475	440	1,090	661	1,090	619	538	413
10	464	748	505	425	475	440	1,090	661	1,150	578	500	413
11	450	748	470	450	470	445	1,040	619	1,480	678	464	450
12	430	748	460	455	470	445	988	619	1,600	578	464	578
13	430	748	445	450	470	445	938	619	1,540	538	450	578
14	430	748	440	470	465	445	938	619	1,480	538	450	500
15	450	538	430	485	460	445	938	619	1,480	538	396	464
16	500	704	430	500	460	450	938	619	1,420	500	396	450
17	464	748	430	500	455	455	1,040	578	1,310	500	396	413
18	464	661	425	500	455	465	1,090	578	1,250	500	396	396
19	464	619	420	500	455	470	1,200	578	1,310	500	396	396
20	464	619	420	500	455	475	1,250	619	1,370	500	396	396
21	464	619	415	500	445	500	1,250	841	1,370	500	464	396
22	678	578	410	500	440	520	1,310	938	1,420	500	500	380
23	619	538	405	500	440	540	1,310	889	1,420	500	500	380
24	704	333	400	495	440	590	1,310	794	1,310	464	500	380
25	661	480	400	490	440	690	1,310	794	1,310	464	464	380
26	619	510	390	490	440	840	1,310	1,310	1,200	464	464	380
27	619	520	375	490	440	1,000	1,310	1,540	1,200	464	450	380
28	578	520	350	490	440	1,250	1,310	1,710	1,150	500	450	396
29	578	530	340	490	-	1,400	1,200	1,890	1,090	500	450	538
30	538	535	340	485	-	1,650	1,150	1,830	1,040	464	413	464
31	538	-	335	485	-	2,070	-	1,660	-	464	413	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,196	704	430	523	0.826	0.95
November	18,637	794	333	621	.981	1.09
December	13,545	505	335	437	.690	.80
Calendar year 1938	242,544	2,260	290	665	1.05	14.23
January	14,020	500	340	452	.714	.82
February	12,920	485	440	461	.728	.76
March	19,990	2,070	440	645	1.02	1.18
April	36,900	2,010	938	1,230	1.94	2.16
May	29,054	1,890	578	937	1.48	1.71
June	39,210	1,600	1,040	1,307	2.06	2.30
July	18,366	988	464	592	.935	1.08
August	13,667	538	396	441	.697	.80
September	12,961	578	380	432	.682	.76
Water year 1938-39	245,468	2,070	333	673	1.06	14.41

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 of Wolf River.
Drainage area.- 812 square miles.
Records available.- March 1928 to September 1939. May 1907 to March 1909, February 1911 to March 1928 at site at Keshena, 1½ miles downstream.
Average discharge.- 29 years (1908, 1911-39), 782 second-feet.
Extremes.- Maximum discharge during year, 2,640 second-feet May 29 (gage height, 7.73 feet), from rating curve extended above 2,100 second-feet; minimum, 430 second-feet Dec. 31 (stage-discharge relation affected to ice).
1911-39: Maximum discharge observed, 4,390 second-feet Apr. 10, 1922, from rating curve extended above 2,100 second-feet; minimum discharge, 194 second-feet Feb. 7, 1936 (stage-discharge relation affected by ice).
Remarks.- Records good except those for period of ice effect, Nov. 25 to Mar. 29, which were computed on basis of three discharge measurements, recorder record, observer's notes, and weather records and are fair. Discharge Oct. 26-29, Sept. 16, 17, 19-22 computed on basis of discharge for station above West Branch.

Rating tables, water year 1938-39 except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 29		Mar. 30 to Sept. 30			
5.3	365	5.5	475	6.8	1,590
5.5	472	5.7	600	7.2	2,030
5.7	590	6.0	825	7.6	2,470
6.0	795	6.4	1,190		
6.4	1,090				

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	752	725	660	440	670	585	2,250	1,490	1,980	1,290	607	535
2	725	731	660	445	670	585	2,080	1,390	1,810	1,220	607	523
3	712	738	670	445	670	585	1,810	1,340	1,700	1,150	587	554
4	679	745	650	445	665	580	1,760	1,270	1,590	1,140	554	722
5	666	813	660	500	665	580	1,760	1,210	1,440	1,090	535	708
6	660	870	655	560	665	575	1,760	1,180	1,340	1,070	535	614
7	660	946	650	590	665	575	1,590	1,140	1,390	982	523	600
8	660	986	640	640	660	570	1,490	1,090	1,760	893	554	587
9	647	962	640	680	660	570	1,440	955	1,590	825	761	554
10	622	930	635	700	660	670	1,390	884	1,490	801	730	568
11	590	915	570	700	655	570	1,340	842	1,920	777	692	580
12	590	930	555	700	655	570	1,290	834	2,360	761	649	801
13	603	946	550	700	650	580	1,210	809	2,260	745	628	902
14	603	908	545	700	660	585	1,240	809	1,980	722	594	785
15	628	745	540	700	645	590	1,240	809	1,920	700	568	635
16	725	813	540	700	640	595	1,270	809	1,980	685	529	590
17	698	885	535	700	640	600	1,390	777	1,920	685	535	570
18	698	862	535	700	640	610	1,690	769	1,700	685	535	561
19	672	799	535	700	635	620	1,700	761	1,760	692	529	530
20	686	792	535	700	630	630	1,700	817	1,920	670	548	520
21	647	778	530	700	625	640	1,860	991	1,860	635	635	620
22	725	738	530	700	620	665	1,860	1,210	1,860	635	722	500
23	930	672	525	700	615	690	1,860	1,210	1,920	649	722	493
24	994	518	525	700	610	755	1,860	1,120	1,860	635	692	517
25	978	575	520	700	605	880	1,810	1,070	1,700	614	656	517
26	850	640	510	690	600	1,080	1,860	1,640	1,590	614	628	493
27	850	610	490	690	595	1,280	1,860	2,140	1,540	621	614	493
28	790	630	460	685	590	1,600	1,760	2,360	1,440	670	600	529
29	790	640	450	680	-	1,900	1,640	2,580	1,440	642	587	670
30	745	656	440	680	-	2,140	1,590	2,520	1,390	621	668	678
31	731	-	430	675	-	2,250	-	2,300	-	607	568	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	22,306	994	590	720	0.887	1.02
November	23,497	986	518	783	.964	1.08
December	17,370	670	430	560	.690	.80
Calendar year 1938	312,096	3,220	390	855	1.06	14.29
January	20,045	700	440	647	.797	.92
February	17,950	670	690	641	.789	.82
March	25,605	2,250	570	826	1.02	1.18
April	49,260	2,250	1,210	1,642	2.02	2.25
May	39,126	2,580	761	1,262	1.55	1.79
June	52,400	2,360	1,890	1,747	2.15	2.40
July	24,526	1,290	607	791	.974	1.12
August	18,792	761	523	606	.746	.86
September	17,849	902	493	595	.733	.82
Water year 1938-39	328,726	2,580	430	901	1.11	15.06

Wolf River at New London, Wis.

Location.- Staff gage, lat. 44°23', long. 88°44', in sec. 12, T. 22 N., R. 14 E., at right bank about 15 feet downstream from Pearl Street Bridge, three-quarters of a mile downstream from Embarrass River. Zero of gage is 749.4 feet above mean sea level (levels of Corps of Engineers, U. S. Army).

Drainage area.- 2,240 square miles.

Records available.- October 1913 to September 1939.

Average discharge.- 26 years, 1,801 second-feet.

Extremes.- Maximum discharge observed during year, 11,100 second-feet Mar. 29, 30 (gage height, 9.8 feet); minimum observed, 808 second-feet Aug. 20 (gage height, 0.9 foot).
1913-39: Maximum discharge observed, 15,500 second-feet Apr. 13, 1922 (gage height, 11.4 feet), from rating curve extended above 10,000 second-feet; minimum observed, 261 second-feet Sept. 6, 1933.
Maximum stage known, 11.6 feet Apr. 16, 1888, reported by Corps of Engineers, U. S. Army.

Remarks.- Records good except those for period of ice effect, Dec. 16 to Mar. 26, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Gage read once daily. Gage-height record furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,190	1,580	1,400	1,200	1,500	1,140	9,300	4,190	2,400	2,990	1,030	919
2	3,710	1,470	1,430	1,200	1,480	1,120	8,190	3,940	2,450	2,830	995	919
3	3,370	1,430	1,510	1,200	1,440	1,110	7,580	3,710	2,570	2,570	957	845
4	2,990	1,430	1,540	1,200	1,400	1,100	6,800	3,480	2,570	2,450	957	919
5	2,760	1,470	1,660	1,250	1,400	1,080	6,390	3,270	2,570	2,290	919	957
6	2,510	1,510	1,740	1,280	1,380	1,070	6,020	3,080	2,570	2,140	882	995
7	2,290	1,510	1,910	1,300	1,360	1,070	5,680	2,910	2,510	2,050	845	1,140
8	2,090	1,700	1,910	1,350	1,350	1,070	5,520	2,760	2,630	2,000	845	1,140
9	1,910	1,830	1,910	1,400	1,330	1,080	5,200	2,630	2,690	1,910	957	1,030
10	1,700	1,870	1,830	1,600	1,300	1,050	5,520	2,510	2,690	1,790	919	957
11	1,620	1,960	1,700	1,800	1,300	1,040	4,600	2,400	2,630	1,580	1,030	919
12	1,580	2,000	1,580	2,000	1,290	1,030	4,320	2,240	2,990	1,510	1,070	1,180
13	1,580	2,050	1,660	2,200	1,280	1,020	4,060	1,960	3,080	1,400	1,070	1,880
14	1,470	2,090	1,540	2,400	1,270	1,010	3,710	1,830	3,170	1,320	1,070	1,870
15	1,430	2,090	1,400	2,500	1,270	1,000	3,590	1,740	3,270	1,210	1,070	2,090
16	1,400	2,000	1,400	2,500	1,260	1,010	3,370	1,700	3,370	1,180	957	2,090
17	1,360	1,960	1,400	2,400	1,260	1,010	3,270	1,660	3,480	1,140	882	1,790
18	1,360	1,870	1,400	2,300	1,250	1,020	3,480	1,580	3,590	1,140	882	1,540
19	1,430	1,830	1,380	2,200	1,250	1,060	3,880	1,540	3,710	1,140	845	1,250
20	1,430	1,790	1,380	2,050	1,250	1,100	4,060	1,540	3,880	1,140	808	1,180
21	1,510	1,740	1,380	1,960	1,210	1,200	4,190	1,580	3,940	1,140	995	1,110
22	1,470	1,700	1,370	1,900	1,200	1,500	4,380	1,790	3,820	1,140	1,140	995
23	1,470	1,660	1,350	1,840	1,200	2,000	4,460	1,870	3,820	1,110	1,210	919
24	1,470	1,540	1,330	1,780	1,190	2,800	4,500	1,870	3,890	1,030	1,290	919
25	1,620	1,400	1,300	1,740	1,180	4,000	4,740	1,870	3,940	1,030	1,320	919
26	1,790	1,360	1,200	1,700	1,170	6,000	4,740	1,870	3,710	1,030	1,250	845
27	1,830	1,320	1,080	1,670	1,150	9,300	4,740	1,870	3,590	995	1,180	845
28	1,790	1,250	1,080	1,620	1,150	10,600	4,600	1,910	3,370	1,030	1,110	882
29	1,740	1,250	1,150	1,590	-	11,100	4,460	1,960	3,170	1,070	1,110	957
30	1,700	1,320	1,200	1,560	-	11,100	4,320	2,140	3,080	1,110	1,030	995
31	1,620	-	1,200	1,520	-	10,600	-	2,290	-	1,110	919	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	59,930	4,190	1,320	1,933	0.863	0.99
November	49,980	2,090	1,250	1,666	.744	.83
December	45,330	1,910	1,080	1,462	.653	.75
Calendar year 1938	841,221	11,500	560	2,305	1.03	13.96
January	54,210	2,500	1,200	1,749	.781	.90
February	36,050	1,500	1,150	1,288	.575	.60
March	91,360	11,100	1,000	2,947	1.32	1.52
April	149,630	9,300	3,270	4,988	2.23	2.49
May	71,690	4,190	1,540	2,313	1.03	1.19
June	95,220	3,940	2,400	3,174	1.42	1.58
July	47,575	2,990	995	1,535	.685	.79
August	31,544	1,320	808	1,018	.454	.52
September	34,695	2,090	845	1,157	.517	.58
Water year 1938-39	767,215	11,100	808	2,102	.938	12.74

Embarrass River near Embarrass, Wis.

Location.- Water-stage recorder, lat. 44°43', long. 88°44', on line between sec. 13, T. 25 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 1939.

Average discharge.- 20 years, 295 second-feet.

Extremes.- Maximum discharge during year, 3,970 second-feet Mar. 27, from rating curve extended above 2,800 second-feet; maximum gage height, 9.64 feet Mar. 26 (backwater from ice); minimum discharge, 62 second-feet Aug. 20.
1919-39: 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, Dec. 14 to Mar. 26, which were computed on basis of three discharge measurements, recorder record, observer's notes, and weather records and are fair. Slight diurnal regulation by operation of power plants upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	302	250	220	184	226	170	1,020	487	497	311	181	123
2	285	273	238	187	222	174	933	394	351	302	165	129
3	273	277	220	193	220	175	811	347	273	273	145	123
4	273	281	234	198	218	176	689	356	273	191	137	132
5	250	285	351	250	215	180	636	333	220	188	134	206
6	261	360	306	400	212	180	736	324	194	254	108	194
7	250	438	311	600	210	180	720	315	220	228	126	189
8	173	497	302	620	210	180	627	347	370	258	153	162
9	185	482	290	640	206	180	542	333	597	228	170	153
10	254	467	285	680	205	180	447	302	648	238	162	123
11	242	438	269	800	200	180	438	290	822	210	179	126
12	250	452	224	760	200	180	438	242	906	188	170	273
13	228	482	238	700	200	180	403	220	990	162	153	562
14	185	452	235	600	198	180	394	231	905	151	140	507
15	194	360	230	500	196	178	423	250	694	156	140	324
16	191	347	226	400	194	178	438	261	643	156	129	261
17	280	333	222	360	192	180	607	231	699	153	129	173
18	265	319	221	320	190	190	962	234	706	165	167	189
19	298	302	216	290	184	200	1,110	231	684	159	113	170
20	290	306	210	275	182	220	1,080	234	715	156	80	140
21	286	250	208	270	180	250	1,080	220	587	162	126	129
22	269	273	207	267	176	305	1,050	242	726	151	176	196
23	324	246	205	260	174	400	990	281	716	137	265	154
24	452	298	202	255	172	800	850	294	658	151	269	110
25	452	242	200	251	170	1,500	795	290	607	148	231	115
26	418	220	200	249	170	2,500	747	224	522	137	173	129
27	351	156	197	245	170	3,330	720	273	457	126	159	123
28	319	234	190	240	170	2,820	653	600	507	156	182	126
29	294	224	187	235	-	1,890	612	822	438	145	148	162
30	281	185	184	232	-	1,410	562	673	384	142	134	203
31	260	-	181	230	-	1,140	-	627	-	156	126	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,537	452	173	275	0.696	0.80
November	9,659	497	156	322	.815	.91
December	7,209	351	181	233	.590	.68
Calendar year 1938	139,349	2,910	62	382	.967	13.11
January	11,681	800	184	377	.954	1.10
February	5,462	226	170	195	.494	.51
March	19,786	3,330	170	638	1.62	1.87
April	21,515	1,110	394	717	1.82	2.03
May	10,708	822	220	345	.873	1.01
June	17,026	990	194	568	1.44	1.61
July	5,738	311	126	185	.469	.54
August	4,840	269	80	156	.395	.46
September	5,556	562	110	185	.469	.52
Water year 1938-39	127,717	3,330	80	350	.886	12.04

Peak discharge.- Mar. 27 (2:30 a.m.) 3,970 sec.-ft.; May 28 (11 a.m.) 1,080 sec.-ft.; June 12 (4 p.m.) 1,110 sec.-ft.

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 1939.

Average discharge.- 25 years, 438 second-feet.

Extremes.- Maximum discharge during year, 5,700 second-feet Mar. 25; maximum gage height, 10.33 feet Mar. 25 (affected by ice); minimum discharge, 115 second-feet July 27 (gage height, 0.96 foot).
1914-39: Maximum discharge observed, 5,780 second-feet Apr. 10, 11, 1922 (gage height, 6.92 feet), from rating curve extended above 3,500 second-feet; maximum gage height, that of Mar. 25, 1939; minimum discharge, 57 second-feet Feb. 10, 1934 (stage-discharge relation affected by ice).

Remarks.- Records good except those for periods of ice effect, Dec. 14 to Jan. 13, Feb. 3 to Mar. 25, which were computed on basis of two discharge measurements, recorder record, observer's notes, and weather records and are poor. Diurnal regulation caused by operation of power plant 6 miles upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	577	441	470	275	409	250	1,100	577	311	334	186	226
2	545	445	379	270	383	250	937	473	297	315	197	238
3	539	434	443	280	375	250	912	489	336	312	191	197
4	451	460	471	280	370	250	809	464	304	276	206	284
5	552	505	563	310	370	250	742	461	300	283	197	277
6	514	505	556	540	360	250	751	457	293	278	177	272
7	458	661	562	660	350	250	787	362	332	320	190	250
8	514	663	558	800	340	250	749	514	404	384	231	234
9	419	592	487	800	330	250	674	453	536	269	221	232
10	472	710	480	900	310	250	570	410	472	290	222	187
11	419	657	456	880	295	250	534	400	544	257	206	246
12	472	650	502	800	285	250	544	349	693	249	186	765
13	499	663	535	725	275	250	514	357	715	215	170	960
14	393	690	490	694	270	250	513	384	621	217	197	1,250
15	444	574	520	629	265	250	494	325	521	224	190	1,180
16	412	525	459	555	265	250	558	324	531	197	190	856
17	422	509	271	481	280	250	735	338	604	226	185	534
18	429	495	290	405	270	250	1,080	336	532	218	181	298
19	378	512	280	459	255	250	1,230	304	517	227	184	338
20	515	498	270	471	260	300	1,140	340	516	229	181	275
21	447	498	285	462	295	490	1,130	337	499	228	414	309
22	405	482	300	417	275	1,000	1,000	433	531	233	459	237
23	476	451	320	397	260	2,000	928	425	594	182	403	267
24	666	365	240	390	250	4,000	834	414	663	193	343	219
25	702	353	245	364	240	5,700	749	377	537	207	294	251
26	628	425	250	385	210	4,370	692	300	460	176	280	242
27	526	534	255	437	250	3,460	658	344	344	172	194	233
28	475	664	305	413	250	2,580	660	350	428	253	254	232
29	520	451	290	390	-	1,880	647	474	428	271	222	291
30	422	397	270	413	-	1,400	604	473	385	253	207	404
31	435	-	280	386	-	1,190	-	414	-	223	199	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	15,126	702	376	488	1.01	1.16
November	15,809	710	353	527	1.09	1.22
December	12,082	563	240	390	.804	.93
Calendar year 1938	201,451	4,140	120	552	1.14	15.47
January	15,688	900	270	506	1.04	1.20
February	8,367	409	210	299	.616	.64
March	33,120	5,700	250	1,068	2.20	2.54
April	23,275	1,230	494	776	1.60	1.78
May	12,456	577	300	402	.829	.96
June	14,250	715	293	475	.979	1.09
July	7,691	384	172	248	.511	.59
August	7,157	459	170	231	.476	.55
September	11,784	1,250	187	393	.810	.90
Water year 1938-39	176,805	5,700	170	484	.998	13.56

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. Prior to Nov. 26, 1938, staff gage at same site and datum.

Drainage area.- 305 square miles.

Records available.- October 1917 to September 1939. June 1916 to October 1917, at site 1 mile downstream.

Average discharge.- 23 years, 251 second-feet.

Extremes.- Maximum discharge during year, 1,660 second-feet Mar. 23 (gage height, 5.52 feet), from rating curve extended above 1,000 second-feet; minimum, 99 second-feet Sept. 26 (gage height, 1.03 feet).

1916-39: 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 discharge, 35 second-feet Jan. 22, 28, 1926 (stage-discharge relation affected by ice).

Remarks.- Records good except those for period when staff gage was used, Oct. 1 to Nov. 25, and period of ice effect, Nov. 26 to Mar. 22 (computed on basis of three discharge measurements, gage heights, weather records), which are fair. Discharge for Oct. 11 interpolated. Staff gage read once daily. Considerable diurnal fluctuation caused by operation of power plants upstream.

Rating table, Mar. 23 to Sept. 30 (gage height, in feet, and discharge, in second-feet)

1.2	126	1.8	287	2.5	527	3.6	907	5.0	1,430
1.4	169	2.0	355	2.8	631	4.0	1,050	5.5	1,660
1.6	225	2.2	424	3.2	769	4.6	1,230		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	285	265	330	285	225	383	280	231	203	185	206
2	334	351	245	325	305	225	381	291	222	201	181	204
3	301	318	280	325	270	220	346	272	215	193	181	201
4	318	351	310	330	260	220	341	267	211	178	178	261
5	334	334	330	430	255	220	349	274	206	194	161	263
6	301	351	340	520	250	220	351	272	197	201	170	249
7	285	420	290	500	250	220	331	274	220	273	191	224
8	285	385	340	470	250	220	323	285	255	246	172	210
9	285	351	340	510	250	220	296	260	246	214	196	206
10	318	385	330	540	250	220	313	243	236	209	191	205
11	286	351	315	520	250	220	289	237	321	195	193	214
12	254	318	290	430	250	220	285	236	320	199	193	391
13	334	318	2[illegible]	350	250	220	276	233	261	197	206	452
14	318	351	28[illegible]	330	250	220	283	230	238	183	218	422
15	318	334	300	315	245	220	293	243	259	182	184	352
16	285	318	290	295	240	220	290	221	277	179	172	330
17	269	254	240	255	240	245	400	223	280	185	189	296
18	301	254	230	280	240	260	457	225	257	197	204	264
19	351	318	220	275	240	330	439	220	263	196	187	233
20	334	285	280	250	240	480	363	210	246	195	179	233
21	318	254	270	195	235	690	384	218	235	199	302	228
22	334	254	230	315	235	900	364	235	283	187	335	210
23	318	351	260	325	235	1,570	328	226	311	193	293	203
24	318	269	245	305	230	1,430	324	220	276	195	268	197
25	351	208	270	270	230	1,270	305	230	259	166	238	212
26	334	280	285	260	230	943	303	211	223	166	231	190
27	334	290	270	255	230	768	314	227	225	179	224	205
28	285	300	295	255	225	664	293	249	222	200	223	193
29	334	235	305	250	-	522	293	257	214	199	213	224
30	285	240	320	250	-	448	292	251	215	190	206	229
31	301	-	330	250	-	407	-	249	-	202	204	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,608	351	254	310	1.02	1.18
November	9,313	420	208	310	1.02	1.14
December	8,800	340	200	284	.931	1.07
Calendar year 1938	111,807	1,170	142	306	1.00	13.65
January	10,540	540	195	340	1.11	1.28
February	6,920	305	225	247	.810	.84
March	14,457	1,570	220	466	1.53	1.76
April	9,989	457	276	333	1.09	1.22
May	7,587	291	210	244	.800	.92
June	7,408	321	197	247	.810	.90
July	6,086	273	166	196	.643	.74
August	6,488	335	170	209	.685	.79
September	7,497	452	199	250	.820	.91
Water year 1938-39	104,671	1,570	166	287	.941	12.75

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West Branch of 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 city limits and 2½ miles upstream from East Branch of Fond du Lac River. Zero of gage is 766.78 feet above mean sea level (from bench mark of Corps of Engineers, U. S. Army).

Drainage area.- 88 square miles.

Records available.- March to September 1939. May to July 1903 (gage heights only), at site 1½ to 2 miles downstream.

Extremes.- Maximum discharge during period, 602 second-feet Mar. 25; maximum gage height, 3.82 feet (affected by ice) Mar. 24; no flow many days in July, August, and September. Discharge measurement of 868 second-feet (gage height, 4.72 feet) made Sept. 19, 1938, by Corps of Engineers, U. S. Army.

Remarks.- Records good except those for period of ice effect, Mar. 10-24, which were computed on basis of two discharge measurements, recorder record, weather records and are fair. Mean daily gage heights for this station published in Water-Supply Paper 97 should have the decimal point moved one place to the left.

Rating table, water year 1938-39 (gage height, in feeet, and discharge, in second-feet)

0	0	0.5	5.8	2.0	212
.1	.07	.6	12	2.5	307
.2	.50	.7	22	3.0	411
.3	1.4	1.0	61	3.5	525
.4	3.1	1.5	133	4.0	656

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	179	65	1.9	2.3	0	0
2						-	157	58	2.2	2.0	0	0
3						-	142	50	2.9	1.7	0	0
4						-	126	42	3.1	1.4	0	.3
5						-	128	37	2.9	1.4	0	.4
6						-	122	32	3.1	1.3	0	.1
7						-	110	29	3.8	.9	0	.1
8						-	100	34	4.9	.5	0	.6
9						-	90	32	4.6	.1	0	1.3
10						11	88	28	5.2	.1	0	1.3
11						11	83	26	6.2	0	0	1.2
12						12	75	22	5.5	0	0	1.7
13						15	67	20	5.2	0	.1	1.1
14						20	67	18	5.2	0	0	.6
15						25	67	19	5.2	0	0	.5
16						30	61	17	4.9	0	0	.2
17						31	158	15	4.8	0	0	.1
18						35	210	11	4.6	.1	0	.1
19						60	288	9.4	4.9	.1	0	0
20						100	289	8.8	5.2	0	.1	0
21						150	305	7.6	5.8	0	.1	0
22						200	257	5.8	6.2	0	.1	0
23						280	216	5.2	5.5	0	.1	0
24						400	179	4.9	4.8	0	0	0
25						563	152	4.3	4.3	0	0	0
26						563	145	4.0	3.8	0	0	0
27						389	121	3.5	3.1	0	0	0
28						317	108	3.8	3.1	0	0	0
29						264	93	2.9	2.7	0	0	.1
30						221	78	2.3	2.7	0	0	.1
31						189	-	2.2	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 10-31	3,886	563	11	177	2.01	1.64
April	4,241	305	61	141	1.60	1.78
May	619.7	65	2.2	20.0	.227	.26
June	127.9	6.2	1.9	4.26	.048	.05
July	11.9	2.3	0	.38	.0043	.005
August	.5	.1	0	.02	.00023	.0003
September	9.8	1.7	0	.33	.0038	.004
Water year	-	-	-	-	-	-

East Branch of 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, one-eighth of a mile west of U. S. Highway 41, half a mile south of Fond du Lac city limits, and 2½ miles upstream from West Branch of Fond du Lac River. Zero of gage is 762.72 feet above mean sea level (from bench mark of Corps of Engineers, U. S. Army).

Drainage area.- 75 square miles.

Records available.- March to September 1939. May to July 1903 (gage heights only), at site 1½ to 2 miles downstream.

Extremes.- Maximum discharge during period, 397 second-feet Mar. 25; maximum gage height, 4.93 feet (affected by ice) Mar. 17; minimum discharge, 0.5 second-foot Aug. 8 (gage height, 1.15 feet).

Discharge measurement of 1,120 second-feet (gage height, 4.44 feet) made Sept. 19, 1938, by Corps of Engineers, U. S. Army.

Remarks.- Records good except those for period of ice effect, Mar. 10-24, which were computed on basis of one discharge measurement, recorder record, weather records and are fair.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	106	32	8.2	8.2	1.9	3.8
2						-	92	30	12	8.2	2.1	3.5
3						-	92	28	25	6.8	5.7	3.8
4						-	86	23	14	4.8	4.8	13.3
5						-	89	21	10	4.8	3.3	8.6
6						-	97	17	8.2	4.8	1.9	3.8
7						-	83	17	12	4.8	1.1	3.3
8						-	61	25	83	4.8	1.6	3.3
9						-	61	42	28	4.8	5.7	3.1
10						16	58	28	19	4.8	4.8	3.3
11						17	55	19	25	4.8	3.8	3.8
12						18	40	14	21	4.8	4.1	4.7
13						19	40	12	14	4.8	4.7	4.4
14						20	48	12	12	4.0	4.1	3.8
15						21	66	12	10	4.8	3.5	3.5
16						22	55	12	10	5.7	3.3	3.1
17						25	248	12	8.2	4.0	3.3	3.1
18						31	354	10	8.2	4.8	3.5	2.9
19						35	304	10	8.2	5.7	3.8	2.9
20						39	184	12	8.2	4.8	5.0	2.9
21						55	167	10	8.2	4.0	7.5	2.9
22						150	136	10	14	4.0	6.2	2.9
23						250	103	10	8.2	2.8	5.4	2.9
24						330	86	10	6.8	2.1	5.0	3.1
25						377	75	10	5.7	1.8	4.4	3.3
26						212	86	8.2	5.7	1.4	4.1	3.3
27						125	66	10	4.8	1.1	4.1	3.3
28						94	58	10	5.7	1.1	3.8	3.3
29						86	53	8.2	5.7	4.0	4.1	3.3
30						92	45	8.2	5.7	4.8	4.1	3.8
31						97	-	8.2	-	3.3	4.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	2,131	377	16	96.9	1.29	1.06
April	3,094	354	40	103	1.37	1.53
May	490.8	42	8.2	15.8	.211	.24
June	414.7	83	4.8	13.8	.184	.21
July	135.4	8.2	1.1	4.37	.058	.07
August	124.8	7.5	1.1	4.03	.054	.06
September	116.7	13.3	2.9	3.89	.052	.06
Water year	-	-	-	-	-	-

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.

Records available.- August 1936 to September 1939.

Extremes.- Maximum elevation of water surface observed during year, 97.70 feet Apr. 21; minimum observed, 97.18 feet Aug. 14, 18.
1936-39: Maximum elevation of water surface observed, 98.20 feet Sept. 18, 1938; minimum observed, 96.90 feet Aug. 15, 1936.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.60	-	-				-	7.58	-	-	-	7.30
2	-	-	7.40				-	-	7.54	-	-	-
3	7.58	-	-				-	-	-	-	-	-
4	-	7.60	7.60				-	-	-	-	7.20	7.48
5	-	-	-				-	7.58	7.54	-	-	-
6	-	-	-				7.58	-	-	-	-	-
7	-	7.60	-				-	-	-	-	7.20	-
8	7.50	-	-				-	-	-	-	-	7.40
9	7.46	-	7.50				-	7.62	7.58	-	-	-
10	-	-	-				7.58	-	-	-	-	-
11	-	-	-				-	-	-	-	7.20	7.40
12	-	7.58	-				-	7.60	7.60	-	-	-
13	-	-	-				-	-	-	-	-	-
14	-	7.54	-				7.56	-	-	-	7.18	-
15	7.44	-	-				-	7.58	-	-	-	7.38
16	-	-	-				-	-	7.58	-	-	-
17	7.44	-	-				7.68	-	-	-	-	-
18	-	-	-				-	-	-	-	7.18	7.36
19	-	7.52	-				-	7.56	7.56	7.26	-	-
20	-	-	-				-	-	-	-	-	-
21	-	7.46	-				7.70	-	-	-	7.22	-
22	7.42	-	-				-	7.54	-	-	-	7.34
23	-	-	-				-	-	7.56	-	-	-
24	7.42	-	-				7.68	-	-	7.24	-	-
25	-	7.40	-				-	-	-	-	7.32	7.34
26	-	-	-				-	7.54	7.54	-	-	-
27	-	-	-				-	-	-	-	-	-
28	-	7.42	-				7.62	-	-	7.20	7.32	-
29	7.42	-	-				-	7.56	-	-	-	7.32
30	-	-	-				-	-	7.54	-	-	-
31	7.50	-	-				-	-	-	7.20	-	-

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

Cedar Lake near Kiel, Wis.

Location.- Staff gage, lat. 43°55', long. 87°56', in sec. 24, T. 17 N., R. 21 E., at Cedar Lake resort on narrows of lake, 5 miles east of Kiel.

Records available.- August 1936 to September 1939.

Extremes.- Maximum elevation of water surface observed during year, 96.93 feet Apr. 6, 11, 18, 25; minimum elevation, 96.04 feet Sept. 30.
1936-39: Maximum elevation of water surface observed, that of Apr. 6, 11, 18, 25, 1939; minimum elevation, 94.95 feet Aug. 14, 1936.

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

Elevation, in feet, water year October 1938 to September 1939

Oct.	1	6.64	Nov.	12	6.50	Apr.	18	6.93
	8	6.60		19	6.50	Apr.	25	6.93
	15	6.60		26	6.50	Sept.	10	6.14
	22	6.50	Dec.	3	6.50		16	6.26
	29	6.50	Apr.	6	6.93		23	6.26
Nov.	5	6.60		11	6.93		30	6.04

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

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., on left bank of river, 2,000 feet downstream from Port Washington Road Bridge near north limits of Milwaukee, and 6 miles upstream from mouth. Zero of gage is 607.3 feet above mean sea level.

Drainage area.- 661 square miles.

Records available.- April 1914 to September 1939.

Average discharge.- 25 years, 419 second-feet.

Extremes.- Maximum discharge during year, 2,440 second-feet Mar. 26 (gage height, 4.83 feet), from rating curve extended above 1,200 second-feet; minimum, 1.4 second-feet Sept. 12 (caused by regulation); minimum daily, 17 second-feet Sept. 11 (gage height, 1.86 feet).

1914-39: Maximum discharge, 15,100 second-feet Mar. 20, 1918 (gage height, 9.00 feet from high-water mark at former site and datum); minimum, that of Sept. 12, 1939; minimum daily, 6 second-feet Aug. 6, 1936.

Remarks.- Records good except those for periods of channel obstruction or of ice effect Oct. 5 to Jan. 9, Jan. 19 to Feb. 19, which were computed on basis of three discharge measurements, gage heights, observer's notes, weather records, and by comparison with records for Cedar Creek near Cedarburg and are poor. Occasional regulation caused by closing of gates at dams upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	932	150	155	110	235	373	839	474	117	98	27	56
2	840	150	170	130	240	368	746	422	149	87	54	48
3	785	150	195	145	250	326	699	394	232	69	52	40
4	732	155	250	160	240	551	607	352	296	79	48	64
5	460	170	500	300	225	652	544	337	203	69	46	64
6	334	200	440	450	220	607	592	301	145	87	36	82
7	310	400	540	800	220	512	555	291	149	82	26	62
8	280	700	460	940	220	456	544	311	241	79	148	58
9	255	1,300	410	1,020	270	439	487	316	405	66	104	76
10	235	1,280	370	1,100	350	434	474	468	363	62	79	48
11	225	1,100	340	1,180	270	481	462	422	363	76	71	17
12	215	1,000	300	1,100	240	544	428	357	422	58	40	45
13	340	800	270	920	240	714	411	291	347	48	56	50
14	400	600	240	699	245	1,120	462	281	276	43	58	38
15	350	430	220	652	250	1,550	600	291	286	46	64	55
16	260	360	280	660	250	1,630	722	227	251	50	56	43
17	240	320	250	493	260	1,330	1,210	241	400	48	46	43
18	220	295	230	394	270	1,070	1,520	237	332	64	58	42
19	207	260	215	365	450	866	1,540	194	286	58	46	42
20	200	270	200	350	1,330	805	1,540	156	256	50	48	59
21	195	260	195	320	1,240	722	1,340	191	241	52	46	31
22	195	250	185	300	1,460	771	1,250	145	164	52	82	43
23	190	240	175	275	1,260	1,000	1,010	134	199	40	92	43
24	190	225	170	255	822	1,320	830	164	177	32	76	30
25	190	200	160	250	675	1,900	714	104	169	40	74	22
26	190	180	180	290	389	2,180	691	89	120	54	66	37
27	185	165	150	260	352	2,070	706	111	134	42	50	64
28	180	150	135	260	428	1,550	706	104	169	42	46	50
29	175	150	125	250	-	1,210	644	101	123	42	69	42
30	165	150	115	245	-	875	558	104	92	40	64	43
31	160	-	110	240	-	848	-	92	-	32	52	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,835	932	160	317	0.480	0.55
November	12,080	1,300	150	403	.610	.68
December	7,735	540	110	250	.378	.44
Calendar year 1938	247,677	6,220	47	679	1.03	13.96
January	14,913	1,180	110	481	.728	.84
February	12,901	1,460	220	461	.697	.73
March	29,274	2,180	326	944	1.43	1.65
April	23,454	1,540	411	781	1.18	1.32
May	7,702	474	89	248	.375	.43
June	7,107	422	92	237	.359	.40
July	1,787	98	32	57.6	.087	.10
August	1,880	148	26	60.6	.092	.11
September	1,437	82	17	47.9	.072	.08
Water year 1938-39	130,085	2,180	17	356	.539	7.33

Peak discharge.- Feb. 22 (9 a.m.) 1,700 sec.-ft.; Mar. 16 (6 a.m.) 1,880 sec.-ft.; Mar. 26 (5:30 p.m.) 2,440 sec.-ft.

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 1939.

Extremes.- Maximum discharge observed during year, 660 second-feet Mar. 24; maximum gage height, 8.60 feet Mar. 15 (affected by ice); minimum discharge observed, 3 second-feet Sept. 18, 19 (gage height, 5.08 feet).
1930-39: Maximum discharge observed, 1,520 second-feet Sept. 19, 1938; maximum gage height, 12.00 feet Feb. 7, 1938 (affected by ice); minimum discharge observed, 0.2 second-foot Aug. 9-12, 1936.

Remarks.- Records fair except those for period of ice effect, Dec. 15 to Mar. 23, which were computed on basis of two discharge measurements, gage heights, observer's notes, weather records, and records for Milwaukee River at Milwaukee and are poor. Gage read once daily. Discharge for July 26 interpolated.

Rating table, water year 1938-39 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 27 to Sept. 30)

5.0	2.1	5.4	19	6.0	165	7.0	538
5.1	4.4	5.6	44	6.3	271	7.5	745
5.2	8.2	5.8	100	6.6	380		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	38	29	10	14	50	158	70	15	12	4.4	3.9
2	76	35	32	10	11	50	139	60	44	14	5.9	3.9
3	76	32	49	10	13	120	106	49	65	11	6.7	3.5
4	70	29	82	15	15	120	100	49	35	11	5.9	6.7
5	65	35	82	35	15	170	113	49	27	11	5.9	5.2
6	60	35	82	190	15	170	126	38	27	11	4.4	5.2
7	54	100	70	210	15	145	106	38	21	13	3.9	4.4
8	49	228	70	150	15	120	94	41	44	11	8.2	3.9
9	49	271	70	130	15	110	88	68	54	10	7.4	5.2
10	44	228	65	152	29	100	88	60	54	9.2	11	4.4
11	44	165	60	54	29	102	76	49	65	7.4	9.2	3.9
12	44	119	44	37	31	110	88	44	60	6.7	8.2	6.7
13	76	119	38	35	32	170	76	38	44	5.9	7.4	5.9
14	82	119	23	26	36	220	88	41	27	5.2	6.7	5.9
15	82	82	20	24	40	350	172	38	27	5.2	6.7	5.9
16	76	54	19	23	35	250	165	35	32	4.4	5.2	4.4
17	70	54	18	21	25	150	235	35	41	5.2	5.2	3.9
18	70	54	16	20	20	130	307	32	38	5.9	5.2	3.0
19	70	60	15	19	50	115	352	29	35	6.7	5.9	3.0
20	70	54	13	19	90	110	289	29	32	5.9	5.9	3.5
21	65	54	12	14	135	120	235	27	29	5.9	7.4	3.5
22	60	54	12	13	200	250	207	23	29	5.9	10	3.5
23	54	54	11	12	100	400	172	23	27	5.2	10	3.5
24	49	44	11	12	62	660	145	23	21	3.9	9.2	3.5
25	49	27	11	11	53	343	119	23	17	5.5	6.7	3.9
26	44	27	10	11	42	325	145	21	17	5.4	6.7	3.9
27	44	32	10	11	38	289	179	21	14	5.2	4.4	4.4
28	38	32	10	10	50	228	139	19	15	5.2	4.4	4.4
29	38	29	10	10	-	158	106	18	15	5.9	3.9	5.2
30	38	29	10	12	-	132	94	15	15	5.2	4.4	5.9
31	38	-	10	13	-	145	-	14	-	5.2	3.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,826	82	38	58.9	0.521	0.60
November	2,293	271	27	76.4	.676	.75
December	1,014	82	10	32.7	.289	.33
Calendar year 1938	39,706.4	1,520	3.7	109	.965	13.08
January	1,319	210	10	42.5	.376	.43
February	1,225	200	11	43.8	.388	.40
March	5,912	660	50	191	1.69	1.95
April	4,507	352	76	150	1.33	1.48
May	1,139	88	14	36.7	.325	.37
June	986	65	14	32.9	.291	.32
July	230.2	14	3.9	7.43	.066	.08
August	199.9	11	3.5	6.45	.057	.07
September	134.1	6.7	3.0	4.47	.040	.04
Water year 1938-39	20,785.2	660	3.0	56.9	.504	6.81

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 and Electric Co. at Mottville, 5 miles downstream from mouth of Fawn River. Zero of gage is 759.5 feet above mean sea level.

Records available.- December 1923 to September 1939.

Average discharge.- 15 years, 1,382 second-feet.

Extremes.- Maximum discharge during year, 5,180 second-feet Mar. 17 (gage height, 2.92 feet); minimum, 41 second-feet Oct. 6, Dec. 18, 27-29; minimum daily discharge, 223 second-feet Jan. 1; minimum gage height, -1.90 feet Dec. 18, 27-29.
1924-1939: Maximum discharge, 8,250 second-feet April 20, 1926 (gage height, 4.4 feet); minimum, 20 second-feet Sept. 7, 1930; minimum daily discharge, 44 second-feet Oct. 17, 1937; minimum gage height, that of Dec. 18, 27-29, 1938.

Remarks.- Records good above 1,600 second-feet and fair below. Discharge for Sept. 25 computed on basis of records for St. Joseph River at Niles and Elkhart River at Goshen. Flow regulated by power plant. Gage read hourly.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	788	740	569	223	835	3,940	2,640	2,900	1,380	1,380	1,100	1,380
2	384	652	652	696	835	3,810	2,510	2,640	1,320	1,150	1,040	1,200
3	696	788	885	610	1,100	3,680	2,380	2,770	1,500	1,440	885	740
4	788	788	652	885	835	3,810	2,380	2,640	1,100	1,100	988	1,150
5	788	652	1,320	885	569	3,940	2,510	2,510	1,260	1,440	1,100	1,200
6	652	260	1,260	1,040	1,150	4,070	2,510	2,510	1,440	1,260	610	1,440
7	740	835	1,260	935	1,260	3,940	2,250	1,990	1,500	1,150	988	1,100
8	696	696	1,150	610	1,100	3,810	2,250	2,510	1,500	1,040	1,150	1,260
9	232	885	988	1,440	1,100	3,810	2,120	2,380	1,260	610	1,620	1,200
10	740	740	835	1,260	1,150	3,680	2,250	2,120	1,380	1,440	1,740	740
11	788	740	935	1,380	1,100	3,550	2,510	2,250	885	1,500	1,380	1,320
12	740	835	885	1,260	1,100	3,940	2,510	1,860	1,620	988	1,440	1,320
13	788	450	988	1,040	1,620	3,940	2,770	1,990	1,990	1,100	885	1,150
14	788	935	885	1,040	1,860	4,200	3,160	1,990	1,620	788	1,200	1,040
15	740	740	696	1,040	1,740	4,330	3,550	1,990	1,740	885	1,040	988
16	390	696	696	1,100	1,740	4,700	3,550	1,860	1,620	416	988	988
17	885	492	610	1,380	1,620	4,940	3,680	1,740	1,320	885	1,100	610
18	885	652	492	1,040	1,620	4,700	3,940	1,620	1,100	988	988	835
19	1,100	885	835	885	1,990	4,070	4,580	1,500	1,440	1,040	1,150	835
20	1,320	296	696	935	3,160	3,810	4,820	1,500	1,440	1,100	1,620	1,100
21	1,100	696	696	788	4,070	3,550	5,060	1,100	988	885	2,380	1,100
22	696	610	696	788	4,330	3,550	4,940	1,500	1,320	935	2,640	1,100
23	384	610	696	1,040	4,580	3,550	4,940	1,620	1,380	610	2,380	788
24	788	696	652	788	4,460	3,420	4,940	1,740	1,440	740	2,380	403
25	835	610	409	788	4,820	3,290	4,700	1,620	1,200	1,040	2,250	800
26	788	696	835	885	4,460	3,290	4,460	1,440	1,320	1,150	1,740	885
27	610	352	652	740	4,200	3,030	4,330	1,440	1,260	1,260	1,500	935
28	610	610	610	835	3,680	2,510	3,940	1,150	1,440	1,150	1,500	935
29	740	696	569	436	-	2,510	3,550	1,500	1,740	1,100	1,260	788
30	312	610	610	988	-	2,770	3,420	1,320	1,740	492	1,440	569
31	740	-	569	885	-	2,640	-	1,100	-	935	1,320	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	22,531	1,320	232	727		
November	19,943	935	260	665		
December	24,283	1,320	409	783		
Calendar year 1938	597,254	5,060	232	1,636		
January	28,645	1,440	223	924		
February	62,134	4,820	569	2,219		
March	114,780	4,940	2,510	3,703		
April	103,150	5,060	2,120	3,438		
May	58,800	2,900	1,100	1,897		
June	42,243	1,990	885	1,408		
July	31,997	1,500	416	1,032		
August	43,802	2,640	610	1,413		
September	29,899	1,440	403	997		
Water year 1938-39	582,207	5,060	223	1,595		

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. Zero of gage is 634.98 feet above mean sea level.

Drainage area.- 3,620 square miles.

Records available.- October 1930 to September 1939.

Extremes.- Maximum discharge during year, 13,300 second-feet Mar. 13 (gage height, 9.28 feet); minimum, 570 second-feet Oct. 29 (gage height, 1.72 feet).
1930-39: Maximum discharge, that of Mar. 13, 1939; minimum, 244 second-feet Aug. 30, 1931.

Remarks.- Records good except those below 1,600 second-feet, which are fair, and those for periods of missing gage heights, Oct. 7-17, Nov. 19, 20, Nov. 23 to Jan. 10, Mar. 17 to Apr. 5, which were computed on basis of records for stations at Mottville and on Elkhart River at Goshen and are poor. Flow regulated by operation of power plants upstream. Gage-height record furnished by city of Niles.

Discharge, in second-feet, water year October 1938 to September 1939

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

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	50,200	1,880	1,060	1,619	0.447	0.52
November	48,870	2,000	1,290	1,629	.450	.50
December	58,700	3,000	1,300	1,894	.523	.60
Calendar year	-	-	-	-	-	-
January	71,840	3,000	1,100	2,317	.640	.74
February	134,790	10,900	2,150	4,814	1.33	1.38
March	220,020	12,200	4,700	7,097	1.96	2.26
April	189,520	9,250	3,970	6,317	1.75	1.95
May	99,720	5,000	2,330	3,217	.889	1.02
June	84,190	3,500	2,200	2,806	.775	.86
July	67,440	2,820	1,400	2,175	.601	.69
August	93,030	6,090	1,600	3,001	.829	.96
September	52,150	2,370	1,240	1,738	.480	.54
Water year 1938-39	1,170,470	12,200	1,060	3,207	.886	12.02

Peak discharge.- Feb. 20 (9 p.m.) 11,700 sec.-ft.; Feb. 24 (9 p.m.) 9,250 sec.-ft.; Feb. 26 (4 a.m.) 8,490 sec.-ft.; Mar. 13 (3:30 p.m.) 13,300 sec.-ft.; Apr. 18 (2 a.m.) 9,840 sec.-ft.; Apr. 20 (10 a.m.) 9,840 sec.-ft.

East Branch of 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 1939.

Extremes.- Maximum discharge observed during year, 379 second-feet Feb. 20, Mar. 12, from rating curve extended above 150 second-feet; maximum gage height observed, 280 feet Mar. 12; minimum discharge observed, 1.7 second-feet Sept. 30 (gage height, 0.30 foot).
1937-39: Maximum discharge observed, that of Feb. 20, Mar. 12, 1939; minimum observed, that of Sept. 30, 1939.

Remarks.- Records fair except for periods of ice effect, Dec. 28 to Jan. 4, Jan. 27 to Feb. 3, and days on which gage was not read, which have been computed by comparison with Battle Creek at city of Battle Creek and study of weather records and are poor. Gage read once daily except Sundays.

Rating table, water year 1938-39 except periods of ice effect (gage heights, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 23, June 21 to Sept. 30)

0.2	1.0	0.8	21	1.4	75	2.4	266
.3	2.2	.9	27	1.5	88	2.6	320
.4	3.9	1.0	34	1.6	103	2.8	379
.5	6.5	1.1	42	1.8	136		
.6	10	1.2	52	2.0	174		
.7	15	1.3	63	2.2	217		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	3.5	5.4	*5.6	15	154	119	154	26	25	20	7.8
2	*13	4.1	5.9	5.9	17	174	*110	145	26	*24	20	7.8
3	9.6	3.7	13	5.4	15	174	106	145	27	24	20	*8.4
4	10	3.7	*17	5.9	16	164	100	136	*26	25	19	*9.0
5	16	3.9	15	13	*15	*170	97	128	22	39	16	5.4
6	9.6	*3.7	15	21	21	174	91	119	21	27	*15	5.9
7	8.1	3.5	15	19	21	136	88	*110	20	26	16	7.1
8	7.4	3.3	16	*17	21	145	88	103	20	28	17	5.4
9	*6.6	3.3	15	19	11	154	*80	97	19	*27	19	5.9
10	6.2	3.5	14	25	36	136	75	94	21	25	20	*6.3
11	6.2	3.9	*13	25	12	*200	164	78	*26	23	20	4.6
12	6.2	3.9	20	14	*30	379	195	73	27	23	17	4.8
13	6.2	*4.6	19	21	40	266	164	65	26	23	*16	4.8
14	6.2	4.6	11	19	46	254	174	*62	25	23	15	4.8
15	5.6	4.4	4.4	*20	44	229	195	59	25	23	14	5.4
16	*5.4	4.1	11	22	13	217	*200	52	23	*23	14	4.4
17	5.4	4.1	5.9	25	39	195	217	50	25	23	12	*4.4
18	5.4	5.4	5.9	17	31	154	292	50	*26	22	10	4.4
19	7.1	4.8	5.9	19	70	*170	292	52	26	22	11	3.9
20	5.4	*5.0	10	19	379	174	279	40	20	22	*11	3.1
21	5.9	5.6	5.9	20	174	164	266	*45	19	20	12	2.8
22	4.4	5.1	5.9	*15	164	154	254	61	45	19	14	2.2
23	*4.0	4.6	6.5	14	174	154	*240	48	28	*18	14	2.0
24	5.1	3.9	10	15	174	145	206	40	28	17	13	*1.8
25	4.6	5.4	*12	14	116	136	217	36	*30	16	12	2.0
26	4.1	6.5	5.9	13	*110	*136	206	33	26	16	11	2.0
27	4.1	*6.2	3.5	14	103	136	195	31	36	17	*11	2.2
28	3.7	5.9	6.5	13	*154	128	184	*31	28	17	11	2.2
29	3.9	5.4	5.9	*14	-	119	174	30	29	23	11	2.0
30	*4.1	4.8	5.9	13	-	119	*165	28	26	*23	8.4	1.7
31	3.5	-	5.4	13	-	119	-	27	-	22	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	204.0	16	3.5	6.58	0.112	0.13
November	134.4	6.5	3.3	4.48	.076	.08
December	310.8	20	3.5	10.0	.169	.20
Calendar year 1938	19,703.2	206	3.3	54.0	.915	12.42
January	495.8	25	5.4	16.0	.271	.31
February	2,061	379	11	73.6	1.25	1.30
March	5,329	379	119	172	2.92	3.36
April	5,233	292	75	174	2.95	3.30
May	2,222	154	27	71.7	1.22	1.40
June	772	45	19	25.7	.436	.49
July	705	39	16	22.7	.385	.44
August	439.4	20	8.4	14.2	.241	.28
September	134.5	9.0	1.7	4.48	.076	.08
Water year 1938-39	18,040.9	379	1.7	49.4	.837	11.37

*Gage not read.

Elkhart River at Goshen, Ind.

Location.- Water-stage recorder, lat. 41°45', long. 85°50', near line between secs. 8 and 9, T. 36 N., R. 6 E., at River Avenue Bridge in Goshen, half a mile upstream from Rock Run.

Drainage area.- 573 square miles.

Records available.- April 1931 to September 1939 in reports of Geological Survey. September 1924 to September 1927 in reports of Indiana Department of Conservation.

Average discharge.- 11 years (1924-27, 1931-39), 438 second-feet.

Extremes.- Maximum discharge during year, 3,540 second-feet Mar. 13 (gage height, 8.45 feet), from rating curve extended above 1,500 second-feet; minimum, 42 second-feet Oct. 13 (gage height, 1.48 feet).
1931-39: Maximum discharge, that of Mar. 13, 1939; minimum, 41 second-feet Oct. 12, 1937; minimum daily discharge, 71 second-feet Sept. 20, 1936; minimum gage height, 1.27 feet May 25, 30, 1932.

Remarks.- Records good. Flow regulated by operation of three power plants above station.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	180	229	228	266	1,390	795	930	318	465	284	326
2	146	181	298	226	388	1,300	774	863	338	402	262	302
3	151	158	512	214	390	1,180	732	820	363	370	292	288
4	151	172	416	290	385	1,210	687	758	244	362	300	279
5	166	197	378	376	390	1,250	687	716	315	366	262	260
6	155	180	364	332	394	1,350	666	692	253	333	247	252
7	158	203	340	262	418	1,210	645	670	280	313	251	234
8	169	218	350	427	424	1,080	645	622	309	286	853	245
9	158	230	298	394	422	1,070	615	695	297	279	1,250	245
10	157	220	314	402	649	1,030	614	651	345	281	813	231
11	168	224	334	475	926	1,050	1,100	598	447	247	558	237
12	159	197	324	440	862	2,040	1,280	533	440	252	484	221
13	174	219	284	440	776	3,280	1,020	443	397	245	482	214
14	196	206	291	308	824	2,350	972	231	393	241	400	219
15	253	225	272	324	770	1,880	1,220	232	385	222	369	216
16	170	234	258	326	606	1,670	1,310	262	381	221	346	222
17	181	235	279	318	644	1,520	1,410	240	356	212	322	240
18	160	284	284	346	603	1,420	2,040	226	331	271	300	152
19	164	306	285	270	1,050	1,370	1,980	217	301	237	880	189
20	184	228	226	302	2,780	1,370	1,940	356	304	228	1,570	152
21	185	226	288	302	2,170	1,320	1,770	423	291	235	1,110	162
22	189	199	266	319	1,570	1,230	1,720	420	496	224	771	155
23	179	203	269	274	1,280	1,180	1,610	390	734	404	642	147
24	178	215	260	230	1,200	1,110	1,510	379	572	424	583	162
25	169	193	291	278	1,190	1,060	1,360	360	434	305	505	176
26	175	192	256	280	1,070	991	1,260	294	410	448	506	199
27	169	237	271	248	1,060	947	1,210	361	397	454	460	198
28	171	293	173	310	1,100	882	1,110	358	411	348	423	192
29	184	297	269	276	-	868	1,070	289	495	352	386	185
30	130	295	258	372	-	837	1,000	346	537	319	348	232
31	177	-	277	300	-	816	-	274	-	295	349	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,259	263	130	170	0.297	0.34
November	6,647	306	158	222	.387	.43
December	9,216	512	173	297	.518	.60
Calendar year 1938	168,544	2,240	130	462	.806	10.94
January	9,889	475	214	319	.557	.64
February	24,607	2,780	266	879	1.53	1.59
March	41,251	3,280	816	1,331	2.32	2.68
April	34,752	2,040	614	1,158	2.02	2.25
May	14,649	930	217	473	.825	.95
June	11,574	734	244	386	.674	.75
July	9,641	465	212	311	.543	.63
August	16,608	1,570	247	536	.935	1.08
September	6,552	326	147	218	.380	.42
Water year 1938-39	190,645	3,280	130	522	.911	12.36

Peak discharge.- Feb. 20 (2 p.m.) 3,160 sec.-ft.; Mar. 13 (6 a.m.) 3,540 sec.-ft.

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. Zero of gage is 797.00 feet above mean sea level (general adjustment of 1929). Prior to Oct. 1, 1937, zero of gage was 799.00 feet above mean sea level (general adjustment of 1929).

Drainage area.- 849 square miles.

Records available.- July 1937 to September 1939.

Extremes.- Maximum discharge during year, 2,350 second-feet Feb. 23, Apr. 21; maximum gage height, 6.73 feet Feb. 23; minimum discharge, 50 second-feet Sept. 22 (gage height, 2.00 feet).
1937-39: Maximum discharge, that of Feb. 23, Apr. 21, 1939; minimum, that of Sept. 22, 1939.

Remarks.- Records good except those for periods of missing gage heights or of ice effect, Nov. 24-27, Dec. 22 to Jan. 1, Jan. 27, 28, which were computed on basis of records for station at Comstock and weather records and are fair. Gage-height record furnished by city of Battle Creek.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	256	292	370	304	1,280	735	830	357	498	298	230
2	430	252	313	325	369	1,130	692	850	418	480	213	277
3	358	346	365	343	342	1,220	724	690	617	450	284	209
4	396	325	590	354	400	1,350	713	750	469	385	243	350
5	360	370	550	402	401	1,400	717	730	418	332	274	382
6	274	338	478	548	427	1,380	643	555	429	375	274	375
7	216	344	593	608	394	1,290	582	555	385	378	219	329
8	292	272	458	578	376	1,210	601	612	465	368	354	308
9	219	352	499	484	479	1,170	686	517	371	469	469	304
10	379	334	407	525	530	1,060	652	770	429	517	429	267
11	288	309	434	631	568	944	731	710	612	436	364	287
12	252	331	421	552	650	955	1,010	574	612	418	326	291
13	296	372	388	545	682	1,080	1,100	632	536	421	382	287
14	268	289	318	405	746	1,240	1,260	593	555	407	360	301
15	274	287	297	453	656	1,350	1,320	517	517	336	274	260
16	300	306	369	430	676	1,490	1,270	555	517	294	260	159
17	407	341	337	402	527	1,370	1,400	555	465	257	294	281
18	184	341	379	365	548	1,260	1,690	458	447	340	223	230
19	283	367	361	360	915	1,090	1,950	482	473	291	671	146
20	328	344	340	407	1,780	973	2,240	439	389	318	950	233
21	309	351	282	334	1,980	911	2,310	593	378	318	574	284
22	314	288	310	453	2,200	870	2,270	612	462	291	476	156
23	398	347	280	353	2,240	792	2,130	574	593	267	429	240
24	322	320	330	346	1,950	798	1,990	593	652	322	378	287
25	259	330	310	280	1,500	720	1,740	462	574	250	354	213
26	302	300	280	264	1,220	784	1,530	439	555	298	336	270
27	300	280	300	380	1,050	839	1,290	447	555	186	318	243
28	307	343	330	300	1,080	896	1,150	473	498	360	291	213
29	368	289	310	364	-	871	1,070	517	458	318	240	176
30	309	300	280	362	-	793	950	443	447	270	219	329
31	337	-	310	288	-	782	-	498	-	350	287	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,712	430	184	313	0.369	0.43
November	9,624	370	252	321	.378	.42
December	11,511	593	280	371	.437	.50
Calendar year	-	-	-	-	-	-
January	12,791	631	264	413	.486	.56
February	24,969	2,240	304	892	1.05	1.09
March	33,298	1,490	720	1,074	1.27	1.46
April	37,145	2,310	582	1,238	1.46	1.63
May	18,005	850	439	581	.684	.79
June	14,553	652	357	485	.571	.64
July	11,000	517	186	355	.418	.48
August	11,063	950	213	357	.420	.48
September	7,917	382	146	264	.311	.35
Water year 1938-39	201,588	2,310	146	552	.650	8.83

Kalamazoo River at Comstock, Mich.

Location.- Staff gage, lat. 42°17'10", long. 85°30'50", in NE¼ sec. 19, T. 2 S., R. 10 W., at highway bridge at Comstock. Wire-weight gage used prior to May 31, 1939. Zero of gage is 759.13 feet above mean sea level.

Drainage area.- 1,010 square miles.

Records available.- April to August 1931, October 1932 to September 1939.

Extremes.- Maximum discharge during year, 2,640 second-feet Apr. 22-23; maximum gage height, 4.32 feet Apr. 22, from graph drawn through gage readings; minimum observed discharge, 274 second-feet Aug. 17; minimum gage height, 0.90 foot Oct. 19.
1931, 1932-39: Maximum discharge observed, 3,720 second-feet June 28, 1937 (gage height, 5.98 feet); minimum observed, 199 second-feet Oct. 14, 1934; minimum gage height, 0.56 foot May 4, 1931.

Remarks.- Records good above, and fair below, 1,000 second-feet. Discharge during periods of ice effect, Dec. 28 to Jan. 4, Jan. 27 to Feb. 5, and on days when gage was not read or gage readings uncertain, June 19, 20, Aug. 30, Sept. 17, computed on basis of observer's notes, weather records, and records for stations near Battle Creek and Allegan. Flow regulated by operation of power plants upstream. Gage read once daily.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	415	389	363	389	314	1,450	1,040	1,100	650	620	442	292
2	415	338	415	470	338	1,520	905	1,040	530	650	415	278
3	530	314	500	389	442	1,380	905	970	590	590	338	300
4	442	389	650	415	442	1,520	970	808	650	620	415	389
5	470	363	742	442	470	1,660	905	840	590	620	314	442
6	470	470	710	560	470	1,660	905	905	530	530	338	415
7	338	442	650	650	500	1,660	742	742	500	530	363	442
8	310	530	775	680	470	1,520	742	620	530	530	338	363
9	415	470	650	650	650	1,450	742	742	590	530	650	363
10	389	470	710	620	650	1,380	840	680	500	560	680	389
11	500	415	530	742	775	1,240	905	905	742	650	530	389
12	363	415	530	680	775	1,240	970	905	808	590	415	363
13	314	470	530	650	840	1,170	1,170	742	742	560	415	389
14	363	470	530	590	905	1,580	1,310	775	680	530	415	363
15	338	415	415	560	905	1,520	1,450	710	680	530	389	389
16	338	500	415	530	808	1,520	1,450	742	650	470	300	363
17	363	389	590	470	905	1,660	1,450	840	590	470	274	290
18	530	389	415	470	650	1,590	1,590	742	560	442	314	363
19	292	415	530	389	775	1,520	1,870	590	600	500	970	338
20	363	415	389	415	1,590	1,310	2,080	620	530	442	1,170	287
21	363	363	500	500	2,010	1,240	2,430	500	442	442	1,380	389
22	363	389	389	442	2,220	1,100	2,640	970	530	442	970	415
23	363	389	389	470	2,360	1,040	2,640	840	620	470	742	292
24	530	530	363	389	2,570	970	2,430	905	680	415	590	338
25	389	415	470	442	2,500	1,040	2,290	840	710	415	442	389
26	314	415	389	389	1,940	905	2,080	680	620	363	389	363
27	363	363	363	338	1,520	970	1,870	650	590	442	389	415
28	415	363	363	442	1,240	1,040	1,450	620	680	338	389	338
29	389	470	415	350	-	1,100	1,380	560	620	470	363	314
30	442	442	389	420	-	1,100	1,170	680	620	442	290	338
31	415	-	338	400	-	970	-	620	-	415	389	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	12,304	530	292	397	0.393	0.45
November	12,607	530	314	420	.416	.46
December	15,407	775	338	497	.492	.57
Calendar year 1938	288,854	2,430	292	791	.783	10.63
January	15,343	742	338	495	.490	.56
February	30,034	2,570	314	1,073	1.06	1.11
March	40,825	1,660	905	1,317	1.30	1.50
April	43,321	2,640	742	1,444	1.43	1.60
May	23,883	1,100	500	770	.762	.88
June	18,354	808	442	612	.606	.68
July	15,618	650	338	504	.499	.58
August	15,818	1,380	274	510	.505	.58
September	10,798	442	278	360	.356	.40
Water year 1938-39	254,312	2,640	274	697	.690	9.37

Kalamazoo River at Calkins Dam, near Allegan, Mich.

(Formerly published as Kalamazoo River at Calkins Bridge, 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, 6 miles northwest of Allegan and 1 mile upstream from Swan Creek. Zero of gage is at mean sea level.

Drainage area.- 1,540 square miles.

Records available.- April 1929 to September 1936, October 1937 to September 1939.

Extremes.- Maximum discharge during year, 3,480 second-feet Apr. 20 (gage height, 604.16 feet); minimum, 326 second-feet July 23 (gage height, 596.32 feet).
1929-36, 1937-39: Maximum discharge, 3,580 second-feet Jan. 8, 1930 (gage height, 603.82 feet); minimum, 123 second-feet June 25, 1936 (gage height, 595.00 feet).

Remarks.- Records good above 600 second-feet and fair below.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

596.2	292	596.8	441	597.6	680	599.0	1,130	602.0	2,350
596.4	337	597.0	500	598.0	800	600.0	1,480	603.0	2,850
596.6	386	597.3	590	598.5	955	601.0	1,880	604.2	3,480

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	888	748	848	866	818	1,960	1,810	1,680	983	1,040	878	751
2	494	688	918	901	818	2,190	1,670	1,470	762	1,070	1,020	665
3	762	742	856	847	1,120	2,220	1,850	1,490	1,160	1,020	841	873
4	738	778	1,320	1,030	998	2,180	1,550	1,410	906	841	878	1,590
5	656	706	1,160	1,170	1,100	2,380	1,400	1,420	1,100	1,150	604	1,040
6	740	664	1,300	1,440	1,190	2,510	1,460	1,550	938	957	528	970
7	713	874	1,380	1,230	1,070	2,580	1,540	1,740	778	774	683	988
8	708	972	1,190	1,540	1,080	2,380	1,360	1,370	1,250	1,070	686	966
9	660	966	1,310	1,160	1,070	2,270	1,410	1,320	1,050	822	714	998
10	640	1,050	1,290	1,240	1,360	2,020	1,450	1,290	874	726	798	852
11	640	818	1,220	1,320	1,840	1,850	1,730	1,280	1,320	999	814	954
12	646	966	1,150	1,310	1,480	2,290	2,260	1,140	1,590	1,160	1,050	905
13	671	755	1,090	1,230	1,330	2,250	1,790	1,340	1,470	900	840	756
14	672	932	976	1,390	1,590	2,310	2,360	1,030	1,150	965	815	893
15	658	946	820	1,210	1,600	1,960	2,670	1,300	1,160	730	806	874
16	771	925	904	972	1,640	2,200	2,670	1,300	1,100	578	722	824
17	708	817	910	892	1,430	2,220	2,470	1,330	1,190	732	788	820
18	694	876	876	1,080	1,280	2,260	2,630	943	924	726	698	852
19	614	692	989	1,000	1,990	2,420	2,910	1,060	1,170	678	983	882
20	854	852	966	1,000	2,550	2,250	2,990	1,100	1,220	684	1,930	864
21	584	948	929	954	2,820	1,910	2,840	1,040	1,030	675	1,400	869
22	656	935	932	1,250	2,760	1,850	3,040	1,150	1,240	592	1,840	834
23	900	868	967	892	2,680	1,850	3,220	1,220	960	491	1,680	836
24	721	705	854	874	2,890	1,820	2,830	1,360	1,560	657	1,360	835
25	766	959	988	966	2,880	1,660	2,890	1,280	971	716	1,080	770
26	756	858	987	1,070	3,020	1,590	2,760	1,020	995	670	1,050	848
27	669	730	924	894	2,570	1,860	2,800	1,040	1,130	706	1,090	838
28	691	959	838	812	2,300	1,570	2,520	852	1,010	689	987	778
29	834	876	700	618	-	1,820	2,050	1,040	995	593	1,060	814
30	764	857	802	1,120	-	1,780	2,330	1,210	1,140	532	963	688
31	802	-	897	972	-	1,500	-	1,010	-	685	778	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	21,870	900	494	705	0.458	0.53
November	25,462	1,050	664	849	.551	.61
December	31,291	1,380	700	1,009	.655	.76
Calendar year 1938	454,418	3,000	470	1,245	.808	10.97
January	33,250	1,540	618	1,073	.697	.80
February	49,274	3,020	818	1,760	1.14	1.19
March	63,910	2,580	1,500	2,062	1.34	1.54
April	67,260	3,220	1,360	2,242	1.46	1.63
May	38,785	1,740	852	1,251	.812	.94
June	33,126	1,590	762	1,104	.717	.80
July	24,628	1,160	491	794	.516	.59
August	30,344	1,930	528	979	.636	.73
September	26,227	1,590	655	874	.568	.63
Water year 1938-39	445,427	3,220	491	1,220	.792	10.75

Peak discharge.- Apr. 19 (7:20 a.m.) 3,370 sec.-ft.; Apr. 20 (7 a.m.) 3,480 sec.-ft.; Apr. 22 (7:15 a.m.) 3,420 sec.-ft.; Apr. 24 (6 a.m.) 3,260 sec.-ft.; Apr. 26 (7 a.m.) 3,260 sec.-ft.

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.

Drainage area.- 241 square miles.

Records available.- October 1930 to July 1931, October 1932 to September 1939.

Extremes.- Maximum discharge observed during year, 1,230 second-feet Feb. 22 (gage height, 2.40 feet); minimum discharge, 40 second-feet Sept. 25; minimum gage height, about -0.5 foot Aug. 31, due to opening of gates at dam that forms control.
1930-31, 1932-39: Maximum discharge observed, 1,920 second-feet June 28, 1937 (gage height, 2.96 feet); minimum discharge, 22 second-feet Aug. 14, 1934; minimum gage height, about -0.5 foot in July 1936, and Aug. 31, 1939, due to opening of gates at dam that forms control.

Remarks.- Records good Oct. 1 to Mar. 20 and Sept. 1-30; fair remainder of year. Gage read twice daily.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	69	75	69	75	354	252	262	106	152	51	57
2	66	75	78	63	85	390	242	252	99	140	60	57
3	57	75	102	75	92	540	247	233	106	121	54	57
4	63	63	132	82	95	612	237	219	106	117	60	75
5	66	69	132	106	95	576	214	204	99	106	57	72
6	63	69	140	148	95	576	200	186	95	110	63	82
7	69	69	132	165	106	506	186	178	85	113	51	75
8	63	75	124	161	110	440	186	169	99	106	63	69
9	63	82	110	144	110	408	195	178	92	99	72	66
10	57	82	102	148	148	366	204	182	92	78	78	69
11	63	78	99	148	156	337	252	186	169	92	72	48
12	57	75	82	148	200	320	298	186	186	92	66	66
13	57	78	92	132	219	332	372	169	204	88	63	60
14	63	69	88	110	228	354	440	169	178	85	51	60
15	63	82	66	110	228	440	440	169	148	78	54	57
16	60	75	75	102	174	576	440	165	144	78	54	54
17	57	75	75	102	174	612	540	165	128	66	60	51
18	63	75	75	88	169	506	688	140	102	57	51	43
19	69	75	63	82	278	378	1,030	128	92	63	148	51
20	63	78	75	99	472	360	1,180	121	110	57	200	51
21	63	69	82	95	938	326	1,180	132	99	66	165	54
22	69	75	66	75	1,180	315	1,030	156	113	63	140	51
23	66	69	82	72	938	304	938	161	121	63	132	54
24	66	82	75	82	688	283	851	136	113	75	128	51
25	66	63	78	78	506	293	728	121	121	57	102	40
26	69	72	63	78	378	310	612	113	110	57	88	46
27	66	69	57	78	342	326	506	110	106	63	82	51
28	69	66	63	78	354	337	408	106	110	60	69	51
29	69	75	69	82	-	332	360	106	113	63	88	57
30	69	75	75	63	-	283	326	106	136	69	82	48
31	63	-	69	75	-	273	-	99	-	57	72	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,980	69	57	63.9	0.265	0.31
November	2,203	82	63	73.4	.305	.34
December	2,696	140	57	87.0	.361	.42
Calendar year 1938	63,940	985	51	175	.726	9.88
January	3,138	165	63	101	.419	.48
February	8,633	1,180	75	308	1.28	1.33
March	12,365	612	273	399	1.66	1.91
April	14,782	1,180	186	493	2.05	2.28
May	5,007	282	99	162	.672	.77
June	3,582	204	85	119	.494	.55
July	2,591	152	57	83.6	.347	.40
August	2,576	200	51	83.1	.345	.40
September	1,723	82	40	57.4	.238	.27
Water year 1938-39	61,276	1,180	40	168	.697	9.46

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. Zero of gage is 900.00 feet above mean sea level.

Drainage area.- 174 square miles.

Records available.- April 1935 to September 1939.

Extremes.- Maximum discharge during year, 646 second-feet Apr. 17 (gage height, 11.53 feet); minimum, 15 second-feet Dec. 27 (gage height, 8.13 feet).
1935-39: Maximum discharge, 1,220 second-feet June 25, 1937 (gage height, 13.50 feet), from rating curve extended above 750 second-feet; minimum, 9.2 second-feet Aug. 22, 1936; minimum daily, 12 second-feet Aug. 23, 1936.

Remarks.- Records good except those for days of ice effect, Jan. 5, Feb. 19, and those for periods of missing gage heights, Nov. 18-23, Apr. 26 to May 9, which were computed on basis of records at Lansing and weather records and are fair. Flow regulated by operation of power plant upstream.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 5 to Nov. 30 and June 23 to Sept. 30)

8.1	14	8.8	75	10.0	288
8.2	19	9.0	104	10.5	395
8.4	32	9.3	154	11.0	510
8.6	51	9.6	209	11.5	633

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	47	43	42	86	351	192	180	63	63	28	32
2	36	47	49	44	90	309	183	170	65	54	45	31
3	40	47	68	49	86	309	179	160	81	55	37	28
4	41	47	61	52	81	276	174	140	66	52	32	40
5	41	45	79	86	82	278	168	130	66	55	31	34
6	40	42	78	83	90	278	168	125	65	55	29	33
7	39	48	83	85	92	258	159	120	66	55	33	34
8	36	49	85	88	96	217	147	110	61	60	59	34
9	40	47	88	100	92	220	98	105	58	49	36	47
10	46	46	83	115	168	213	139	101	144	52	36	26
11	45	42	78	147	102	205	199	95	114	50	38	29
12	46	37	76	142	126	234	192	92	106	49	44	38
13	46	38	71	137	144	245	198	89	106	47	36	30
14	46	37	58	125	149	309	320	85	104	46	40	29
15	43	37	51	118	142	320	362	89	101	43	40	29
16	40	37	56	117	119	309	384	151	110	45	42	31
17	44	37	54	115	144	298	507	149	96	46	42	30
18	43	37	50	110	133	288	522	140	88	48	41	31
19	49	39	48	101	236	268	534	129	86	46	43	33
20	47	72	50	99	362	278	522	71	88	46	36	35
21	49	43	51	92	309	260	522	66	81	45	38	33
22	46	42	46	77	320	252	522	76	136	42	37	31
23	46	38	49	92	320	242	498	76	94	40	36	30
24	49	43	48	94	351	200	463	72	90	45	36	26
25	49	46	44	75	351	186	395	68	82	41	36	31
26	49	44	44	89	373	190	330	66	86	39	35	32
27	48	37	38	88	351	196	290	65	130	39	34	37
28	47	41	45	80	373	186	260	63	78	37	36	31
29	44	42	49	83	-	186	230	66	74	55	42	44
30	41	44	46	58	-	188	200	63	71	28	31	31
31	41	-	44	87	-	188	-	65	-	29	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,356	49	36	43.7	0.251	0.29
November	1,268	49	37	42.3	.243	.27
December	1,813	88	38	58.5	.336	.39
Calendar year 1938	44,277	366	36	121	.695	9.46
January	2,870	147	42	92.6	.532	.61
February	5,368	373	81	192	1.10	1.15
March	7,739	351	186	250	1.44	1.65
April	9,057	534	98	302	1.74	1.94
May	3,177	180	63	102	.586	.68
June	2,656	144	58	88.5	.509	.57
July	1,456	63	28	47.0	.270	.31
August	1,161	59	28	37.5	.216	.25
September	980	47	26	32.7	.188	.21
Water year 1938-39	38,901	534	26	107	.615	8.32

Peak discharge.- Feb. 28 (3 p.m.) 463 sec.-ft.; Apr. 17 (5:30 a.m.) 646 sec.-ft.

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.

Drainage area.- 1,230 square miles.

Records available.- November 1934 to September 1939. March 1901 to August 1906 at Seymour Street Bridge, 1¾ miles upstream.

Extremes.- Maximum discharge during year, 5,450 second-feet Apr. 19 (gage height, 8.95 feet); minimum, 8 second-feet Aug. 8 (gage height, 0.78 foot).
1934-39: Maximum discharge, 7,170 second-feet June 27, 1937 (gage height, 10.47 feet); minimum, that of Aug. 8, 1939; minimum daily, 25 second-feet Aug. 16, 1936.

Remarks.- Records good except those for periods of missing gage heights, Dec. 20, Feb. 11-22, Feb. 26 to Mar. 19, Mar. 21-24, Mar. 26 to Apr. 14, Apr. 29 to May 3, Aug. 26, 27, which were computed on basis of records for stations at Grand Rapids and on Cedar River and weather records and are poor. Flow regulated by operation of power plant upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	142	142	136	164	183	1,600	1,100	1,300	312	436	118	116
2	170	160	153	125	278	1,800	1,150	1,100	314	355	220	80
3	180	146	164	160	224	2,200	1,100	1,000	265	252	154	68
4	164	154	159	177	202	2,300	1,050	838	277	375	288	142
5	180	230	174	270	216	2,400	1,000	788	244	316	138	124
6	164	166	202	282	347	2,300	960	662	272	354	114	106
7	126	207	220	400	308	2,100	940	714	319	240	85	124
8	192	142	198	282	306	1,800	900	502	315	279	140	111
9	106	160	219	228	293	1,500	800	559	339	237	130	84
10	167	156	206	344	632	1,400	800	692	450	190	144	102
11	146	170	138	299	700	1,350	900	639	649	242	138	96
12	126	188	138	290	800	1,250	1,300	616	703	190	206	174
13	126	188	158	467	700	1,200	1,900	527	821	214	146	122
14	127	146	150	250	600	1,200	1,800	415	601	128	146	139
15	94	149	88	394	640	1,400	1,810	438	570	154	173	112
16	109	176	92	318	560	2,100	1,970	446	470	145	163	75
17	152	133	101	333	500	2,000	2,730	420	452	192	201	59
18	118	152	149	286	450	1,900	4,490	417	448	144	136	74
19	126	146	176	296	700	1,800	5,230	450	402	202	126	103
20	124	142	90	256	2,000	1,610	5,230	450	451	126	142	88
21	129	90	143	316	2,500	1,450	4,710	462	409	125	143	85
22	96	77	239	317	2,700	1,300	4,210	416	424	105	123	94
23	122	120	206	269	2,890	1,150	3,840	442	481	109	134	79
24	140	128	229	259	2,570	1,100	3,390	393	457	128	147	60
25	128	116	178	186	2,100	1,070	2,890	326	434	126	121	82
26	125	155	106	217	1,900	1,150	2,490	352	411	120	140	94
27	147	120	156	246	1,700	1,250	2,250	349	354	163	120	72
28	162	140	109	274	1,600	1,300	1,960	351	424	133	127	86
29	168	118	89	236	-	1,250	1,700	268	565	111	144	90
30	152	158	107	295	-	1,200	1,500	353	664	120	141	56
31	208	-	115	234	-	1,100	-	308	-	160	110	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,416	208	94	142	0.115	0.13
November	4,475	230	77	149	.121	.14
December	4,788	239	88	154	.125	.14
Calendar year	-	-	-	-	-	-
January	8,470	467	125	273	.222	.26
February	28,599	2,890	183	1,021	.830	.86
March	48,530	2,400	1,070	1,565	1.27	1.47
April	66,100	5,230	800	2,203	1.79	2.00
May	16,991	1,300	268	548	.446	.51
June	13,297	821	244	443	.360	.40
July	6,171	436	105	199	.162	.19
August	4,558	288	85	147	.120	.14
September	2,897	174	56	96.6	.079	.09
Water year 1938-39	209,292	5,230	56	573	.466	6.33

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. Zero of gage is 589.01 feet above mean sea level.

Drainage area.- 4,900 square miles.

Records available.- October 1930 to September 1939. March 1901 to September 1918, at Fulton Street Bridge in Grand Rapids.

Extremes.- Maximum discharge during year, 16,200 second-feet Apr. 23 (gage height, 9.00 feet); minimum observed, 825 second-feet Aug. 18 (gage height, -4.40 feet).
1930-39: Maximum discharge, 36,300 second-feet Feb. 16, 1938 (gage height, 13.27 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 incomplete gage-height record, Oct. 26, July 14 to Aug. 18, Sept. 22-30, and those for periods of ice effect, Dec. 28 to Jan. 4, Jan. 23 to Feb. 9 (computed on basis of weather records and comparison with other stations on Grand River), all of which are fair. Flow slightly regulated by operation of power plants upstream. City of Grand Rapids diverts about 30 second-feet above gage, most of which is returned to river 1 mile downstream. Gage-height record furnished by city of Grand Rapids.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 30)

-4.40	825	-2.00	2,180	3.00	6,850
-4.20	915	-1.50	2,530	4.00	8,050
-4.00	1,010	-1.00	2,920	5.00	9,360
-3.70	1,160	-0.50	3,320	6.00	10,800
-3.40	1,310	.00	3,750	7.00	12,400
-3.00	1,540	1.00	4,700	8.00	14,200
-2.50	1,840	2.00	5,750	9.00	16,200

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,240	1,280	1,390	1,350	1,400	7,690	4,900	5,640	1,660	2,110	960	1,240
2	1,210	1,210	1,390	1,300	1,400	7,450	5,000	5,100	1,600	2,110	960	1,240
3	1,260	1,260	1,540	1,350	1,500	7,810	4,900	4,400	1,900	1,970	1,080	1,210
4	1,210	1,340	1,840	1,500	1,500	8,180	4,600	4,110	2,320	1,720	938	1,460
5	1,210	1,260	2,110	1,720	1,600	8,440	4,400	3,750	2,040	1,540	1,010	1,260
6	1,060	1,280	2,040	2,110	1,500	8,700	4,200	3,480	1,900	1,600	960	1,360
7	1,180	1,280	2,110	2,320	1,550	8,830	4,110	3,160	1,790	1,720	1,010	1,340
8	1,240	1,540	2,180	2,880	1,600	7,690	3,930	2,920	2,760	1,510	1,160	1,340
9	1,180	1,720	2,040	2,680	1,550	6,970	3,570	2,760	3,930	1,340	1,110	1,260
10	1,210	1,780	1,780	2,920	2,840	6,410	3,750	2,760	3,930	1,310	1,240	1,160
11	1,180	1,660	1,840	2,840	4,120	6,300	3,930	2,600	4,110	1,210	1,180	1,160
12	1,180	1,480	1,900	2,680	4,900	5,970	4,500	2,460	4,700	1,060	1,110	1,390
13	1,210	1,600	1,780	2,600	5,000	5,750	4,800	2,320	4,800	1,060	1,160	1,450
14	1,210	1,480	1,660	2,320	4,400	5,750	5,310	2,250	4,200	1,140	1,180	1,540
15	1,210	1,480	1,480	2,180	4,110	6,520	5,860	2,320	4,020	960	1,060	1,720
16	1,260	1,480	1,420	2,250	4,110	7,450	6,300	2,250	3,660	938	938	1,540
17	1,240	1,360	1,540	2,040	3,930	8,180	6,630	2,110	2,920	960	985	1,280
18	1,210	1,420	1,420	1,780	3,570	7,690	8,310	2,180	2,530	1,160	870	1,210
19	1,240	1,340	1,450	1,540	4,230	6,850	11,100	2,040	2,460	960	1,690	1,310
20	1,280	1,340	1,420	1,720	6,980	6,410	12,900	1,970	2,760	915	4,320	1,280
21	1,450	1,360	1,420	1,840	8,050	5,750	14,200	1,970	2,460	938	4,300	1,160
22	1,340	1,390	1,280	1,780	8,830	5,200	15,800	2,040	2,320	936	3,400	892
23	1,240	1,420	1,360	1,700	9,360	5,100	16,200	2,180	2,320	960	3,080	938
24	1,240	1,280	1,360	1,600	9,920	5,000	15,600	2,250	2,180	1,040	2,680	960
25	1,140	1,280	1,420	1,500	9,920	4,800	14,400	2,180	2,040	960	2,390	1,060
26	1,040	1,390	1,450	1,600	9,640	4,900	12,900	2,040	1,900	1,040	2,110	1,160
27	1,160	1,310	1,420	1,500	8,830	5,310	11,400	1,970	1,900	1,010	1,900	1,060
28	1,280	1,180	1,300	1,550	8,050	5,100	9,500	1,900	2,040	915	1,780	1,040
29	1,280	1,310	1,350	1,500	-	5,100	7,810	1,780	2,110	938	1,660	1,040
30	1,140	1,360	1,300	1,400	-	5,200	6,630	1,660	2,250	1,160	1,480	1,140
31	1,180	-	1,250	1,600	-	4,900	-	1,540	-	1,060	1,260	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	37,710	1,450	1,040	1,216	0.248	0.29
November	41,870	1,780	1,180	1,396	.285	.32
December	49,240	2,180	1,250	1,588	.324	.37
Calendar year 1938	1,338,620	27,900	1,180	3,667	.748	10.16
January	59,450	2,920	1,300	1,918	.391	.45
February	134,390	9,920	1,400	4,800	.980	1.02
March	201,400	8,830	4,600	6,497	1.33	1.53
April	237,440	16,200	3,570	7,915	1.62	1.81
May	82,090	5,640	1,540	2,648	.540	.62
June	81,510	4,800	1,600	2,717	.554	.62
July	38,252	2,110	915	1.234	.252	.29
August	50,961	4,320	870	1,644	.336	.39
September	37,180	1,720	892	1,239	.253	.28
Water year 1938-39	1,051,493	16,200	870	2,881	.588	7.99

Peak discharge.- Apr. 8 (1 a.m.) 4,400 sec.-ft.; June 10 (10 p.m.) 4,500 sec.-ft.; Aug. 20 (9 p.m.) 4,800 sec.-ft.

244522 O—40—6

STREAMS TRIBUTARY TO LAKE MICHIGAN

Cedar River at East Lansing, Mich.

Location.- Water-stage recorder, lat. 42°43'40", long. 84°28'40", in SW¼ sec. 18, T. 4 N., R. 1 W., at East Lansing, 4 miles upstream from mouth. Zero of gage is 824.96 feet above mean sea level.

Drainage area.- 355 square miles.

Records available.- March 1931 to September 1939. August 1902 to December 1903, at site three-quarters of a mile downstream.

Extremes.- Maximum discharge during year, 1,760 second-feet Apr. 19 (gage height, 6.72 feet); minimum, 5.4 second-feet Dec. 14 (gage height, 2.99 feet).
1902-03, 1931-39: 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 (discharge not determined).

Remarks.- Records good except thoee for periods of missing gage heights, Oct. 1-6, Oct. 18 to Nov. 3, Feb. 21, 22, 24-27, July 21 to Aug. 9, Sept. 5-20, which were computed from recorded range in stage and comparison with records of Flint River and Farmers Creek and are poor. Gage-height record furnished by Michigan State College.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 19 to July 20)

2.9	0	3.4	82	4.3	391	6.0	1,290
3.0	6.4	3.6	136	4.6	524	6.7	1,760
3.1	20	3.8	200	5.0	720		
3.2	37	4.0	271	5.5	992		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		35	15	23	21	529	220	193	77	77	15	11
2		21	40	14	28	510	203	177	80	58	14	11
3	25	20	26	23	39	492	187	158	48	43	15	9.9
4		37	30	31	25	465	158	136	62	32	14	12
5		46	26	41	23	469	142	133	48	32	14	15
6	35	17	60	61	44	439	136	125	79	48	15	13
7	14	26	41	87	52	334	128	103	61	46	14	18
8	12	31	23	45	52	279	128	105	83	39	15	16
9	15	42	60	71	32	275	128	116	86	23	20	15
10	31	21	44	79	79	264	130	161	66	18	28	15
11	23	34	39	75	100	249	198	148	190	32	14	15
12	28	18	39	67	125	224	366	116	287	18	14	30
13	20	15	33	53	122	197	434	85	203	17	14	35
14	20	14	14	35	116	413	387	82	133	15	14	20
15	20	37	17	23	125	799	460	82	114	15	12	17
16	37	38	15	53	105	799	501	77	87	15	12	15
17	35	17	36	45	85	520	804	77	90	15	12	14
18	18	15	41	20	77	366	1,520	70	68	17	12	13
19	16	30	15	40	348	302	1,720	70	47	12	14	12
20	35	18	14	21	1,110	267	1,650	60	87	14	14	11
21		17	15	33	960	187	1,350	72	63	12	15	11
22		39	29	41	720	167	1,200	92	63	12	17	15
23	26	20	34	32	575	161	992	95	70	12	15	15
24		14	33	24	480	193	799	82	50	12	14	17
25		14	29	28	390	210	589	74	39	13	14	11
26		34	38	20	310	234	452	64	37	16	11	9.9
27		37	24	26	240	271	346	66	41	18	11	9.9
28	28	23	14	30	240	271	290	65	48	19	12	11
29		12	12	18	-	227	245	75	116	19	17	9.9
30		14	11	30	-	203	207	80	122	18	14	11
31	-	-	21	28	-	203	-	72	-	17	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	782	-	-	25.2	0.071	0.08
November	756	46	12	25.2	.071	.08
December	888	60	11	28.6	.081	.09
Calendar year	-	-	-	-	-	-
January	1,217	87	14	39.3	.111	.13
February	6,623	1,110	21	237	.668	.70
March	10,519	799	161	339	.955	1.10
April	16,070	1,720	128	536	1.51	1.68
May	3,111	193	60	100	.282	.33
June	2,645	287	37	88.2	.248	.28
July	754	77	12	24.3	.068	.08
August	447	28	11	14.4	.041	.05
September	438.6	35	9.9	14.6	.041	.05
Water year 1938-39	44,250.6	1,720	9.9	121	.341	4.65

Peak discharge.- Feb. 20 (6 p.m.) 1,230 sec.-ft.; Mar. 15 (9 p.m.) 936 sec.-ft.; Apr. 19 (10 p.m.) 1,760 sec.-ft.

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.

Drainage area.- 1,450 square miles.

Records available.- November 1930 to June 1931, January 1934 to September 1939.

Extremes.- Maximum discharge observed during year, 3,570 second-feet Mar. 29 (gage height, 10.73 feet); minimum observed, 412 second-feet July 23-26 (gage height, 7.02 feet).
1930-31, 1934-39: Maximum discharge observed, 5,110 second-feet Mar. 26, 1938 (gage height, 12.12 feet); minimum observed, 275 second-feet July 29, 1934 (gage height, 6.70 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 17-22, Dec. 25 to Jan. 13, Jan. 23-31, Feb. 4-9, which were computed on basis of weather records and records for stations on Muskegon River at Newaygo and Manistee River near Sherman and are poor. Gage read once daily.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 23 to Sept. 30)

6.9	374	7.6	773	10.2	3,030
7.0	422	8.0	1,050	11.0	3,900
7.2	527	8.6	1,520		
7.4	644	9.4	2,230		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	556	538	560	463	614	2,480	1,440	862	773	422	561
2	538	567	522	560	638	869	2,430	1,400	814	753	422	544
3	544	578	561	580	578	766	2,260	1,240	800	740	427	567
4	533	584	682	580	660	650	2,280	1,160	780	714	427	516
5	527	602	682	640	640	707	1,820	1,080	740	707	427	522
6	533	302	669	740	580	694	1,640	980	740	701	448	522
7	527	620	707	700	560	714	1,600	945	694	720	427	505
8	527	753	694	740	580	1,020	1,480	848	727	688	422	489
9	522	760	688	680	660	676	1,400	910	787	676	578	489
10	527	753	694	800	707	903	1,320	1,050	707	663	590	500
11	527	740	688	820	869	669	1,240	1,020	910	638	567	484
12	522	707	688	820	855	807	1,120	1,020	1,080	638	550	650
13	533	740	626	780	773	980	1,120	945	1,080	578	632	821
14	522	727	620	733	650	727	1,080	980	1,080	550	584	780
15	527	720	550	663	676	740	1,120	980	1,050	516	533	735
16	590	740	550	478	889	747	1,160	945	1,120	489	442	663
17	533	676	560	821	707	682	1,160	945	1,080	468	453	608
18	533	676	560	620	740	720	1,360	945	1,020	458	463	578
19	533	650	540	663	620	663	2,050	882	945	448	453	550
20	500	644	540	573	669	766	2,230	827	1,080	427	432	556
21	522	632	560	550	848	869	2,230	814	1,080	417	800	533
22	527	626	520	556	707	663	2,330	945	1,050	417	753	511
23	550	608	489	600	740	760	2,180	945	1,020	412	780	516
24	538	573	484	560	596	1,200	2,140	945	1,020	412	787	527
25	538	584	560	660	663	2,230	2,140	910	807	412	747	573
26	550	567	560	560	869	2,230	2,140	910	800	412	707	544
27	561	567	540	540	766	3,130	2,000	910	787	432	688	538
28	550	573	560	640	644	3,460	1,920	945	780	427	657	533
29	556	544	540	520	-	3,570	1,780	980	780	427	620	538
30	567	561	540	600	-	2,930	1,640	945	787	427	657	573
31	561	-	540	640	-	2,630	-	945	-	422	573	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,668	590	500	538	0.371	0.43
November	19,230	760	544	641	.442	.49
December	18,252	707	484	589	.406	.47
Calendar year 1938	382,643	5,110	329	1,048	.723	9.82
January	19,977	821	478	644	.444	.51
February	19,347	889	463	691	.477	.50
March	38,786	3,570	614	1,251	.863	.99
April	52,870	2,480	1,080	1,762	1.22	1.36
May	30,736	1,440	814	991	.683	.79
June	27,007	1,120	694	900	.621	.69
July	16,962	773	412	547	.377	.43
August	17,468	800	422	563	.388	.45
September	17,024	820	484	567	.391	.44
Water year 1938-39	294,327	3,570	412	806	.556	7.55

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. Prior to Jan. 31, 1939, staff gage at same site and datum.

Drainage area.- 2,350 square miles.

Records available.- October 1930 to September 1939. June 1901 to December 1906, at site above Newaygo.

Extremes.- Maximum discharge during year, 4,210 second-feet Apr. 27 (gage height, 48.88 feet); minimum, 430 second-feet July 24, Aug. 19 (gage height, 46.30 feet).
1901-06, 1930-39: Maximum daily discharge, 11,600 second-feet Feb. 14, 1938 (gage height, 51.9 feet); minimum, 390 second-feet July 13, 1934 (gage height, 46.2 feet).

Remarks.- Records good except those from staff gage, Oct. 1 to Jan. 30, July 8-20, and those below 1,000 second-feet, which are fair. Flow regulated at Croton Dam, 18 miles upstream, and by operation of power plant at Newaygo. Gage-height record Oct. 1 to Jan. 30 furnished by Consumers Power Co.

Rating tables, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 30		Jan. 31 to Sept. 30			
46.6	600	46.3	430	47.3	1,670
46.8	790	46.4	530	47.6	2,090
47.0	990	46.6	750	48.0	2,690
47.4	1,400	46.8	990	48.5	3,500
47.8	1,830	47.0	1,260	49.0	4,400

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	1,830	1,610	600	1,680	1,950	3,670	2,090	1,710	1,210	1,130	1,090
2	600	1,830	1,610	600	1,710	1,680	3,330	2,090	1,780	1,120	1,220	1,080
3	790	1,630	1,400	890	1,700	1,730	3,330	2,090	1,700	1,460	1,850	1,030
4	1,090	1,830	1,190	1,500	1,700	1,710	3,170	2,090	1,150	1,120	1,470	1,130
5	1,090	1,090	1,400	1,610	1,710	1,670	2,770	1,740	1,320	1,280	597	1,040
6	990	1,090	1,500	1,830	1,710	1,750	2,850	1,460	1,770	1,360	480	978
7	1,090	1,500	1,500	1,300	1,800	1,880	2,460	1,090	1,770	1,540	815	1,020
8	1,090	1,830	1,090	1,090	1,780	2,020	2,090	1,750	1,780	1,120	1,130	990
9	1,090	1,630	1,090	1,400	1,770	1,770	2,090	1,730	1,150	1,120	1,298	1,030
10	1,090	1,720	1,090	1,830	2,020	1,950	2,020	1,760	1,110	1,530	1,120	978
11	1,400	890	1,090	2,200	2,160	1,570	2,020	1,760	1,490	1,530	1,080	1,030
12	1,610	600	1,400	2,340	1,950	1,840	2,020	1,730	1,880	1,120	662	1,090
13	1,090	695	1,400	2,340	1,740	1,660	1,660	1,740	2,160	1,120	520	1,000
14	1,090	1,090	1,090	1,400	1,950	1,730	1,700	1,770	2,160	1,120	562	1,330
15	1,090	1,090	600	1,090	2,020	1,710	1,180	1,710	1,770	990	840	1,780
16	600	1,090	990	1,500	2,090	1,700	1,080	1,780	1,770	640	1,090	1,770
17	1,090	1,090	1,720	1,630	2,090	1,700	1,420	1,800	1,750	670	1,080	1,750
18	1,400	1,090	1,090	1,500	2,090	1,700	2,020	1,780	1,740	1,120	1,080	1,420
19	1,830	1,090	1,400	1,300	2,090	1,610	2,460	1,750	1,880	1,390	710	1,310
20	1,830	1,090	1,830	1,400	2,540	1,710	2,930	1,080	2,160	1,530	1,250	1,250
21	1,300	1,090	1,500	1,400	2,930	1,700	3,150	1,380	2,160	1,110	1,950	1,260
22	1,720	1,300	1,190	1,300	2,850	1,710	3,760	1,700	2,160	1,090	2,240	1,260
23	1,720	1,400	1,190	1,300	2,850	1,750	3,420	1,710	2,160	728	1,810	1,070
24	1,300	1,190	1,090	1,300	2,850	2,160	3,420	1,700	1,880	918	1,810	1,000
25	1,830	1,090	990	1,090	1,950	2,160	3,420	1,470	1,220	1,880	1,670	1,000
26	1,500	1,090	1,190	990	1,810	2,240	3,330	1,260	1,490	1,880	1,130	1,090
27	1,300	1,090	1,090	890	1,810	2,460	3,330	1,310	1,800	1,740	1,120	882
28	1,090	1,090	1,090	1,190	1,800	3,500	3,010	1,310	1,770	1,650	1,030	1,070
29	1,090	1,300	890	1,090	-	3,840	2,090	1,240	1,810	1,090	1,310	1,080
30	695	1,400	600	1,500	-	3,760	2,160	1,070	1,810	662	1,110	1,000
31	1,400	-	600	1,730	-	3,760	-	1,360	-	1,000	1,080	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	37,985	1,830	600	1,225	0.521	0.60
November	38,235	1,830	600	1,274	.542	.60
December	37,510	1,830	600	1,210	.516	.59
Calendar year 1938	756,226	11,600	580	2,072	.882	11.95
January	43,330	2,340	600	1,398	.595	.69
February	57,150	2,930	1,660	2,041	.869	.90
March	63,880	3,840	1,570	2,061	.877	1.01
April	77,360	3,760	1,080	2,579	1.10	1.23
May	60,310	2,090	1,070	1,623	.691	.80
June	52,260	2,160	1,110	1,742	.741	.83
July	38,018	1,880	640	1,226	.522	.60
August	35,836	2,240	480	1,156	.492	.57
September	34,808	1,780	882	1,160	.494	.55
Water year 1938-39	666,662	3,840	480	1,553	.661	8.97

Pere Marquette River at Custer, Mich.

Location.- Wire-weight gage, lat. 43°56', long. 86°14', on line between secs. 21 and 22, T. 18 N., R. 16 W., three-quarters of a mile south of Custer and 1 mile downstream from mouth of South Branch.

Drainage area.- 702 square miles.

Records available.- August and September 1939.

Extremes.- Maximum discharge observed during period, 848 second-feet Sept. 14 (gage height, 3.86 feet); minimum observed, 385 second-feet Aug. 1, 2, 6, 7.

Remarks.- Records good. Gage read once daily.

Rating table, Aug. 1 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

2.4	385	3.0	565	3.6	752
2.6	445	3.2	627	3.8	816
2.8	505	3.4	689	4.0	880

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											385	445
2											385	445
3											445	445
4											475	475
5											445	475
6											385	505
7											385	505
8											535	475
9											658	445
10											752	445
11											627	445
12											565	658
13											627	784
14											658	848
15											565	720
16											505	596
17											475	535
18											445	505
19											475	475
20											565	475
21											689	475
22											720	445
23											752	445
24											720	475
25											658	475
26											596	475
27											535	505
28											505	505
29											475	535
30											475	505
31											475	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January						
February						
March						
April						
May						
June						
July						
August	16,957	752	385	547	0.779	0.90
September	15,541	848	445	518	.738	.82
Water year						

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 1939.

Average discharge.- 17 years (1903-15, 1934-39), 1,094 second-feet.

Extremes.- Maximum discharge observed during year, 1,830 second-feet Mar. 26, 27; maximum gage height, 13.34 feet Feb. 24 (backwater from ice); minimum discharge observed, 754 second-feet Aug. 5-7; minimum gage height, 9.08 feet Aug. 7.
1903-16, 1930-31, 1934-39: Maximum discharge observed, 3,500 second-feet Mar. 25, 1913 (gage height, 7.0 feet, former datum); minimum discharge, 540 second-feet Aug. 9, 1936 (gage height, 8.55).

Remarks.- Records good except those below 800 second-feet, which are fair, and those for periods of ice effect, Dec. 27 to Jan. 4, Jan. 20 to Feb. 7, Feb. 23 to Mar. 2, Mar. 17-22, which were computed from weather records and records on Muskegon River at Evart and Newaygo and are poor. Gage read once daily.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

9.0	729	9.8	957	11.0	1,400
9.2	780	10.0	1,020	11.5	1,630
9.4	835	10.3	1,130	12.0	1,880
9.6	894	10.6	1,240		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	835	835	864	860	860	920	1,360	1,100	990	864	780	894
2	835	835	835	860	900	960	1,320	1,060	957	864	780	894
3	835	835	864	860	860	957	1,240	1,020	957	835	780	864
4	835	835	1,020	900	860	957	1,160	1,020	957	864	780	925
5	835	835	1,020	1,060	880	925	1,160	1,020	957	864	754	925
6	835	835	1,020	1,240	920	957	1,160	990	957	864	754	894
7	835	835	1,020	1,160	940	894	1,160	990	957	864	754	864
8	835	1,020	990	1,130	957	894	1,160	990	1,100	864	835	864
9	835	1,060	990	1,060	925	807	1,160	1,160	1,060	835	835	864
10	835	1,020	957	1,240	894	894	1,130	1,160	1,200	835	925	864
11	807	1,020	957	1,240	864	864	1,100	1,160	1,400	835	894	864
12	835	957	925	1,160	894	864	1,060	1,130	1,500	807	835	990
13	894	925	925	1,020	957	864	1,020	1,100	1,280	835	925	1,020
14	835	894	894	1,020	1,020	894	1,020	1,020	1,130	780	925	957
15	835	894	835	1,020	957	894	1,060	1,020	1,100	807	925	925
16	864	894	864	990	894	864	1,100	1,060	1,020	780	864	864
17	864	894	864	925	894	880	1,130	1,020	1,020	780	835	864
18	835	894	864	957	925	880	1,160	990	990	780	807	835
19	864	864	864	894	1,020	840	1,360	957	957	780	807	835
20	835	894	835	960	957	880	1,540	957	1,200	780	1,160	835
21	807	894	864	880	925	880	1,580	957	1,100	780	1,160	835
22	835	864	835	940	1,020	880	1,580	1,020	1,020	780	1,200	807
23	864	864	864	900	1,000	957	1,450	1,060	990	780	1,200	807
24	864	864	835	880	940	1,200	1,400	1,100	957	780	1,200	807
25	864	835	864	860	880	1,680	1,360	1,100	957	780	1,130	835
26	864	835	864	860	920	1,830	1,320	1,060	894	780	1,060	835
27	835	894	830	880	940	1,830	1,240	1,130	894	780	957	835
28	864	835	860	900	900	1,680	1,240	1,200	894	780	925	884
29	835	835	830	940	-	1,540	1,160	1,160	864	780	925	864
30	835	835	860	940	-	1,500	1,100	1,100	864	780	957	864
31	835	-	830	900	-	1,400	-	1,060	-	780	925	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	26,120	894	807	843	0.937	1.08
November	26,630	1,060	835	888	.987	1.10
December	27,743	1,020	830	895	.994	1.15
Calendar year 1938	391,151	3,060	805	1,072	1.19	16.15
January	30,436	1,240	860	982	1.09	1.26
February	25,923	1,020	860	928	1.03	1.07
March	33,266	1,830	807	1,073	1.19	1.37
April	36,990	1,580	1,020	1,233	1.37	1.53
May	32,871	1,200	957	1,060	1.18	1.36
June	31,123	1,500	864	1,037	1.15	1.28
July	25,097	864	780	810	.900	1.04
August	28,593	1,200	754	922	1.02	1.18
September	26,194	1,020	807	873	.970	1.08
Water year 1938-39	350,986	1,830	754	962	1.07	14.50

Au Sable River near Au Sable, Mich.

Location.- Lat. 44°26', long. 83°26', in sec. 35, T. 24 N., R. 8 E., at Foote Hydraulic Plant of Consumers Power Co., 5 miles northwest of Au Sable.

Drainage area.- 1,540 square miles.

Records available. -July to September 1939.

Extremes.- Maximum daily discharge during period, 2,010 second-feet Aug. 11; minimum daily, 69 second-feet July 16.

Remarks.- Discharge computed from records of operation of power plant. Daily-discharge record furnished by Consumers Power Co., Jackson, Mich.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										642	1,110	1,290
2										422	1,300	995
3										1,380	1,230	771
4										516	628	497
5										965	605	1,150
6										1,110	295	1,040
7										998	882	1,160
8										579	1,380	948
9										157	1,550	666
10										692	1,620	292
11										1,300	2,010	1,040
12										1,580	676	1,120
13										1,500	310	1,540
14										680	808	1,330
15										310	896	1,400
16										69	1,600	736
17										820	1,310	396
18										1,020	1,340	669
19										948	640	1,180
20										745	420	1,080
21										838	915	1,200
22										556	1,120	436
23										542	1,420	728
24										777	1,280	393
25										1,160	1,160	1,230
26										1,020	725	1,400
27										962	367	1,680
28										885	1,050	1,320
29										405	1,100	627
30										462	1,160	690
31										559	1,020	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January						
February						
March						
April						
May						
June						
July	24,599	1,580	69	794	0.516	0.59
August	32,127	2,010	295	1,036	.673	.78
September	29,204	1,680	292	973	.632	.71
Water year						

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. Prior to Jan. 12, wire-weight gage at same site and datum.

Drainage area.- 320 square miles.

Records available.- January 1937 to September 1939.

Extremes.- Maximum daily discharge during year, 1,700 second-feet Mar. 25, 26; maximum gage height, 12.07 feet Mar. 25 (backwater from ice); minimum discharge, 123 second-feet July 20-22 (gage height, 1.47 feet).

1937-39: Maximum discharge observed, 2,760 second-feet Mar. 17, 1938; maximum gage height, that of Mar. 25, 1939; minimum discharge observed, 110 second-feet Aug. 16, 17, 30, 1937 (gage height, 1.30 feet).

Remarks.- Records good except those for periods of ice effect, Nov. 26-29, Dec. 20 to Jan. 2, Jan. 12 to Mar. 26, and those for periods of missing gage heights, Jan. 3-11, July 1, 2, 10-17, July 31 to Aug. 3, Aug. 8-16, 26-29, Sept. 9-12, which were computed on basis of one discharge measurement, weather records, and records for Pine River at Alma and Chippewa River near Mount Pleasant and are poor. Gage read twice daily Oct. 1 to Jan. 2.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 11)

Oct. 1 to Nov. 11		Nov. 12 to Sept. 30					
1.7	134	1.4	117	2.6	340	5.0	1,090
2.0	179	1.6	137	3.0	446	6.0	1,460
2.3	242	1.8	165	3.5	590	7.0	1,860
2.6	318	2.0	201	4.0	740	8.0	2,260
2.9	405	2.3	266	4.5	915		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	208	197	220	220	300	590	392	366	190	180	165
2	147	219	205	230	230	280	620	340	340	180	170	167
3	140	179	234	240	230	300	546	328	398	177	180	160
4	147	162	379	250	220	390	546	300	665	174	215	167
5	162	147	353	330	210	390	502	292	446	182	179	165
6	162	140	379	400	220	350	516	271	315	177	162	179
7	154	154	305	440	230	330	419	252	261	154	153	177
8	147	318	278	430	230	310	392	278	328	158	180	174
9	147	346	276	400	220	320	366	460	328	164	350	180
10	154	219	266	410	290	310	379	605	239	150	600	170
11	170	230	261	350	350	310	406	406	315	160	500	160
12	147	207	254	300	310	300	379	315	379	150	430	200
13	170	232	252	250	340	390	340	276	290	150	380	310
14	170	211	232	240	310	300	366	264	254	145	330	223
15	170	230	236	250	290	300	446	273	285	150	250	201
16	162	215	252	240	240	280	460	254	308	145	200	180
17	134	225	264	190	250	270	672	225	292	140	172	168
18	162	217	271	220	250	260	1,380	217	261	140	160	165
19	208	228	236	190	260	240	1,380	223	248	143	170	167
20	147	225	220	210	260	250	1,230	221	643	134	225	164
21	140	209	240	240	240	250	950	292	531	134	219	162
22	170	223	250	260	240	260	828	474	366	139	205	159
23	208	223	250	190	220	400	710	446	300	149	201	162
24	179	195	240	210	220	900	635	488	254	140	211	167
25	179	223	230	230	220	1,700	575	353	221	140	190	234
26	154	200	210	190	230	1,700	560	353	205	170	200	243
27	170	190	230	210	220	1,500	474	315	195	188	190	184
28	170	200	220	220	240	1,200	419	310	205	192	180	193
29	154	220	200	230	-	985	392	353	203	188	190	167
30	162	190	210	220	-	740	379	271	201	168	184	186
31	134	-	220	200	-	620	-	243	-	190	165	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,960	208	134	160	0.500	0.58
November	6,385	346	140	213	.666	.74
December	7,850	379	197	253	.791	.91
Calendar year 1938	121,347	1,900	116	332	1.04	14.14
January	8,190	440	190	264	.825	.95
February	6,990	350	210	250	.781	.81
March	16,335	1,700	240	527	1.65	1.90
April	17,857	1,380	340	595	1.86	2.08
May	10,090	605	217	325	1.02	1.18
June	9,542	665	195	318	.994	1.11
July	4,961	192	134	160	.500	.58
August	7,321	600	153	236	.738	.85
September	5,499	310	159	183	.572	.64
Water year 1938-39	105,980	1,700	134	290	.906	12.33

Peak discharge.- Mar. 29 (8 p.m.) 1,460 sec.-ft.

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 city limits of Owosso (revised). Zero of gage is 707.82 feet above mean sea level.

Drainage area.- 538 square miles.

Records available.- March 1931 to September 1939.

Extremes.- Maximum discharge during year, 1,720 second-feet Apr. 17 (gage height, 5.72 feet); minimum, 11 second-feet Dec. 14 (gage height, 1.63 feet).
1931-39: Maximum discharge, 3,670 second-feet Feb. 18, 1938 (gage height, 8.13 feet); minimum, 0.2 second-foot July 27, 1934 (gage height, 1.12 feet).
Maximum stage known, 726 feet above mean sea level at former site during an ice jam in 1918.

Remarks.- Records good except those for periods of ice effect, Nov. 29, Dec. 14 to Jan. 4, Jan. 12-14, Feb. 13-15, Mar. 8-12, which were computed from study of recorder chart, weather records, and records for Battle Creek at Battle Creek and are fair, and those for periods of missing gage heights, Oct. 1-25, Dec. 11, Jan. 15 to Feb. 12, Feb. 16-22, Feb. 26 to Mar. 4, and Sept. 27-30, which were computed from recorded range in stage and records for Battle Creek at Battle Creek and are poor. Flow regulated by operation of power plant at Shiawasseetown. Gage-height record furnished by city of Owosso.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 3 to Aug. 20)

1.6	8.5	2.3	162	3.5	592	5.0	1,270
1.8	38	2.6	250	4.0	806	6.0	1,950
2.0	86	3.0	388	4.5	1,020		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	57	66	64	94	470	356	312	116	165	64	39
2	56	64	81	68	100	560	353	282	116	144	81	47
3	60	65	61	77	100	900	325	266	108	104	14	29
4	62	67	68	91	110	880	291	247	114	98	38	43
5	56	70	95	112	110	742	273	225	91	116	45	76
6	60	49	91	142	110	656	264	213	78	122	54	40
7	58	68	88	206	120	567	258	195	76	130	54	66
8	58	65	87	193	130	520	261	184	128	137	60	68
9	60	59	88	199	130	480	247	163	145	105	54	56
10	56	70	95	196	180	450	247	162	138	106	46	55
11	62	72	94	163	200	420	272	289	461	103	67	69
12	56	69	94	180	250	400	340	276	395	72	68	91
13	54	73	86	160	270	417	412	260	351	81	50	59
14	62	74	91	140	280	553	454	244	341	69	62	67
15	60	70	94	130	280	870	521	228	308	64	42	68
16	58	68	96	120	210	828	592	192	269	51	47	61
17	56	71	91	120	200	639	1,200	189	244	61	72	52
18	62	78	84	110	200	557	1,510	170	219	68	23	66
19	64	72	110	100	400	529	1,300	159	186	61	45	50
20	58	73	64	120	1,100	548	1,270	162	273	47	58	37
21	62	73	56	110	1,300	520	1,270	178	181	74	64	47
22	58	69	88	90	1,200	424	1,300	198	164	49	64	39
23	58	63	71	85	1,100	379	1,070	173	192	55	39	52
24	64	50	64	100	849	373	935	178	170	56	50	47
25	64	63	78	100	656	352	742	154	159	44	58	57
26	59	66	71	95	500	366	634	144	152	51	46	50
27	65	54	81	90	450	386	542	144	121	33	43	54
28	65	49	45	95	450	367	487	136	113	47	55	48
29	60	75	47	95	-	383	422	390	182	47	40	58
30	61	59	66	80	-	356	340	207	225	50	49	45
31	69	-	91	90	-	340	-	162	-	76	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,665	69	54	60.2	0.112	0.13
November	1,975	78	49	65.8	.122	.14
December	2,502	110	45	80.7	.150	.17
Calendar year 1938	123,511	3,580	29	338	.628	8.51
January	3,721	206	64	120	.223	.26
February	11,079	1,300	94	396	.736	.77
March	16,252	900	340	524	.974	1.12
April	18,488	1,510	247	616	1.14	1.27
May	6,502	390	136	210	.390	.45
June	5,836	461	76	195	.362	.40
July	2,486	165	33	80.2	.149	.17
August	1,578	81	14	50.9	.095	.11
September	1,636	91	29	54.5	.101	.11
Water year 1938-39	73,920	1,510	14	203	.377	5.10

Peak discharge.- Mar. 15 (8 p.m.) 980 second-feet; Apr. 17 (9 p.m.) 1,720 second-feet; May 29 (5 a.m.) 634 second-feet; June 11 (3 p.m.) 571 second-feet.

Flint River at Genesee, 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. Zero of gage is 695.84 feet above mean sea level.

Drainage area.- 593 square miles.

Records available.- March 1931 to September 1939.

Extremes.- Maximum discharge observed during year, 1,310 second-feet Feb. 20 (gage height, 18.19 feet); minimum observed, 30 second-feet Aug. 31; minimum gage height, 12.82 feet July 15.

1931-39: Maximum discharge observed, 3,540 second-feet Feb. 9, 1938 (gage height, 22.52 feet); minimum discharge, about 10 second-feet Aug. 15, 1936.

Remarks.- Records fair except those for periods of ice effect, Nov. 25 to Dec. 2, Dec. 4, Dec. 14 to Jan. 9, Jan. 12 to Feb. 19, Feb. 22 to Mar. 4, Mar. 6-13, 16-26, 29-31, and those for periods of unreliable gage heights, Oct. 19 to Nov. 7, Apr. 14, 17, 22, May 22, July 24, 25, which were computed on basis of records for stations near Flint and on Farmers Creek near Lapeer and are poor. Gage read twice daily.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 27, Aug. 4 to Sept. 30)

Oct. 1 to Feb. 19						Feb. 20 to Sept. 30							
12.8	40	13.6	148	14.6	356	12.8	30	13.8	126	14.6	330	17.0	970
13.0	61	13.8	185	15.0	450	13.0	49	13.8	161	15.0	430	18.0	1,250
13.2	86	14.0	225	15.5	576	13.2	72	14.0	200	15.5	560	19.0	1,600
13.4	115	14.3	289	16.0	706	13.4	97	14.3	262	16.0	690	20.0	2,070

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	61	76	61	66	430	560	330	210	152	49	32
2	52	61	79	61	68	520	508	330	161	118	44	32
3	52	62	83	62	72	560	482	284	134	104	47	42
4	51	62	100	65	74	690	456	251	118	77	44	40
5	51	63	115	79	78	746	404	240	111	82	44	39
6	50	63	123	100	80	710	354	210	97	72	40	45
7	51	65	120	120	82	690	306	190	104	70	40	50
8	51	66	108	140	86	670	284	180	111	65	40	47
9	51	67	108	170	160	640	284	200	111	61	42	45
10	51	69	100	195	270	590	273	262	118	57	42	48
11	49	69	100	215	260	530	284	284	161	53	43	45
12	49	67	115	200	250	510	354	284	152	51	43	49
13	53	83	100	160	270	510	430	251	180	43	43	50
14	52	77	86	140	290	612	534	230	190	35	44	48
15	51	72	82	120	280	802	566	210	180	35	44	45
16	51	71	77	110	260	860	612	210	152	41	42	44
17	57	80	74	100	240	770	830	200	161	39	39	41
18	56	78	72	94	240	720	970	180	145	37	38	40
19	56	80	71	86	310	660	970	161	111	35	36	38
20	57	73	69	86	1,220	610	998	152	104	35	39	38
21	58	82	68	82	942	560	998	180	97	35	39	35
22	58	76	67	79	770	510	970	354	84	35	39	34
23	58	77	67	77	670	480	942	404	84	35	39	34
24	59	77	66	74	590	480	858	378	82	42	39	34
25	59	77	66	73	510	510	774	330	80	40	39	35
26	59	77	65	72	460	560	664	220	74	38	39	34
27	59	76	65	69	430	718	534	190	70	41	38	34
28	59	76	63	68	430	746	430	170	74	51	35	34
29	60	74	63	67	-	690	378	170	273	56	33	34
30	61	74	62	66	-	660	354	190	220	58	31	43
31	61	-	61	66	-	640	-	240	-	58	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,695	61	49	54.7	0.092	0.11
November	2,153	83	61	71.8	.121	.14
December	2,571	123	61	82.9	.140	.16
Calendar year 1938	145,091	3,420	40	398	.671	9.10
January	3,157	215	61	102	.172	.20
February	9,458	1,220	66	338	.570	.59
March	19,384	860	430	625	1.05	1.22
April	17,381	998	273	579	.976	1.09
May	7,465	404	152	241	.406	.47
June	3,947	273	70	132	.223	.25
July	1,751	152	35	56.5	.095	.11
August	1,244	49	31	40.1	.068	.08
September	1,209	50	32	40.3	.068	.08
Water year 1938-39	71,415	1,220	31	196	.331	4.60

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. Zero of gage is 678.80 feet above mean sea level.

Drainage area.- 927 square miles.

Records available.- August 1932 to September 1939.

Extremes.- Maximum discharge during year, 2,180 second-feet Feb. 20 (gage height, 6.35 feet); minimum, 34 second-feet Sept. 24 (gage height, 1.98 feet).
1932-39: Maximum discharge, 6,970 second-feet Feb. 14, 1938 (gage height, 11.20 feet), from rating curve extended above 4,400 second-feet; minimum, 9.0 second-feet Aug. 7, 1934.

Remarks.- Records good. Some regulation at storage dams upstream. City of Flint diverts water upstream from station for municipal and industrial use, but effluent from city sewage-treatment plant is included in flow at station. Gage-height record furnished by city of Flint.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	76	98	77	60	1,130	770	490	337	314	336	55
2	59	76	96	83	72	958	695	490	301	257	53	52
3	65	77	117	85	93	795	670	454	283	241	76	48
4	64	83	117	86	106	848	670	440	223	196	50	135
5	58	83	190	154	111	985	602	450	137	128	49	59
6	66	86	181	171	149	985	490	432	140	126	48	56
7	61	118	119	162	174	958	535	314	144	111	51	61
8	157	144	222	150	80	848	458	208	294	86	70	68
9	59	116	122	174	102	820	319	237	179	80	81	62
10	61	55	122	305	454	820	400	342	214	85	55	59
11	100	55	119	301	432	770	490	432	512	86	55	61
12	105	55	130	229	346	625	544	445	382	85	55	109
13	43	64	133	188	346	670	580	404	355	85	55	76
14	41	90	124	160	350	875	720	350	355	59	57	68
15	40	91	106	162	360	1,440	1,010	332	342	56	58	64
16	38	88	69	222	346	1,340	902	306	306	55	56	58
17	51	94	72	227	296	1,040	1,410	283	253	59	55	55
18	62	98	102	98	278	872	1,780	261	211	59	55	55
19	66	96	100	109	779	848	1,550	229	182	60	52	54
20	71	93	90	107	2,100	820	1,440	274	165	56	50	178
21	71	98	96	279	1.370	770	1,440	457	144	57	55	53
22	71	94	94	111	1,220	648	1,550	499	154	57	55	44
23	81	93	93	108	1,190	626	1,410	512	144	55	56	41
24	209	86	96	57	1,220	602	1,250	530	130	56	56	40
25	123	93	91	58	1,100	720	973	508	117	61	56	43
26	71	91	96	67	820	848	985	458	116	46	54	44
27	71	80	98	86	599	930	902	283	117	42	50	44
28	72	85	82	211	745	958	602	310	128	42	53	46
29	70	88	79	107	-	930	558	306	553	51	64	46
30	67	102	86	57	-	902	481	292	476	72	60	44
31	76	-	83	142	-	848	-	310	-	77	64	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,309	209	38	74.5	0.080	0.09
November	2,647	144	55	88.2	.095	.11
December	3,413	222	59	110	.119	.14
Calendar year 1938	137,118	6,420	38	376	.406	5.50
January	4,623	305	57	146	.157	.18
February	15,298	2,100	60	546	.589	.61
March	27,228	1,440	602	878	.947	1.09
April	26,186	1.780	319	873	.942	1.06
May	11,638	530	208	375	.405	.47
June	7,393	553	115	246	.265	.30
July	2,899	314	42	93.5	.101	.12
August	2,030	356	48	65.5	.071	.08
September	1,896	178	40	63.2	.068	.08
Water year 1938-39	107,460	2,100	38	294	.317	4.32

Peak discharge.- Feb. 20 (9 a.m.) 2,180 sec.-ft.; Apr. 17 (11 p.m.) 1,980 sec.-ft.

Farmers Creek near Lapeer, Mich.

Location.- Staff gage and concrete control, lat. 43°02', long. 83°20', at footbridge at Michigan Home and Training School, 2 miles west of Lapeer, Lapeer County. Zero of gage is 806.48 feet above mean sea level.

Drainage area.- 57 square miles.

Records available.- March 1933 to September 1939.

Extremes.- Maximum discharge observed during year, 166 second-feet Feb. 22 (gage height, 16.64 feet); minimum observed, 1.1 second-feet Aug. 26 to Sept. 3.
1933-39: Maximum discharge observed, 356 second-feet Feb. 16, 1938 (gage height, 18.10 feet), from rating curve extended above 170 second-feet; minimum discharge not determined.

Remarks.- Records good except those for periods of shifting control, Oct. 1-12, June 8 to July 3, Sept. 21-30, and those below 2.0 second-feet, which are fair. Discharge interpolated Feb. 25 because of erroneous gage reading. Occasional regulation at dam upstream from station. Gage read twice daily.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 12, June 8 to July 3, Sept. 21-30)

Oct. 12 to Sept. 30

14.8	0.0	15.2	7.8	15.6	32	16.0	82	16.4	140
14.9	.6	15.3	12	15.7	43	16.1	97	16.5	153
15.0	2.0	15.4	17	15.8	55	16.2	112	16.6	166
15.1	4.4	15.5	24	15.9	68	16.3	126		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	4.4	4.1	4.4	5.0	34	44	32	18	7.0	2.0	1.1
2	2.0	3.6	4.7	4.4	6.3	40	41	32	16	7.0	1.8	1.1
3	2.0	3.3	6.3	4.4	6.3	54	40	30	14	6.0	2.0	1.1
4	1.8	3.8	11	4.4	7.0	71	38	28	12	5.3	1.8	1.5
5	1.8	3.8	10	2.9	7.4	112	34	26	9.8	5.3	1.8	1.6
6	1.7	3.8	12	2.6	7.8	82	30	24	7.4	4.7	2.0	1.3
7	1.8	3.8	13	2.4	7.8	79	27	21	6.3	4.4	1.8	2.0
8	1.8	3.6	14	13	8.2	62	25	18	8.6	5.0	2.0	2.0
9	1.5	3.3	15	13	8.6	45	23	20	9.8	4.1	2.4	2.0
10	2.0	2.6	15	16	17	45	18	24	13	3.6	2.0	2.0
11	2.0	2.4	16	18	16	41	23	36	14	3.3	1.6	2.0
12	2.4	3.6	14	22	16	38	30	43	15	3.1	1.8	3.1
13	1.8	3.8	12	21	21	35	36	38	16	2.6	2.0	3.3
14	1.6	3.8	8.6	14	26	38	41	33	15	2.4	1.6	3.3
15	1.6	3.8	6.3	11	27	49	54	26	13	2.4	1.6	3.3
16	1.6	3.8	6.3	10	23	68	69	23	12	2.4	1.6	2.9
17	1.6	3.8	6.3	9.4	20	85	85	20	10	2.2	1.6	2.4
18	1.6	4.1	7.8	9.4	18	76	88	16	9.8	2.0	1.6	2.4
19	1.6	5.0	7.0	7.8	29	58	97	14	8.6	2.0	1.6	2.0
20	1.6	5.0	7.0	7.8	64	45	104	13	7.4	2.0	1.6	2.0
21	1.6	5.0	7.0	7.4	119	41	92	16	6.7	1.8	1.6	1.8
22	1.6	4.4	6.7	7.0	166	38	66	25	6.3	1.5	1.6	1.8
23	2.6	3.8	6.3	6.7	104	49	81	31	6.7	1.6	1.3	1.6
24	3.8	3.8	7.0	6.3	69	67	76	35	7.0	1.6	1.3	1.6
25	3.8	3.8	6.7	6.3	55	74	67	30	7.8	1.8	1.3	1.6
26	3.8	3.8	6.3	5.7	40	86	56	22	7.0	2.2	1.1	1.6
27	3.8	3.8	6.3	5.7	31	90	48	16	6.0	2.4	1.1	1.6
28	3.8	3.8	6.7	5.7	30	76	38	15	8.2	2.4	1.1	1.6
29	3.8	3.8	7.0	5.7	-	60	35	18	9.8	2.2	1.1	1.6
30	4.4	3.8	7.0	5.7	-	55	36	23	8.2	2.4	1.1	1.8
31	4.4	-	7.0	5.3	-	45	-	22	-	2.2	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	73.2	4.4	1.5	2.36	0.041	0.05
November	113.1	5.0	2.4	3.84	.067	.08
December	270.4	16	4.1	8.72	.153	.18
Calendar year 1938	11,271.1	332	1.0	30.9	.542	7.36
January	265.4	22	2.4	8.56	.150	.17
February	955.4	166	5.0	34.1	.598	.62
March	1,838	112	34	59.3	1.04	1.20
April	1,562	104	18	52.1	.914	1.02
May	768	43	13	24.8	.435	.50
June	309.4	18	6.0	10.3	.181	.20
July	99.0	7.0	1.6	3.19	.056	.06
August	49.9	2.4	1.1	1.61	.028	.03
September	59.0	3.3	1.1	1.97	.035	.04
Water year 1938-39	6,364.8	166	1.1	17.4	.305	4.15

Tittabawassee River at Midland, Mich.

Location.- Water-stage recorder, lat. 40°36', 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. Zero of gage is 590.28 feet above mean sea level (general adjustment of 1929).

Drainage area.- 2,400 square miles.

Records available.- March 1936 to September 1939.

Extremes.- Maximum discharge during year, 7,390 second-feet Apr. 20 (gage height, 9.09 feet); minimum, 127 second-feet July 21; minimum gage height, 0.03 foot Dec. 28.
1936-39: Maximum discharge, 21,100 second-feet Feb. 7, 1938 (gage height, 15.72 feet); minimum, 103 second-feet Aug. 14, 1936.

Remarks.- Records good. Water for industrial use is diverted from river a short distance above gage; small part returned to river a quarter of a mile below gage; remainder returned 1 mile below gage and below control. Gage-height records, some discharge measurements, and records of diversion furnished by Dow Chemical Co.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	350	348	344	616	2,210	3,450	1,080	436	611	592	225
2	310	406	488	360	489	1,990	3,230	1,330	646	613	248	470
3	298	434	527	508	368	1,560	2,590	1,480	1,290	473	402	372
4	408	529	527	772	462	2,200	2,320	1,240	830	476	134	634
5	356	447	722	806	434	3,360	2,190	862	426	468	139	386
6	287	302	1,300	1,590	572	3,150	2,260	826	491	321	153	326
7	284	499	1,380	1,130	812	2,710	2,390	618	885	283	130	388
8	426	976	1,060	956	924	1,920	1,610	916	1,240	246	380	239
9	327	898	601	717	764	1,300	1,250	1,320	762	319	444	216
10	286	748	500	1,930	1,580	1,060	1,970	1,900	797	321	643	415
11	440	1,050	476	1,700	1,430	1,110	2,090	1,740	902	200	654	222
12	420	670	522	1,420	1,160	1,210	2,270	1,150	904	231	494	1,090
13	442	468	766	712	1,120	856	1,560	643	996	238	832	534
14	390	598	611	610	1,690	1,500	1,260	544	999	212	296	1,290
15	337	960	656	573	1,530	2,690	1,940	676	1,000	271	252	588
16	375	934	537	578	1,510	2,740	2,290	858	1,170	210	211	426
17	398	577	388	897	1,260	1,670	3,210	691	700	200	211	352
18	522	602	371	840	834	1,060	5,910	896	554	148	391	219
19	594	562	321	451	1,160	863	6,600	654	741	146	830	362
20	870	406	522	494	2,170	1,100	7,140	540	1,040	130	541	652
21	662	865	638	436	2,360	1,250	6,010	594	736	142	337	302
22	513	605	624	376	1,730	1,270	5,110	783	780	174	367	260
23	474	447	822	532	1,320	1,720	4,420	1,260	981	294	570	216
24	326	438	356	720	1,170	2,840	3,860	1,270	575	207	752	230
25	343	321	364	554	758	3,930	3,390	1,470	472	300	634	607
26	342	452	406	597	632	4,500	2,870	1,490	564	207	328	366
27	360	436	279	604	856	4,950	2,110	1,230	860	354	248	281
28	309	362	392	364	1,190	4,520	1,680	918	1,240	372	346	242
29	310	443	687	321	-	3,790	1,190	644	1,230	178	504	401
30	322	375	644	746	-	3,490	876	400	941	162	416	356
31	325	-	424	814	-	3,360	-	400	-	151	294	-

Month	Observed				Mean diversion	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	12,364	870	284	399	49	448	0.187	0.22
November	17,180	1,050	302	573	43	616	.257	.29
December	18,279	1,380	279	590	38	628	.262	.30
Calendar year 1938	528,703	19,100	206	1,449	47	1,496	.623	8.46
January	23,452	1,930	321	757	41	798	.332	.38
February	30,901	2,360	366	1,104	41	1,145	.477	.50
March	71,879	4,950	856	2,319	41	2,360	.983	1.13
April	89,046	7,140	876	2,968	44	3,012	1.26	1.41
May	30,423	1,900	400	981	58	1,039	.433	.50
June	25,190	1,290	426	840	64	904	.377	.42
July	8,658	613	130	279	63	342	.142	.16
August	12,773	832	130	412	71	483	.201	.23
September	12,667	1,290	216	422	70	492	.205	.23
Water year 1938-39	352,812	7,140	130	967	82	1,019	.425	5.77

Peak discharge.- Feb. 21 (2 p.m.) 2,870 sec.-ft.; Mar. 1 (6 p.m.) 2,870 sec.-ft.; Mar. 16 (1 a.m.) 3,660 sec.-ft.; Mar. 25 (11 p.m.) 4,980 sec.-ft.; Apr. 16 (2 a.m.) 3,030 sec.-ft.; Apr. 20 (noon) 7,390 sec.-ft.

Salt River near North Bradley, Mich.

Location.- Staff gage, lat. 43°42', long. 84°28', at Pere Marquette Railroad bridge, 1½ miles southeast of North Bradley, Midland County.

Drainage area.- 138 square miles.

Records available.- June 1934 to September 1939.

Extremes.- Maximum discharge observed during year, 514 second-feet Apr. 18; maximum gage height, 4.66 feet Mar. 25 (backwater from ice); minimum discharge observed, 2.7 second-feet July 17-22; minimum gage height, 0.32 foot Oct. 1, 3.
1934-39: Maximum discharge observed, 3,160 second-feet Feb. 7, 14, 1938, from rating curve extended above 1,000 second-feet; maximum gage height, 13.77 feet Feb. 6, 1938 (backwater from ice); minimum discharge observed, 1.9 second-feet July 24, 1934.

Remarks.- Records good except those for periods of ice effect, Dec. 14, 15, Dec. 23 to Jan. 5, Jan. 11 to Mar. 25, and those for period of backwater from beaver dam, Sept. 6-30, which were computed on basis of weather records, gage heights, and records for Pine River at Alma and Chippewa River near Mt. Pleasant and are poor. Gage read twice daily.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.7	7.3	12	10	14	250	89	46	22	5.6	4.4	6.6
2	6.4	7.5	11	11	15	340	69	45	21	4.8	4.1	6.2
3	4.7	8.0	14	11	15	320	80	40	22	4.1	4.1	5.6
4	4.8	8.6	18	12	15	350	66	36	25	4.4	6.4	6.2
5	5.0	7.3	20	20	15	400	58	35	24	5.0	5.0	6.0
6	5.0	7.8	17	44	16	250	58	34	20	4.7	4.2	5.2
7	5.2	7.5	16	75	16	170	54	31	18	4.7	3.4	4.7
8	5.4	14	15	58	16	150	58	32	20	4.6	4.1	4.2
9	5.2	18	14	50	16	130	58	42	24	4.2	7.0	4.7
10	9.1	12	14	54	70	125	70	47	18	3.8	13	4.2
11	5.6	9.9	18	56	300	120	75	36	22	3.6	8.8	4.0
12	5.2	9.9	14	45	250	120	70	35	30	3.6	8.0	11
13	5.4	9.9	14	35	230	130	62	32	27	3.2	7.3	16
14	5.8	9.6	13	25	210	300	58	31	19	3.1	7.0	10
15	5.6	9.3	12	21	220	400	110	37	16	2.9	5.8	7.6
16	6.0	9.3	11	19	170	280	110	40	16	2.9	5.0	5.6
17	5.8	9.9	12	17	130	190	189	39	14	2.7	4.2	4.8
18	6.0	9.6	13	15	110	130	499	37	13	2.7	4.4	3.8
19	6.4	9.6	13	16	130	100	469	35	12	2.7	4.7	3.8
20	6.4	16	12	16	350	95	367	35	11	2.7	8.6	4.2
21	7.3	10	13	15	340	90	228	35	10	2.7	13	4.1
22	6.4	9.1	13	15	230	95	255	35	9.6	2.7	7.5	4.0
23	6.0	9.1	12	14	150	120	176	35	8.6	2.9	7.8	4.1
24	6.4	9.1	12	14	110	200	126	33	6.8	2.9	7.8	4.4
25	6.6	9.1	11	13	90	300	94	30	6.0	3.8	6.6	5.4
26	6.0	9.3	12	13	84	367	80	28	5.6	3.1	6.0	7.0
27	6.6	9.3	12	14	80	454	70	28	5.0	5.2	5.8	7.0
28	7.0	9.6	10	14	90	202	62	26	5.4	4.4	5.4	4.2
29	7.0	9.6	9.5	14	-	115	54	28	6.6	4.0	5.4	3.5
30	6.6	10	9.0	13	-	99	49	25	6.8	3.6	6.8	3.6
31	7.3	-	10	14	-	89	-	23	-	5.0	7.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	186.9	9.1	4.7	6.03	0.044	0.05
November	295.2	18	7.3	9.84	.071	.08
December	406.5	20	9.0	13.1	.095	.11
Calendar year 1938	26,691.5	2,840	3.5	73.1	.530	7.19
January	763	75	10	24.6	.178	.21
February	3,482	350	14	124	.899	.94
March	6,481	454	69	209	1.51	1.74
April	3,883	499	49	129	.935	1.04
May	1,073	47	23	34.6	.251	.29
June	464.4	30	5.0	15.5	.112	.12
July	116.5	5.6	2.7	3.76	.027	.03
August	198.8	13	3.4	6.41	.046	.05
September	171.9	16	3.5	5.73	.042	.05
Water year 1938-39	17,522.2	499	2.7	48.0	.348	4.71

Chippewa River near Mount Pleasant, Mich.

Location.- Water-stage recorder, lat. 43°37'35", long. 84°42'50", on line between secs. 7 and 8, T. 14 N., R. 3 W., 4 miles northeast of Mount Pleasant. Prior to Oct. 21, 1938, wire-weight gage at same site and datum.

Drainage area.- 416 square miles.

Records available.- October 1930 to July 1931, October 1932 to September 1939.

Extremes.- Maximum discharge during year, 1,140 second-feet Mar. 16 (gage height, 6.33 feet); minimum, 27 second-feet Aug. 7; minimum gage height, 2.91 feet Oct. 27.
1930-31, 1932-39: Maximum discharge observed, 3,120 second-feet Feb. 6, 1938 (gage height, 12.02 feet); minimum observed, 19 second-feet Aug. 16, 1936 (gage height, 3.04 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 16, 17, Dec. 19-28, Jan. 18, Feb. 7-10, and those for periods of missing gage heights, Dec. 29 to Jan. 4, Jan. 19 to Feb. 6, Feb. 11-13, Mar. 18-21, which were computed on basis of weather records and records for Pine River at Alma and Rifle River near Sterling and are poor. Gage read twice daily Oct. 1-21. Regulation at low stages by operation of power plant upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	122	158	160	180	808	427	300	158	129	76	118
2	100	132	170	160	180	612	398	260	151	107	68	118
3	144	125	183	170	180	612	357	260	183	116	100	100
4	111	132	196	180	190	808	341	260	196	96	93	120
5	122	118	221	341	190	808	341	260	183	111	72	134
6	125	134	208	398	200	709	328	247	153	104	78	116
7	127	148	196	427	200	644	328	221	153	113	70	120
8	127	163	196	398	210	612	314	247	163	129	93	122
9	102	183	196	427	200	644	300	260	170	87	158	141
10	146	196	196	398	450	612	314	247	183	122	196	136
11	132	183	183	274	800	612	300	274	234	104	146	120
12	127	170	183	234	700	612	287	247	260	120	120	170
13	134	183	163	221	600	644	267	234	247	111	125	234
14	134	163	170	247	612	725	274	234	208	109	122	196
15	118	170	151	208	612	1,010	318	247	163	98	111	156
16	93	158	160	221	487	995	300	234	183	111	85	141
17	139	156	170	208	518	563	385	234	183	91	107	109
18	118	156	170	200	518	450	549	221	183	107	100	134
19	122	151	160	210	709	400	612	221	170	111	104	113
20	122	132	160	180	874	350	644	221	196	87	139	111
21	109	153	170	200	676	330	644	221	208	102	183	122
22	132	144	170	190	612	355	644	260	196	93	158	125
23	111	146	160	190	549	300	580	247	208	93	158	111
24	127	127	160	190	549	457	487	221	183	107	153	100
25	127	151	150	180	518	612	457	208	170	81	134	113
26	104	129	160	170	487	775	398	196	141	87	139	111
27	111	127	160	180	487	973	369	196	151	104	120	116
28	116	153	150	180	549	676	355	170	134	113	127	118
29	113	139	140	180	-	518	328	170	144	96	136	116
30	118	156	160	160	-	487	300	170	118	109	139	111
31	127	-	150	170	-	427	-	170	-	107	134	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,765	146	93	121	0.291	0.34
November	4,540	196	118	151	.363	.40
December	5,330	221	140	172	.413	.48
Calendar year 1938	109,887	3,000	64	301	.724	9.83
January	7,252	427	160	234	.562	.66
February	13,037	874	180	466	1.12	1.17
March	19,140	1,010	300	617	1.48	1.71
April	11,966	644	274	399	.959	1.07
May	7,158	300	170	231	.555	.64
June	5,393	260	118	180	.433	.48
July	3,255	129	81	105	.252	.29
August	3,744	196	68	121	.291	.34
September	3,852	234	100	128	.308	.34
Water year 1938-39	88,432	1,010	68	242	.582	7.91

Peak discharge.- Mar. 1 (5 a.m.) 940 sec.-ft.; Mar. 4 (11:30 p.m.) 940 sec.-ft.; Mar. 16 (8:30 p.m.) 1,140 sec.-ft.

Pine River at Alma, Mich.

Location.- Water-stage recorder, lat. 43°23', long. 84°39', in sec. 34, T. 12 N., R. 3 W., 270 feet downstream from highway bridge in Alma. Prior to Oct. 26, staff and wire-weight gages at site 200 feet upstream at same datum. Zero of gage is 717.44 feet above mean sea level (general adjustment of 1929).

Drainage area.- 288 square miles.

Records available.- October 1930 to September 1939.

Extremes.- Maximum discharge during year, 660 second-feet Apr. 22 (gage height, 4.23 feet); minimum, 22 second-feet June 4 (gage height, 0.01 foot).

1930-39: Maximum discharge observed, 4,070 second-feet Feb. 6, 1938 (gage height, 10.43 feet), from rating curve extended above 2,000 second-feet; minimum observed, about 2 second-feet July 23, 1938 (gage height, -0.80 foot).

Remarks.- Records good except those for periods of ice effect and of missing gage heights, Jan. 22 to Feb. 6, Feb. 11, 12, 16-18, Feb. 21 to Mar. 23, Mar. 28-30, which were computed on basis of weather records and records for Chippewa River near Mount Pleasant and are poor. Gage read once daily to Oct. 25. Gage-height record furnished by city of Alma.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	78	101	119	120	450	377	184	241	170	62	84
2	50	78	95	125	120	500	343	170	127	151	62	73
3	50	84	107	131	120	480	273	157	70	95	61	68
4	54	84	144	131	130	500	260	258	44	90	61	73
5	51	84	196	170	130	520	276	177	210	84	58	72
6	52	84	184	198	140	500	244	138	165	90	64	78
7	55	90	164	184	144	450	228	119	58	90	58	71
8	64	113	144	256	144	420	213	125	72	78	66	70
9	56	144	131	292	131	410	198	138	119	72	65	63
10	52	192	125	276	320	400	260	157	144	71	65	59
11	53	212	131	228	500	390	276	157	198	78	78	50
12	52	95	151	260	400	390	276	144	260	72	101	78
13	57	107	113	198	375	410	260	125	292	73	113	107
14	58	95	113	108	394	500	244	119	228	68	101	170
15	61	101	107	102	394	520	292	119	170	61	84	184
16	63	101	113	157	330	500	309	131	150	58	78	131
17	64	101	119	150	350	400	343	118	144	56	69	57
18	65	101	131	157	350	340	503	131	138	58	58	48
19	84	95	113	150	363	290	560	125	131	58	78	61
20	84	95	90	113	522	270	580	119	125	57	125	57
21	90	95	95	138	540	250	560	117	113	57	170	51
22	84	95	125	130	470	230	566	141	125	56	144	51
23	78	90	113	120	400	270	541	252	107	54	125	55
24	78	90	113	130	400	336	448	377	90	51	113	52
25	73	78	107	120	370	412	377	292	101	59	101	53
25	73	78	113	110	350	448	292	203	84	56	90	54
27	78	78	119	120	350	484	260	194	73	65	84	57
28	84	78	95	120	380	470	149	131	73	59	71	57
29	84	90	84	120	-	450	189	138	130	65	78	54
30	84	95	101	100	-	420	184	138	177	65	73	49
31	78	-	113	110	-	394	-	119	-	59	84	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,058	90	49	66.4	0.231	0.27
November	3,001	212	78	100	.347	.39
December	5,732	198	84	120	.417	.48
Calendar year 1938	79,312	3,830	2	217	.753	10.24
January	4,823	292	100	156	.542	.62
February	8,737	540	120	312	1.08	1.12
March	12,804	520	230	413	1.43	1.65
April	9,871	580	149	329	1.14	1.27
May	5,013	377	117	162	.562	.65
June	4,159	292	44	139	.483	.54
July	2,245	170	51	72.4	.251	.29
August	2,639	170	58	85.1	.295	.34
September	2,187	184	49	72.9	.253	.28
Water year 1938-39	61,269	580	44	168	.583	7.90

Peak discharge.- Mar. 24 (8 p.m.) 503 sec.-ft.; Apr. 5 (11 a.m.) 360 sec.-ft.; Apr. 22 (8 p.m.) 660 sec.-ft.; Apr. 27 (11 p.m.) 360 sec.-ft.; May 4 (11 a.m.) 412 sec.-ft.; June 1 (5 p.m.) 577 sec.-ft.; June 5 (9 p.m.) 430 sec.-ft.

Cass River at Frankenmuth, Mich.

Location.- Water-stage recorder, lat. 43°19'42" (revised), long. 83°45'28" (revised), on line between secs. 27 and 28, T. 11 N., R. 6 E., at highway bridge 1 mile (revised) west of Frankenmuth, 2.6 miles upstream from Dead Creek, and 6.6 miles downstream from Perry Creek.

Drainage area.- 848 square miles.

Records available.- February 1908 to March 1909, July 1935 to September 1936, June to September 1939.

Extremes.- Maximum discharge during period, 1,160 second-feet July 7 (gage height, 6.93 feet); minimum, 0.6 second-foot (regulated) July 4 (gage height, 0.91 foot); minimum daily, 6 second-feet July 4, Aug. 30, Sept. 4.

1908-9, 1935-36, 1939: Maximum discharge observed, 9,530 second-feet Mar. 16, 1908 (gage height, 20.98 feet, former site and datum); minimum discharge, that of July 4, 1939; minimum daily discharge, 2 second-feet Sept. 28, 1908 (former site).

Remarks.- Records poor. Flow completely regulated, except during high water, by mill upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	228	82	47
2									-	35	92	26
3									-	70	59	25
4									-	6	27	6
5									-	47	70	60
6									-	86	21	107
7									-	1,050	13	46
8									-	918	68	30
9									-	739	93	81
10									-	658	88	28
11									-	628	41	16
12									-	358	78	85
13									-	96	26	92
14									-	12	58	45
15									-	53	42	32
16									-	153	26	80
17									-	120	24	27
18									-	120	77	21
19									-	87	53	28
20									24	77	15	30
21									112	83	13	28
22									93	80	22	83
23									96	20	86	46
24									86	27	183	16
25									29	25	114	24
26									90	30	120	84
27									95	27	30	38
28									166	57	77	24
29									254	80	32	64
30									252	24	6	30
31									-	66	56	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January						
February						
March						
April						
May						
June 20-30	1,304	259	24	119	0.140	0.06
July	6,060	1,050	6	195	.230	.27
August	1,792	183	6	57.8	.068	.08
September	1,357	107	6	45.2	.053	.06
Water year						

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Black River near Port Huron, Mich.

Location.- Chain gage, lat. 42°59', long. 82°32', in sec. 2, T. 6 N., R. 16 E., at highway bridge 6 miles west of Port Huron. Wire-weight gage used June 3, 1938, to May 17, 1939.

Drainage area.- 634 square miles.

Records available.- April to June 1931, October 1932 to September 1939.

Extremes.- Maximum discharge observed during year, 2,950 second-feet Feb. 19 (gage height, 12.2 feet, from graph based on gage readings); minimum discharge, 11 second-feet Sept. 3, 4; minimum gage height, 4.81 feet July 21-23.
1931, 1932-39: Maximum discharge observed, 6,980 second-feet Feb. 7, 1938 (gage height, 19.29 feet), from rating curve extended above 5,000 second-feet; minimum observed, 4.0 second-feet June 22, 1931 (gage height, 4.48 feet).

Remarks.- Records fair except those for periods of ice effect, Nov. 26 to Dec. 1, Dec. 17 to Jan. 4, Jan. 13-18, 22-26, 28, Feb. 1-8, 22-24, and those for period of shifting control, Aug. 10 to Sept. 30, which were computed from observer's notes, weather records, and records for Farmers Creek near Lapeer and are poor. Gage read once daily.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 10 to Sept. 30)

4.8	13	5.2	49	5.8	164	7.0	554	10.00	1,850
4.9	18	5.3	65	6.0	214	7.5	754	11.00	2,350
5.0	26	5.4	82	6.2	272	8.0	961	12.20	2,950
5.1	36	5.6	120	6.5	369	9.0	1,400		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	25	22	16	16	515	713	176	188	28	25	13
2	16	25	24	16	16	754	713	155	155	23	29	12
3	16	25	29	17	16	1,090	673	139	141	20	28	11
4	16	25	42	19	16	1,440	440	133	124	22	23	11
5	16	25	44	24	16	2,180	319	116	95	30	16	19
6	16	23	46	31	17	2,180	257	124	104	63	14	16
7	16	23	65	45	19	1,580	228	128	120	150	14	16
8	16	23	60	37	22	1,090	201	106	102	120	23	17
9	16	24	48	44	29	961	188	100	120	96	26	20
10	16	25	60	55	48	713	176	120	118	87	23	20
11	18	24	63	60	112	593	228	106	100	79	22	19
12	19	24	48	60	139	515	713	106	98	63	25	23
13	20	24	57	54	106	440	795	93	106	45	23	26
14	20	23	48	49	104	593	593	89	98	32	18	27
15	20	23	32	45	110	1,400	1,260	82	72	26	18	25
16	19	23	29	40	93	2,150	1,180	74	41	23	21	20
17	16	23	27	37	89	1,800	1,290	72	28	22	20	16
18	17	23	25	33	91	1,360	2,350	72	23	20	16	13
19	23	23	24	30	1,390	877	2,150	70	26	16	15	13
20	23	23	23	27	2,380	593	1,670	70	31	14	15	14
21	24	23	22	23	1,760	369	1,130	86	36	13	16	13
22	24	21	22	22	1,500	303	1,440	91	40	13	15	13
23	24	21	21	21	1,200	272	1,490	157	41	13	15	12
24	25	21	20	20	1,000	477	1,360	148	40	15	16	12
25	25	21	20	19	877	1,180	1,130	124	34	14	16	15
26	25	20	19	19	633	2,000	458	112	24	17	16	16
27	25	20	18	18	515	1,900	272	98	20	22	16	13
28	24	20	18	17	515	1,310	228	96	16	19	14	12
29	23	20	17	17	-	713	214	106	25	17	13	21
30	21	20	16	16	-	440	201	214	30	18	12	27
31	23	-	16	16	-	440	-	242	-	22	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	618	25	16	19.9	0.031	0.04
November	683	25	20	22.8	.036	.04
December	1,025	65	16	33.1	.052	.06
Calendar year	-	-	-	-	-	-
January	947	60	16	30.5	.048	.06
February	12,289	2,380	16	456	.722	.75
March	32,228	2,180	272	1,040	1.64	1.89
April	24,060	2,350	176	802	1.26	1.41
May	3,605	242	70	116	.183	.21
June	2,200	188	18	73.3	.116	.13
July	1,162	150	13	37.5	.059	.07
August	578	29	12	18.6	.029	.03
September	505	27	11	16.8	.026	.03
Water year 1938-39	80,440	2,380	11	220	.347	4.72

Clinton River at Pontiac, Mich.

Location.- Staff gage, lat. 42°38'45", long. 83°16'10", in sec. 27, T. 3 N., R. 10 E., at municipal sewage-treatment plant near east limits of Pontiac. Zero of gage is 876.01 feet above mean sea level.

Drainage area.- 123 square miles.

Records available.- May 1935 to June 1939.

Extremes.- Maximum discharge observed during year, 245 second-feet Feb. 28 (gage height, 2.92 feet), from rating curve extended above 150 second-feet; minimum observed, 7 second-feet Dec. 14.

1935-39: Maximum discharge observed, 716 second-feet Feb. 12, 1938 (gage height, 5.10 feet), from rating curve extended above 150 second-feet; minimum observed, 4.8 second-feet Sept. 4, 1936.

Remarks.- Records poor. Discharge for periods of ice effect, Dec. 15, 16, Dec. 25 to Jan. 4, Jan. 18-29, Jan. 31 to Feb. 5, computed on basis of observer's notes and weather records. Gage read twice daily. Gage-height record furnished by city of Pontiac.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 13 to June 22)

Oct. 1 to June 22

0.6	6	1.2	25	1.8	81	2.4	162	2.9	245
.8	10	1.4	39	2.0	106	2.6	193		
1.0	16	1.6	58	2.2	133	2.8	227		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	15	12	8	33	140	112	154	66			
2	20	15	13	9	33	140	112	147	87			
3	20	15	31	9	34	140	106	147	126			
4	19	15	18	10	36	133	106	126	67			
5	18	14	22	42	37	147	106	112	65			
6	19	14	18	74	41	140	106	112	64			
7	18	15	18	81	60	133	106	119	87			
8	18	19	18	77	73	133	100	119	77			
9	17	16	16	67	64	133	100	112	75			
10	18	16	18	66	133	133	100	106	75			
11	17	15	18	56	93	126	162	106	93			
12	17	15	12	60	e1	133	147	106	79			
13	18	16	10	48	79	185	140	100	73			
14	17	16	7	48	70	154	133	100	64			
15	16	15	9	46	65	154	147	100	61			
16	16	15	10	42	79	154	133	100	67			
17	16	14	8	41	59	162	168	100	76			
18	17	16	8	39	70	147	177	100	64			
19	22	14	9	38	177	126	170	93	60			
20	17	13	9	37	147	119	162	93	64			
21	16	14	8	37	119	119	185	162	74			
22	16	14	11	36	119	119	177	112	e7			
23	17	13	10	35	133	112	170	100	-			
24	18	12	10	34	119	112	162	93	-			
25	16	12	10	33	126	106	162	87	-			
26	16	13	10	33	112	112	170	87	-			
27	16	12	9	33	119	112	162	81	-			
28	16	13	9	33	202	119	162	162	-			
29	15	13	9	33	-	112	154	93	-			
30	15	12	9	32	-	126	154	87	-			
31	15	-	9	32	-	119	-	73	-			

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	536	22	15	17.3	0.141	0.16
November	431	19	12	14.4	.117	.13
December	390	31	7	12.6	.102	.12
Calendar year 1938	25,798	382	7	70.7	.575	7.81
January	1,271	81	8	41.0	.333	.38
February	2,513	202	33	89.8	.730	.76
March	4,100	185	106	132	1.07	1.24
April	4,268	185	100	142	1.15	1.29
May	3,389	162	73	109	.886	1.02
June 1-22	1,651	126	60	75.0	.610	.50
July						
August						
September						
Water year	-	-	-	-	-	-

Clinton River at Mount Clemens, Mich.

Location.- Water-stage recorder, lat. 42°35'45", long. 82°54'35", on Moravian Drive highway bridge, a quarter of a mile downstream from junction of North and South Branches, and half a mile west of Mount Clemens. Prior to Jan. 12, 1939, wire-weight gage at same site and datum. Auxiliary wire-weight gage 8,500 feet downstream on Gratiot Avenue Bridge. Zero of gages is 570.92 feet above mean sea level.

Drainage area.- 733 square miles.

Records available.- May 1934 to September 1939.

Extremes.- Maximum discharge during year, 8,460 second-feet Feb. 20 (gage height, 17.07 feet); minimum, 51 second-feet Aug. 25; minimum gage height, 3.77 feet Jan. 26.
1934-39: Maximum discharge observed, 11,100 second-feet Feb. 14, 1938 (gage height, 19.64 feet); minimum observed, 24 second-feet July 31, 1934; minimum gage height, 2.90 feet Oct. 15, 1934.

Remarks.- Records good except those for periods of ice effect, Jan. 13-22, Jan. 24 to Feb. 19, Mar. 18-21, and those for periods of missing gage heights, Oct. 1, 2, 12, 22, 23, 25-27, 29, 30, Nov. 4 to Jan. 12, which were computed on basis of two discharge measurements and records for Clinton River at Pontiac and River Rouge at Detroit and are poor. Discharge computed on basis of fall determined from auxiliary wire-weight gage. Prior to Jan. 12 gage read twice daily.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	100			175	2,360	1,280	540	214	149	89	72
2	105	102			160	2,030	1,020	577	194	162	83	63
3	99	105	166	162	180	1,640	744	514	177	126	89	63
4	105	112			185	1,740	545	460	262	125	98	73
5	110	105			200	2,100	498	411	253	181	80	126
6	105				220	2,260	539	372	195	146	61	109
7	97				230	1,450	514	341	168	138	64	103
8	108	105	169	463	250	1,000	468	336	222	165	68	64
9	89				280	912	416	336	334	147	98	66
10	107				550	809	451	341	312	133	76	67
11	102			324	1,150	820	2,660	313	403	123	71	58
12	98			267	1,000	853	3,190	275	629	116	61	85
13	96	100	152	220	940	1,270	1,930	262	418	92	51	118
14	116			400	1,050	2,690	1,210	230	335	99	86	107
15	97			360	1,000	2,440	1,950	241	290	110	77	86
16	101			350	850	2,020	2,130	214	281	94	87	66
17	104			310	820	1,310	1,960	229	257	104	55	85
18	111	102	138	260	830	1,150	2,210	199	209	107	62	99
19	117			230	1,800	1,100	3,090	221	194	102	87	68
20	136			210	6,970	870	2,020	210	199	96	80	80
21	123			200	4,640	550	1,470	204	198	102	67	83
22	120			190	1,740	524	2,420	318	191	88	93	115
23	120	99	121	174	1,010	518	2,070	537	217	72	78	92
24	126			155	975	596	1,270	619	193	77	89	92
25	120			175	777	714	918	357	190	83	55	74
26	120			165	932	1,080	789	287	157	69	65	101
27	115			165	764	2,220	744	265	160	78	72	83
28	114	100		170	782	1,550	689	253	142	62	82	107
29	110		121	175	-	899	629	274	183	91	61	121
30	110			175	-	936	572	318	168	89	75	106
31	110	-		170	-	1,570	-	225	-	98	80	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,401	136	89	110	0.150	0.17
November	3,054	-	-	102	.139	.16
December	4,456	-	-	144	.196	.23
Calendar year 1938	192,361	11,000	-	527	.719	9.76
January	8,000	-	-	258	.352	.41
February	30,480	6,970	175	1,089	1.49	1.55
March	41,961	2,690	518	1,354	1.85	2.13
April	40,396	3,190	416	1,347	1.84	2.05
May	10,279	619	199	332	.453	.52
June	7,365	629	142	246	.336	.37
July	3,426	181	62	111	.151	.17
August	2,370	98	55	76.5	.104	.12
September	2,632	126	58	87.7	.120	.13
Water year 1938-39	157,840	6,970	55	432	.589	8.01

Peak discharge.- Feb. 20 (4 p.m.) 8,460 sec.-ft.; Apr. 20 (1 a.m.) 2,760 sec.-ft.

River Rouge at Detroit, Mich.

Location.- Chain gage, lat. 42°21'40", long. 83°15'15", on line between secs. 33 and 34, T. 1 S., R. 10 E., in Detroit. Zero of gage is 579.90 feet above mean sea level.

Drainage area.- 194 square miles.

Records available.- November 1930 to September 1939.

Extremes.- Maximum discharge observed during year, 3,630 second-feet Feb. 20 (gage height, 18.87 feet), from rating curve extended above 1,000 second-feet; minimum observed, 6.0 second-feet Sept. 9 (gage height, 3.74 feet).
1930-39: Maximum discharge observed, that of Feb. 20, 1939; minimum observed, 2.7 second-feet Aug. 11, 1934 (gage height, 3.50 feet).

Remarks.- Records good except those below 15 and above 1,500 second-feet, which are fair, those for periods of ice effect, Dec. 24 to Jan. 6, Jan. 31 to Feb. 9, and those for periods of missing gage heights, which are poor. Gage read once daily.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.7	5.0	4.6	47	7.0	315	12.0	1,200	19.0	3,680
3.8	7.6	5.0	78	8.0	460	14.0	1,770		
4.0	15	5.5	123	9.0	615	16.0	2,460		
4.3	28	6.0	179	10.0	781	18.0	3,260		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	*33	33	*33	*47	855	301	*125	34	37	17	*8.0
2	*12	25	23	*33	*43	599	*230	118	27	*25	*19	7.6
3	14	22	33	36	*47	*450	179	104	29	19	*17	*7.1
4	14	22	*50	40	50	385	144	95	*34	*20	30	*9.0
5	16	24	78	45	*52	*420	*140	95	39	*28	23	*20
6	17	*20	70	110	*58	551	138	82	33	19	*15	13
7	17	29	*62	133	*62	385	144	*76	27	22	*12	*12
8	17	24	47	*130	*56	231	128	70	47	26	13	10
9	*20	*24	43	*100	66	218	*110	74	90	*35	13	6.0
10	18	25	36	90	259	*200	108	70	47	24	17	*6.8
11	17	24	*35	82	400	192	954	70	*80	19	12	7.3
12	17	24	34	56	*330	*230	746	58	301	*15	10	9.0
13	17	*21	27	*68	301	357	*450	54	*130	13	*11	*20
14	17	26	54	66	301	712	301	*52	*80	13	9.8	*16
15	*21	23	43	*58	*350	490	520	*50	58	9.8	8.7	13
16	*19	27	50	66	231	460	*400	54	54	*9.4	8.0	10
17	20	28	*35	54	167	301	343	*48	50	9.8	6.8	*8.3
18	20	38	*27	46	155	167	1,150	44	*37	12	*6.6	*8.0
19	19	66	33	54	*380	*150	729	44	35	12	7.6	7.6
20	37	*35	34	54	3,630	138	505	44	33	12	*11	7.6
21	32	*30	27	50	2,900	128	357	*48	*28	9.8	9.8	9.8
22	27	*40	32	*47	1,830	113	954	54	27	9.0	*9.0	7.1
23	*23	29	32	45	*600	113	*450	54	*35	*8.7	*12	7.1
24	28	*24	*28	44	245	*110	315	43	42	9.4	*11	*6.8
25	38	23	*27	50	259	155	245	36	*45	*9.8	9.0	7.6
26	*23	*30	*30	45	*270	*350	205	34	22	*8.7	6.6	10
27	27	*28	29	47	273	535	*180	29	21	9.0	*7.6	11
28	*30	*22	*25	50	205	371	*150	*35	21	*17	8.3	13
29	26	24	29	*42	-	231	138	54	86	13	6.6	*19
30	*23	*28	*27	*58	-	*250	*130	*45	*50	*21	9.8	17
31	25	-	31	50	-	415	-	40	-	19	8.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	662	38	12	21.4	0.110	0.13
November	838	66	20	27.9	.144	.16
December	1,164	78	23	37.5	.193	.22
Calendar year 1938	44,326	2,070	12	121	.624	8.51
January	1,874	133	33	60.5	.312	.36
February	13,567	3,630	43	485	2.50	2.60
March	10,282	855	110	331	1.71	1.97
April	10,844	1,150	108	361	1.86	2.08
May	1,899	125	29	61.3	.316	.36
June	1,642	301	21	54.7	.282	.31
July	514.4	37	8.7	16.6	.086	.10
August	365.9	30	6.6	11.8	.061	.07
September	314.7	20	6.0	10.5	.054	.06
Water year 1938-39	43,947.0	3,630	6.0	120	.619	8.42

*Gage height missing; discharge computed on basis of weather records and records for Raisin River at Monroe.

Huron River at Barton, Mich.

Location.- Lat. 42°17'25", long. 83°44'40", in sec. 20, T. 2 S., R. 6 E., at dam and power plant of Eastern Michigan Edison Co. at Barton, near Ann Arbor.

Drainage area.- 723 square miles.

Records available.- January 1914 to September 1939.

Average discharge.- 25 years, 382 second-feet.

Extremes.- Maximum daily discharge during year, 1,920 second-feet Apr. 19; minimum daily, 39 second-feet July 18.
1914-39: Maximum daily discharge, 5,840 second-feet Mar. 14, 1918; minimum daily, 4 second-feet Sept. 11, 1931.
Revisions.- The figure of maximum daily discharge for water year 1937-38 has been revised to 2,140 second-feet Feb. 18; that of minimum daily to 71 second-feet Sept. 7. These figures supersede those published in Water-Supply Paper 854.

Remarks.- Discharge computed on basis of flow through undersluice during floods, head over dam, and records of operation of power plant. Daily-discharge record furnished by Ayres, Lewis, Norris, and May, consulting engineers, Ann Arbor, Mich.

Revisions.- Revised figures of discharge for water year 1937-38, superseding those published in Water-Supply Paper 854, are given herein.

Discharge, in second-feet, 1937-39

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	143	166	267	286	520	952	1,390	464	498	257	117	96
2	147	176	294	298	457	1,020	1,130	469	485	181	118	89
3	156	168	292	208	586	992	1,130	383	128	223	117	105
4	139	156	356	185	519	878	979	399	379	243	112	98
5	158	188	339	214	913	882	989	432	375	171	99	93
6	157	182	296	197	1,560	881	913	261	343	190	102	83
7	141	187	307	206	1,380	817	908	250	584	169	97	71
8	140	199	261	156	1,180	799	1,020	445	631	127	103	165
9	160	194	148	197	1,440	803	1,140	567	554	160	105	75
10	134	180	219	214	1,460	757	1,010	301	561	220	130	124
11	147	286	235	209	1,180	752	870	291	556	135	157	124
12	141	113	207	162	1,230	730	826	318	562	168	141	133
13	145	208	205	225	1,400	798	797	259	453	214	134	129
14	140	211	193	144	1,470	774	782	261	452	157	128	161
15	138	229	252	190	1,270	734	663	369	419	146	111	157
16	137	198	199	197	1,250	1,120	735	329	423	142	142	146
17	144	236	216	201	1,410	1,320	648	340	409	153	129	145
18	181	204	212	161	2,140	1,220	673	330	343	150	139	154
19	237	205	222	181	2,070	1,130	601	546	298	133	133	138
20	173	214	216	182	1,660	1,140	526	623	288	141	101	135
21	200	195	217	191	1,780	1,070	590	461	316	124	154	145
22	212	204	217	173	1,580	1,110	598	564	294	130	147	154
23	202	199	188	192	1,440	1,310	555	621	279	112	123	145
24	204	203	208	724	1,420	1,520	537	635	152	116	129	136
25	209	194	204	865	1,180	1,250	533	715	228	115	110	131
26	267	194	217	724	1,230	1,260	508	560	169	132	118	142
27	127	198	190	418	975	948	460	570	181	142	101	128
28	207	302	214	338	929	972	444	615	188	94	93	162
29	198	380	226	458	-	1,250	455	652	172	161	113	117
30	191	317	177	688	-	1,160	460	627	182	116	106	121
31	175	-	236	535	-	1,550	-	592	-	111	111	-

Discharge, in second-feet, of Huron River at Barton, Mich.; 1937-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	124	114	160	283	1,280	711	814	198	211	86	80
2	100	124	130	159	118	974	623	719	193	227	80	60
3	99	111	175	154	186	988	632	722	247	277	81	75
4	81	98	181	211	220	1,010	639	621	320	187	80	98
5	97	115	219	179	188	1,160	527	632	260	205	131	71
6	97	143	222	269	201	1,160	569	566	200	197	75	63
7	98	115	242	225	257	912	552	524	344	217	98	67
8	105	148	254	224	207	939	535	524	293	218	111	58
9	118	144	267	283	197	910	449	511	193	192	137	80
10	119	91	220	286	349	871	654	525	414	180	96	108
11	127	155	250	314	336	820	882	454	315	165	92	53
12	110	111	216	280	307	860	1,080	395	335	147	76	61
13	118	113	206	277	294	1,130	888	399	471	162	105	100
14	111	88	204	277	445	1,280	966	368	335	143	91	95
15	99	105	173	275	320	1,060	1,400	330	472	131	88	59
16	116	105	189	212	327	939	1,080	349	367	119	83	94
17	106	117	172	226	374	893	1,440	334	381	191	55	76
18	110	116	212	260	308	856	1,860	298	349	39	52	73
19	133	132	187	151	1,160	724	1,920	273	295	121	80	77
20	122	139	173	220	1,830	715	1,630	274	278	108	98	76
21	118	122	165	220	1,440	780	1,600	274	280	93	86	55
22	105	121	127	218	1,310	706	1,820	273	291	96	86	86
23	127	115	175	177	1,130	648	1,560	272	298	63	56	90
24	122	115	137	160	1,080	620	1,310	218	301	91	96	44
25	111	120	150	152	1,090	712	1,300	271	303	85	70	64
26	131	113	158	157	1,060	646	1,180	186	219	85	68	86
27	117	110	131	188	901	780	1,140	219	227	75	102	86
28	115	126	109	191	1,160	705	991	249	275	82	46	79
29	110	85	189	170	-	651	980	255	258	75	88	160
30	130	127	120	155	-	709	888	206	275	128	74	94
31	105	-	146	184	-	710	-	180	-	63	52	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 1937	5,230	267	127	169	0.234	0.27
November	6,286	380	113	210	.290	.32
December	7,250	356	148	234	.324	.37
Calendar year 1937	155,477	1,960	73	426	.589	8.01
January 1938	9,319	865	144	301	.416	.48
February	35,629	2,140	457	1,272	1.76	1.83
March	31,899	1,550	730	1,029	1.42	1.64
April	22,870	1,390	444	762	1.05	1.17
May	14,249	715	250	460	.636	.73
June	10,902	631	128	363	.502	.56
July	4,853	257	94	157	.217	.25
August	3,720	157	93	120	.166	.19
September	3,802	165	71	127	.176	.20
Water year 1937-38	156,009	2,140	71	427	.591	8.01
October 1938	3,459	133	81	112	.155	.18
November	3,546	155	83	118	.163	.18
December	5,613	267	109	181	.250	.29
Calendar year 1938	149,861	2,140	71	411	.568	7.70
January 1939	6,614	314	151	213	.295	.34
February	17,078	1,830	118	610	.844	.88
March	27,148	1,280	620	876	1.21	1.40
April	31,786	1,920	449	1,060	1.47	1.64
May	12,235	814	180	395	.546	.63
June	8,987	472	193	300	.415	.46
July	4,373	277	39	141	.195	.22
August	2,619	137	46	84.5	.117	.13
September	2,368	160	44	78.9	.109	.12
Water year 1938-39	125,826	1,920	39	345	.477	6.47

Raisin River at Monroe, Mich.

Location.- Water-stage recorder, lat. 41°54'50", long. 83°23'15", at municipal water-supply plant in Monroe, Monroe County, 4 miles upstream from mouth. Zero of gage is 570.00 feet above mean sea level.

Drainage area.- 1,020 square miles.

Records available.- September 1937 to September 1939.

Extremes.- Maximum discharge during year, 5,330 second-feet Feb. 20 (gage height, 8.87 feet); minimum, 31 second-feet July 27 (gage height, 5.56 feet).
1937-39: Maximum discharge, that of Feb. 20, 1939; minimum, 22 second-feet Sept. 4, 1938; minimum gage height, 3.73 feet June 23, 1938 (gates in dam open).

Remarks.- Records good except those for period of ice effect, Dec. 29 to Jan. 2, and those for period of missing gage heights, Aug. 22 to Sept. 27, which were computed on basis of records for River Rouge at Detroit and Huron River at Barton and are poor. Gage-height records furnished by city of Monroe.

Rating table, water year 1938-39 except period of ice effect (gage height, in feet, and discharge, in second-feet)

5.5	15	6.4	858	7.6	2,770
5.6	44	6.6	1,140	8.0	3,610
5.8	142	6.8	1,440	8.5	4,500
6.0	312	7.0	1,760	9.0	5,540
6.2	580	7.3	2,250		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	118	105	160	144	2,860	1,070	788	189	130	86	
2	62	82	143	160	119	2,770	1,060	690	149	112	86	
3	86	77	148	136	153	3,040	986	635	130	136	78	63
4	99	77	111	136	158	2,950	872	566	180	162	78	
5	56	91	104	122	163	2,950	788	539	232	166	69	
6	52	64	290	214	206	2,770	718	485	204	202	82	
7	90	86	250	223	206	2,420	704	458	162	136	52	
8	110	118	324	290	190	2,050	635	389	206	198	61	60
9	56	82	290	312	206	1,700	608	389	149	172	67	
10	68	82	240	301	320	1,400	649	416	182	124	62	
11	101	86	214	290	657	1,250	1,990	324	238	118	72	
12	77	91	214	290	1,100	1,570	2,500	312	416	100	86	
13	64	68	198	301	1,250	2,770	2,590	289	382	85	85	62
14	72	86	174	301	1,490	3,600	2,500	259	301	86	52	
15	89	106	253	210	1,600	3,600	2,590	259	269	66	73	
16	64	96	176	201	1,460	3,510	2,420	269	250	41	68	
17	72	80	124	223	1,250	3,040	2,660	250	206	62	64	
18	96	100	107	164	972	2,420	3,420	232	169	77	52	56
19	86	114	118	92	1,170	1,730	3,320	223	176	70	56	
20	64	77	155	149	4,310	1,310	3,130	196	170	65	101	
21	98	112	160	162	4,800	1,030	3,130	190	223	76	60	
22	105	149	100	130	4,910	929	3,220	382	232	76	66	
23	72	124	91	188	4,800	915	2,950	411	269	82	70	50
24	109	91	149	223	3,700	886	2,500	250	279	38	66	
25	123	86	124	181	2,770	872	2,100	232	312	54	60	
26	60	130	130	104	2,130	886	1,680	198	301	48		60
27	82	77	112	120	1,540	972	1,380	184	232	49		56
28	81	79	123	148	1,560	1,040	1,180	190	192	85		68
29	92	122	130	104	-	1,010	972	214	160	80	59	68
30	72	104	130	166	-	1,030	858	222	142	104		60
31	86	-	160	141	-	1,090	-	183	-	70		-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,505	123	52	80.8	0.079	0.09
November	2,855	149	64	95.2	.093	.10
December	5,147	324	91	166	.163	.19
Calendar year 1938	234,538	3,900	52	643	.630	8.55
January	5,942	312	92	192	.188	.22
February	43,134	4,910	119	1,540	1.51	1.57
March	60,370	3,600	872	1,947	1.91	2.20
April	55,180	3,420	608	1,839	1.80	2.01
May	10,604	788	183	342	.335	.39
June	6,882	416	130	223	.219	.24
July	3,070	202	38	99.0	.097	.11
August	2,106	101	-	67.9	.067	.08
September	1,767	-	-	58.9	.058	.06
Water year 1938-39	199,362	4,910	-	546	.535	7.26

Peak discharge.- Feb. 20 (9 p.m.) 5,330 sec.-ft.; Mar. 1 (12 a.m.) 3,130 sec.-ft.

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 State boundary, and 10 miles upstream from Marie DeLarme Creek. Zero of gage is 695.49 feet above mean sea level.
Drainage area.- 2,049 square miles.
Records available.- September 1921 to December 1935, April to September 1939.
Average discharge.- 14 years (1921-35), 1,568 second-feet.
Extremes.- Maximum discharge during period, 11,300 second-feet Apr. 19 (gage height, 13.50 feet); minimum, 68 second-feet Sept. 19 (gage height, 0.57 foot).
1921-35, 1939: Maximum discharge, 22,000 second-feet Jan. 16, 1930 (gage height, 19.4 feet); minimum, 24 second-feet Oct. 17, 1930, June 21, 22, 1933 (gage height, 0.32 foot).
Remarks.- Records good.

Rating table, Apr. 12 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

0.5	57	1.6	312	6.0	2,740
.6	72	2.0	446	8.0	4,320
.8	106	2.5	645	10.0	6,500
1.0	148	3.0	879	12.0	9,120
1.2	197	4.0	1,420	13.5	11,300
1.4	251	5.0	2,060		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	1,600	501	1,520	1,220	153
2							-	1,420	428	1,520	929	106
3							-	1,250	450	1,250	768	110
4							-	1,170	401	1,220	735	122
5							-	1,010	391	1,660	715	126
6							-	904	380	1,200	493	443
7							-	854	328	806	422	311
8							-	768	344	581	370	278
9							-	758	520	478	338	226
10							-	689	689	428	344	102
11							-	735	1,010	561	387	75
12							4,600	645	1,280	331	364	182
13							4,410	624	1,420	148	235	165
14							3,640	540	1,170	426	516	135
15							3,480	520	980	428	278	234
16							4,320	520	879	272	229	144
17							6,950	520	712	116	248	80
18							10,800	493	624	263	187	70
19							11,100	478	560	269	334	99
20							10,700	464	509	396	347	122
21							9,680	450	475	287	480	116
22							10,100	464	1,140	269	560	126
23							9,960	490	1,940	237	408	124
24							8,040	460	2,460	438	338	110
25							5,410	450	2,180	602	341	95
26							4,140	470	1,920	439	309	115
27							3,400	382	1,730	428	155	126
28							2,810	170	1,520	380	95	120
29							2,320	245	1,730	359	108	122
30							1,860	364	1,660	766	234	116
31							-	312	-	1,420	190	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April 12-30	117,720	11,100	1,860	6,200	3.02	2.13
May	20,193	1,600	170	651	.318	.37
June	30,331	2,460	328	1,010	.493	.55
July	19,498	1,660	116	629	.307	.35
August	12,667	1,220	95	409	.200	.23
September	4,453	443	70	148	.072	.08
Water year	-	-	-	-	-	-

Peak discharge.- Apr. 19 (9 a.m.) 11,300 sec.-ft.

Maumee River near Defiance, Ohio

Location.- Water-stage recorder, lat. 41°17'31", long. 84°16'49", in NW¼ sec. 22, T. 4 N., R. 5 E., at Independence Dam, 4 miles downstream from mouth of Auglaise River and 4½ miles (revised) east of Defiance. Zero of gage is 659.12 feet above mean sea level.

Drainage area.- 5,530 square miles.

Records available.- November 1924 to December 1935, March to September 1939.

Average discharge.- 10 years (1925-35), 3,704 second-feet (flow in Miami and Erie Canal not included).

Extremes.- Maximum discharge during period, 58,800 second-feet Mar. 14 (gage height, 9.77 feet); minimum, 81 second-feet Sept. 20 (gage height, 1.42 feet).
1924-35, 1939: Maximum discharge, 87,000 second-feet Jan. 16, 1930 (gage height, 12.9 feet); minimum, 18 second-feet Aug. 2, 1934 (gage height, 1.24 feet).

Remarks.- Records good except those below 400 second-feet, which are fair, and those for period of missing gage heights, Mar. 18 to Apr. 10 (computed on basis of records for station at Waterville), which are poor. Flow affected by regulation of Auglaize River at hydroelectric plant of Toledo Edison Co., 3 miles south of Defiance. Leakage into abandoned Miami and Erie Canal above station; diversion not included in tables of discharge.

Rating table, Mar. 1 to Sept. 30 (gage height, in feet, and discharge in second-feet)

1.4	70	1.7	480	2.2	1,620	3.0	4,360	4.5	12,800	7.0	34,100
1.5	154	1.8	673	2.4	2,190	3.5	6,850	5.0	16,200	8.0	44,100
1.6	304	2.0	1,110	2.7	3,190	4.0	9,720	6.0	24,600	9.6	57,300

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						20,200	2,500	3,720	538	3,720	1,810	255
2						28,200	3,300	2,810	788	2,410	1,540	206
3						27,300	2,500	2,250	2,680	2,010	1,360	143
4						20,700	2,000	1,890	1,440	1,540	1,040	427
5						19,800	2,400	1,760	1,390	4,580	1,060	519
6						23,700	2,200	1,410	1,210	3,790	880	480
7						22,000	1,700	1,110	880	2,100	615	410
8						15,900	1,400	1,180	995	1,460	839	410
9						11,800	1,300	1,090	839	797	735	288
10						8,840	1,500	1,180	2,480	714	576	271
11						7,410	10,000	1,140	3,520	615	557	178
12						21,800	10,600	1,240	4,540	654	557	113
13						43,200	10,300	1,020	4,280	538	557	95
14						57,300	9,130	903	3,870	304	374	192
15						52,600	9,130	926	2,040	339	557	154
16						36,100	8,840	880	1,700	480	374	166
17						23,700	11,600	903	1,160	427	322	222
18						18,000	22,800	903	1,210	673	304	122
19						13,000	24,600	859	1,390	576	621	122
20						9,500	24,600	859	1,060	519	654	88
21						6,000	20,700	926	1,240	499	480	143
22						4,200	19,800	926	6,640	445	519	178
23						3,000	18,600	903	7,700	615	615	178
24						2,500	15,400	926	7,300	615	519	178
25						2,200	11,500	839	5,190	615	462	178
26						2,000	9,130	859	4,450	756	445	154
27						2,000	7,980	694	2,840	576	357	166
28						2,600	6,740	576	2,290	802	322	178
29						2,200	5,740	519	2,290	1,670	166	255
30						2,300	4,400	357	2,770	1,880	192	222
31						2,300	-	576	-	2,070	178	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March	512,350	57,300	2,000	16,530		
April	282,390	24,600	1,300	9,413		
May	36,134	3,720	357	1,166		
June	80,720	7,700	538	2,691		
July	38,789	4,580	304	1,251		
August	19,887	1,840	166	642		
September	6,691	519	88	223		
Water year						

Peak discharge.- Mar. 2 (8 p.m.) 31,100 sec.-ft.; Mar. 6 (9 p.m.) 26,400 sec.-ft.; Mar. 14 (6 p.m.) 58,800 sec.-ft.

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 of river. Prior to Apr. 13, 1939, chain gage at highway bridge at same datum.

Drainage area.- 753 square miles.

Records available.- November 1930 to September 1939, in reports of Geological Survey. October 1924 to October 1925 and July to September 1927, in reports of Indiana Department of Conservation.

Extremes.- Maximum discharge during year, 8,110 second-feet Mar. 15 (gage height, 16.07 feet), from rating curve extended above 4,000 second-feet; minimum discharge observed, 11 second-feet Oct. 10, 13, 14; minimum gage height, 0.61 foot Sept. 28-30.
1930-39: Maximum discharge observed, 9,430 second-feet Jan. 17, 1937 (gage height, 16.83 feet), from rating curve extended above 4,000 second-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 missing gage heights, Dec. 17 to Jan. 6, Jan. 22-30, Feb. 24, 25, which were computed on basis of weather records and are poor. Gage read once daily Oct. 1 to Apr. 12.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	22	46	28	641	3,270	345	324	52	665	569	36
2	16	16	49	29	1,570	2,790	345	263	64	523	410	36
3	16	15	86	30	2,550	1,870	303	226	62	454	477	32
4	17	13	136	45	2,190	1,470	263	200	62	477	432	28
5	14	15	129	70	1,770	2,790	263	184	56	454	263	25
6	13	16	144	80	1,390	2,790	226	168	74	324	160	25
7	13	15	144	88	1,080	2,130	226	160	185	192	106	24
8	13	15	114	80	850	1,520	216	152	303	144	114	21
9	12	15	106	77	1,620	1,190	200	152	200	129	98	24
10	11	16	86	83	1,970	1,010	345	144	239	114	90	23
11	12	16	77	83	1,520	880	665	136	477	88	86	20
12	13	15	63	77	880	6,170	546	129	454	69	74	20
13	11	16	63	69	850	7,000	500	122	345	55	66	20
14	11	14	71	69	765	7,800	454	122	283	48	66	20
15	12	14	46	69	665	8,110	616	106	263	41	67	19
16	14	16	41	66	546	7,500	1,540	106	209	35	62	19
17	13	17	38	66	432	4,510	2,940	99	192	34	55	28
18	15	22	36	49	283	3,030	3,150	92	160	38	55	31
19	16	23	34	43	1,230	1,150	2,910	88	129	41	130	28
20	17	26	33	41	3,740	880	2,850	87	122	43	432	24
21	16	78	32	38	2,790	432	2,790	99	144	46	242	20
22	18	168	31	36	1,770	366	3,030	99	348	49	144	17
23	15	160	30	35	880	303	2,430	129	665	62	176	16
24	15	122	29	34	700	263	1,400	122	617	52	152	17
25	15	83	29	33	600	244	850	106	523	46	99	17
26	15	76	28	33	569	235	690	90	523	42	66	16
27	17	60	28	32	910	235	690	76	523	43	53	17
28	17	48	28	33	1,970	235	569	66	715	122	45	15
29	17	45	27	50	-	235	454	60	715	613	41	15
30	19	49	27	100	-	263	366	62	690	940	40	15
31	25	-	27	345	-	345	-	57	-	715	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	465	25	11	15.0	0.020	0.02
November	1,226	168	13	40.9	.054	.06
December	1,858	144	27	59.9	.080	.09
Calendar year 1938	214,303	7,400	11	587	.780	10.59
January	2,011	345	28	64.9	.086	.10
February	36,731	3,740	283	1,312	1.74	1.81
March	71,016	8,110	235	2,291	3.04	3.51
April	32,174	3,150	200	1,072	1.42	1.58
May	4,026	324	57	130	.173	.20
June	9,394	715	52	313	.416	.46
July	6,696	940	34	216	.287	.33
August	4,906	569	36	158	.210	.24
September	668	36	15	22.3	.030	.03
Water year 1938-39	171,173	8,110	11	469	.625	8.43

Sandusky River near Bucyrus, Ohio

Location.- Chain gage, 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.

Drainage area.- 89.8 square miles.

Records available.- August 1925 to November 1935, July 1938 to September 1939.

Average discharge.- 11 years, 80.0 second-feet.

Extremes.- Maximum discharge during year, 6,180 second-feet Mar. 12 (gage height, 9.00 feet, from graph based on gage readings); minimum observed, 0.7 second-foot Sept. 25 (gage height, 0.64 foot).

1925-35, 1938-39: Maximum discharge observed, 6,900 second-feet Dec. 14, 1927 (gage height, 9.15 feet); minimum observed, 0.6 second-foot Aug. 13-14, 1933, Oct. 24, 1934.

Revision.- The figure of maximum discharge observed during period July 18 to Sept. 30, 1938, has been revised to 1,030 second-feet Aug. 8 (gage height, 5.57 feet). This figure supersedes that published in Water-Supply Paper 854.

Remarks.- Records good. Gage read twice daily.

Revisions.- Revised figures of discharge for period July 18 to Sept. 30, 1938, superseding those published in Water-Supply Paper 854, are given herein.

Rating tables, July 18, 1938, to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

July 18, 1938, to Mar. 12, 1939

0.7	1.0	2.0	73	5.0	780
.8	2.3	2.3	106	5.5	980
.9	4.4	2.6	147	6.0	1,250
1.0	6.8	2.9	197	6.5	1,600
1.1	9.6	3.2	254	7.0	2,080
1.3	18.4	3.5	320	7.5	2,660
1.5	31	4.0	450	8.0	3,460
1.7	46	4.5	605		

Mar. 13 to Sept. 30

0.6	0.5
.7	1.2
.8	2.6
.9	4.4
1.0	6.7
1.1	9.6

Note.- Same as preceding table above 1.1 feet.

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	73	6.1
2										-	48	3.7
3										-	20	2.7
4										-	13	1.4
5										-	8.8	1.3
6										-	58	1.6
7										-	860	1.3
8										-	900	1.3
9										-	197	1.3
10										-	83	1.8
11										-	73	1.2
12										-	63	22
13										-	32	23
14										-	20	30
15										-	15	32
16										-	13	17
17										-	9.1	11
18										4.9	7.6	7.4
19										4.9	7.1	6.1
20										5.8	6.1	5.1
21										4.4	4.6	6.1
22										28	7.6	9.1
23										15	7.9	5.6
24										9.3	6.8	5.1
25										5.8	6.6	4.6
26										4.4	7.4	4.2
27										4.2	6.8	3.2
28										3.0	6.1	2.8
29										4.4	7.1	2.5
30										2.8	7.1	2.2
31										7.9	5.6	-

Discharge, in second-feet, of Sandusky River near Bucyrus, Ohio, 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	1.4	17	7.4	187	1,860	106	31	6.2	5.7	3.0	1.2
2	1.4	1.4	16	9.1	411	255	78	26	8.4	4.4	2.6	2.3
3	2.3	1.3	30	11	423	140	56	22	22	3.6	2.3	1.5
4	2.5	1.2	78	16	109	100	44	22	32	3.0	3.2	9.0
5	4.9	2.7	73	25	68	465	40	18	15	12	2.0	5.2
6	4.4	2.3	78	37	62	343	58	17	9.6	25	1.6	4.4
7	5.8	2.7	60	40	59	118	78	14	8.4	9.0	3.6	2.8
8	5.8	5.8	46	28	68	78	59	14	6.7	14	3.8	2.0
9	3.9	1.4	34	22	73	68	52	16	5.9	32	5.7	2.0
10	1.7	1.2	29	18	356	63	52	15	31	18	2.6	1.5
11	1.4	1.2	25	17	402	58	266	14	41	9.0	3.0	1.5
12	1.8	1.0	22	15	73	2,870	208	12	43	6.2	2.0	1.5
13	2.7	4.6	18	14	61	2,130	94	10	22	4.8	5.7	1.5
14	1.7	1.7	12	13	49	332	73	9.6	19	3.6	3.0	1.8
15	1.2	4.9	11	13	54	180	83	9.3	20	3.0	2.8	1.9
16	2.0	2.0	12	14	44	112	163	9.6	14	2.0	2.6	2.2
17	1.7	1.9	12	13	41	78	234	9.6	10	2.2	2.6	2.5
18	1.8	32	11	14	41	58	575	9.6	13	10	3.0	1.2
19	2.7	129	10	11	404	37	460	8.4	35	4.8	4.0	1.2
20	2.7	90	8.5	13	1,200	42	206	7.2	61	5.4	3.4	1.5
21	2.3	40	9.3	15	312	38	132	7.8	29	4.8	4.0	1.2
22	2.0	27	7.4	30	112	38	163	22	18	4.0	2.6	1.2
23	2.0	22	9.1	56	83	33	94	22	13	3.1	2.6	1.2
24	3.0	20	8.5	40	63	32	73	14	10	3.0	3.0	1.0
25	2.0	15	8.8	21	56	32	55	9.0	8.1	2.6	1.9	1.1
26	2.2	14	8.8	18	54	30	52	8.1	7.8	3.6	1.5	1.8
27	2.0	14	9.1	17	54	40	52	12	6.2	2.6	1.1	5.7
28	1.7	13	9.6	16	1,140	48	42	7.2	5.7	2.3	1.4	1.8
29	1.4	13	9.3	19	-	44	48	8.1	7.8	4.0	1.5	1.6
30	1.4	15	9.3	626	-	120	37	6.2	6.7	3.3	1.6	11
31	1.8	-	8.5	1,170	-	219	-	5.7	-	3.4	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
July 18-31, 1938	104.8	28	2.8	7.49	0.083	0.04
August	2,580.3	900	4.6	83.2	.927	1.07
September	222.7	32	1.2	7.42	.083	.09
Water year	-	-	-	-	-	-
October 1938	75.5	5.8	1.2	2.44	.027	.03
November	482.7	129	1.0	16.1	.179	.20
December	700.2	78	7.4	22.6	.252	.29
Calendar year	-	-	-	-	-	-
January 1939	2,378.5	1,170	7.4	76.7	.854	.98
February	6,059	1,200	41	216	2.41	2.51
March	10,061	2,870	30	325	3.62	4.17
April	3,733	575	37	124	1.38	1.54
May	416.4	31	5.7	13.4	.149	.17
June	535.5	61	5.7	17.8	.198	.22
July	214.4	32	2.0	6.92	.077	.09
August	84.1	5.7	1.1	2.71	.030	.03
September	76.3	11	1.0	2.54	.028	.03
Water year 1938-39	24,816.6	2,870	1.0	68.0	.757	10.26

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 mouth of Rock Run and 2 miles northeast of Upper Sandusky.
Drainage area.- 299 square miles.
Records available.- October 1921 to December 1935, January 1938 to September 1939.
Average discharge.- 15 years (1921-35, 1939), 253 second-feet.
Extremes.- Maximum discharge during year, 7,970 second-feet Mar. 13 (gage height, 10.2 feet); minimum, 0.9 second-foot Sept. 24 (gage height, 0.84 foot).
1921-35, 1938-39: Maximum discharge, 8,900 second-feet (revised) Dec. 15, 1927 (gage height, 10.5 feet); minimum, that of Sept. 24, 1939; minimum gage height, 0.67 foot Sept. 6, 7, 1934.
Revisions.- The figures of maximum discharge for water years 1926-27 to 1929-30 and 1932-33 have been revised as shown in the following table. They supersede those published in previous water-supply papers.

Date	Discharge (sec.-ft.)	Gage height (feet)	Date	Discharge (sec.-ft.)	Gage height (feet)
Mar. 21, 1927	8,280	10.3	Jan. 13, 1930	7,670	10.1
Dec. 15, 1927	8,900	10.5	Mar. 15, 1933	7,370	9.98
Feb. 27, 1929	8,590	10.4			

Remarks.- Records fair except those for periods of ice effect, Nov. 28-30, Dec. 27-30, Jan. 23 to Feb. 2, Feb. 17, 18, 26, 27, which were computed on basis of records for station near Bucyrus and weather records and are fair.
Revisions.- Revised figures of discharge for high-water periods in water years 1926-27 to 1929-30 and 1932-33 are given below. They supersede those published in Water-Supply Papers 644, 664, 684, 699, and 744.

Day (water year)	Discharge (sec.-ft.)	Day (water year)	Discharge (sec.-ft.)	Day (water year)	Discharge (sec.-ft.)
1926-27		1928-29		1932-33	
Mar. 21	7,370	Feb. 27	7,260	Mar. 14	4,940
22	5,000	1929-30		15	5,680
1927-28		Jan. 9	7,120		
Dec. 14	5,870	13	5,480		
15	6,380	14	6,260		

Period	Discharge in second-feet			Run-off in inches
	Maximum	Mean	Per square mile	
March 1927	7,370	914	3.06	3.53
Water year 1926-27	7,370	386	1.29	17.55
December 1927	6,380	1,070	3.58	4.13
Water year 1927-28	6,380	334	1.12	15.18
February 1929	7,260	557	1.86	1.94
Water year 1928-29	7,260	290	.970	13.14
January 1930	7,120	1,701	5.69	6.56
Water year 1929-30	7,120	365	1.22	16.57
March 1933	5,680	1,036	3.46	3.99
Water year 1932-33	5,680	295	.987	13.38

Discharge, in second-feet, of Sandusky River near Upper Sandusky, Ohio, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	5.2	23	22	2,500	3,440	491	118	22	46	9.5	1.4
2	4.6	5.2	32	22	1,200	2,410	321	99	26	28	9.0	1.2
3	4.6	5.6	44	24	1,370	734	224	87	27	23	8.5	1.2
4	4.3	5.2	90	30	789	481	163	81	42	19	7.9	3.1
5	4.6	5.6	175	37	382	1,020	132	73	65	27	5.3	2.3
6	4.0	6.4	202	50	270	1,510	132	68	47	25	5.9	5.3
7	3.7	5.6	192	62	198	682	192	63	34	28	7.4	9.0
8	3.5	5.6	163	67	177	367	221	58	28	89	8.5	4.8
9	4.6	7.4	104	55	183	274	166	57	28	78	15	3.5
10	5.2	15	83	46	510	231	142	58	29	82	6.9	3.2
11	4.0	10	70	41	1,320	202	356	55	54	57	9.5	2.6
12	3.5	6.9	63	37	549	2,910	787	50	90	32	7.4	1.5
13	3.5	6.4	56	34	266	7,370	448	47	84	22	6.4	1.3
14	3.2	6.0	36	28	195	3,080	266	44	74	16	4.8	1.5
15	3.2	6.4	22	33	175	920	252	41	63	10	4.0	1.3
16	4.6	8.0	34	34	136	604	519	41	49	9.5	4.8	1.5
17	6.0	6.4	30	28	110	402	682	42	38	8.5	4.0	1.5
18	5.6	34	28	27	100	274	880	42	35	18	4.0	1.8
19	5.6	124	22	23	327	189	1,500	38	490	25	4.8	2.1
20	5.6	245	23	17	1,830	169	868	34	538	34	4.8	1.8
21	8.8	135	27	32	1,710	148	589	32	216	21	3.5	1.5
22	6.9	68	20	38	624	130	505	151	126	14	2.6	1.5
23	6.4	47	24	45	359	120	452	132	94	15	4.0	1.4
24	8.0	38	22	110	281	110	309	84	70	13	4.8	1.2
25	6.9	31	20	80	221	105	231	60	52	10	3.5	1.0
26	6.7	25	16	50	180	101	192	44	41	10	2.6	1.3
27	5.2	25	20	34	170	108	217	32	30	10	2.9	3.7
28	6.4	21	21	32	1,080	145	192	29	28	10	3.5	3.5
29	7.4	21	22	32	-	145	152	28	39	11	1.8	11
30	6.9	22	22	260	-	190	135	25	57	16	1.8	20
31	6.9	-	23	3,500	-	612	-	24	-	13	1.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	165.0	8.8	3.2	5.32	0.018	0.02
November	952.9	245	5.2	31.8	.106	.12
December	1,729	202	16	55.8	.187	.22
Calendar year	-	-	-	-	-	-
January	4,930	3,500	17	159	.532	.61
February	17,212	2,500	100	615	2.06	2.14
March	29,183	7,370	101	941	3.15	3.63
April	11,716	1,500	132	391	1.31	1.46
May	1,837	151	24	59.3	.198	.23
June	2,616	538	22	87.2	.292	.33
July	820.0	89	8.5	26.5	.089	.10
August	170.7	15	1.3	5.51	.018	.02
September	98.0	20	1.0	3.27	.011	.01
Water year 1938-39	71,429.6	7,370	1.0	196	.656	8.89

Peak discharge.- Feb. 3 (10 a.m.) 1,520 sec.-ft.; Feb. 20 (11:30 p.m.) 2,160 sec.-ft.; Mar. 2 (2 a.m.) 3,980 sec.-ft.; Mar. 6 (6 a.m.) 1,810 sec.-ft.; Mar. 13 (5 p.m.) 7,970 sec.-ft.; Apr. 19 (11 a.m.) 1,680 sec.-ft.

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.
Drainage area.- 776 square miles.
Records available.- March 1923 to December 1935, July 1938 to September 1939.
Average discharge.- 13 years, 572 second-feet.
Extremes.- Maximum discharge during year, 13,000 second-feet Mar. 14 (gage height, 18.43 feet); minimum, 5.8 second-feet Sept. 25, 26 (gage height, 1.51 feet).
1923-35, 1938-39: Maximum discharge observed, 15,200 second-feet (revised) Mar. 22, 1927 (gage height, 19.9 feet); minimum observed, 4 second-feet Aug. 25, 1928.
Remarks.- Records good except those for periods of ice effect, Dec. 26 to Jan. 1, Jan. 25-30, Feb. 25-27, which were computed on basis of weather records and records for station at Bucyrus and other nearby stations and are fair.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 18, Sept. 25-30)

Oct. 1 to Mar. 14

1.5	7.0	4.0	520
1.6	12	5.0	895
1.7	20	6.0	1,340
1.8	30	7.0	1,830
2.0	56	8.0	2,400
2.2	86	10.0	3,720
2.5	138	12.0	5,320
3.0	240	15.0	8,360
3.5	364	18.1	12,500

Mar. 15 to Sept. 30

1.5	5.8	2.2	83
1.6	11.2	2.5	132
1.7	19	3.0	236
1.8	29	3.5	364
2.0	54		

Note.- Same as preceding table above 3.5 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	15	80	58	3,300	5,300	1,340	265	51	342	229	12
2	15	16	88	56	3,490	5,680	975	229	55	170	234	12
3	14	17	133	56	4,040	5,070	643	200	57	105	109	12
4	12	18	284	62	2,580	2,020	454	174	62	80	67	26
5	12	17	350	86	1,220	2,120	347	160	118	64	49	44
6	13	15	503	120	699	3,580	320	146	141	72	41	30
7	14	16	470	145	589	3,020	378	136	112	277	41	23
8	13	19	350	145	470	1,760	470	127	89	221	57	17
9	12	18	272	138	454	895	422	124	72	231	104	16
10	10	21	218	120	951	643	361	130	64	222	118	14
11	10	23	176	107	2,280	572	706	124	102	146	70	11
12	12	25	151	96	2,160	3,200	1,530	110	132	97	46	11
13	14	29	129	88	904	8,840	1,430	99	162	68	40	11
14	15	27	107	78	537	12,500	835	91	187	53	35	11
15	14	24	76	73	438	8,560	643	83	178	44	29	11
16	12	24	72	80	364	3,150	835	80	145	35	28	11
17	12	22	86	78	293	1,240	1,680	76	115	29	23	10
18	12	147	86	76	278	815	2,640	72	93	34	20	8.8
19	11	520	73	70	545	572	3,230	70	150	58	20	7.7
20	12	503	70	69	2,830	454	2,700	68	1,120	68	20	8.2
21	14	407	67	70	3,800	407	1,580	68	1,480	60	20	7.7
22	16	251	57	89	2,560	353	1,160	71	1,340	50	20	7.2
23	17	168	62	127	1,060	310	955	211	524	41	19	6.7
24	21	131	59	188	643	282	737	185	305	34	18	6.7
25	21	106	60	180	520	262	554	129	213	30	16	5.8
26	21	88	59	150	490	250	470	97	150	33	15	6.7
27	20	80	50	120	450	246	438	78	118	39	14	7.2
28	19	63	56	100	1,350	272	422	65	129	33	14	8.2
29	18	64	58	100	-	358	356	62	223	80	14	11
30	16	70	60	400	-	422	300	60	454	155	13	15
31	16	-	60	3,020	-	935	-	54	-	132	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	454	21	10	14.6	0.019	0.02
November	2,944	520	15	98.1	.126	.14
December	4,422	503	50	143	.184	.21
Calendar year	-	-	-	-	-	-
January	6,335	3,020	56	204	.263	.30
February	39,295	4,040	278	1,403	1.81	1.88
March	74,088	12,500	249	2,390	3.08	3.55
April	28,911	3,280	300	964	1.24	1.38
May	3,644	265	54	118	.151	.17
June	8,141	1,480	51	271	.350	.39
July	3,103	342	29	100	.129	.15
August	1,555	234	12	50.2	.065	.07
September	388.9	44	5.8	13.0	.017	.02
Water year 1938-39	173,280.9	12,500	5.8	475	.612	8.29

Peak discharge.- Feb. 12 (4 a.m.) 2,460 sec.-ft.; Mar. 14 (2 p.m.) 13,000 sec.-ft.; Apr. 12 (11 p.m.) 1,730 sec.-ft.; June 22 (3 a.m.) 1,630 sec.-ft.

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.

Drainage area.- 1,248 square miles.

Records available.- November 1923 to December 1935, July 1938 to September 1939. November 1898 to March 1901, at station 4 miles below present site.

Average discharge.- 13 years (1923-35, 1938-39), 880 second-feet.

Extremes.- Maximum discharge during year, 15,900 second-feet Mar. 13 (gage height, 7.53 feet); minimum, 11 second-feet Sept. 27 (gage height, 0.87 foot).

1923-35, 1938-39: Maximum discharge (not determined), previously published figure believed to be incorrect; maximum gage height, 11.1 feet Jan. 18, 1930; minimum discharge, 7 second-feet (estimated) Dec. 24, 1934 (gage height, 0.85 foot), caused by ice jam above gage.

Revision.- The figure of maximum discharge during period July 19 to Sept. 30, 1938, has been revised to 2,560 second-feet Aug. 12 (gage height, 3.01 feet); that of the minimum to 26 second-feet Sept. 6, 12 (gage height, 0.95 foot). These figures supersede those published in Water-Supply Paper 854.

Remarks.- Records good except those for periods of ice effect, Nov. 28, 29, Dec. 27 to Jan. 4, Jan. 23 to Feb. 5, which were computed on basis of weather records, gage heights, and records for station at Bucyrus and other nearby stations and are fair. High-water records prior to Oct. 1, 1930, may be in error and should be used with caution.

Revisions.- Revised figures of discharge for period July 19 to Sept. 30, 1938, superseding those published in Water-Supply Paper 854, are given herein.

Rating table, July 19, 1938 to Sept. 30, 1939, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

(Shifting-control method used Apr. 29 to June 20, 1939)

0.8	5.6	1.6	306	3.0	2,530
.9	14.7	1.8	470	3.5	3,910
1.0	39	2.0	665	4.0	5,400
1.1	64	2.2	920	5.0	8,400
1.2	98	2.4	1,230	6.0	11,400
1.4	185	2.7	1,810	7.0	14,400

Discharge, in second-feet, 1938-39

1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	160	39
2										-	162	39
3										-	138	36
4										-	171	36
5										-	143	32
6										-	106	29
7										-	174	36
8										-	1,930	36
9										-	1,960	34
10										-	1,110	34
11										-	655	34
12										-	2,190	34
13										-	1,480	208
14										-	647	293
15										-	348	394
16										-	218	340
17										-	147	213
18										-	110	143
19										54	84	88
20										54	81	78
21										74	67	71
22										84	64	74
23										67	62	67
24										71	54	62
25										62	52	56
26										67	49	46
27										67	52	46
28										64	46	49
29										62	42	42
30										59	42	44
31										64	44	-

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Discharge, in second-feet, of Sandusky River near Fremont, Ohio, 1938-39--Continusd

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	36	118	95	5,600	11,700	1,750	545	62	470	180	24
2	42	39	138	90	6,300	8,400	1,540	444	62	299	286	22
3	24	39	216	92	8,800	7,200	1,010	367	64	176	212	24
4	26	39	665	100	5,600	3,770	737	314	59	126	118	26
5	42	39	713	126	2,600	4,440	564	280	59	207	81	22
6	39	42	906	171	1,540	6,750	536	240	95	138	64	56
7	34	39	866	234	1,390	4,500	564	224	126	251	56	52
8	29	36	665	234	1,250	2,770	614	212	122	417	62	42
9	34	46	508	218	1,200	1,500	655	202	118	266	106	39
10	29	42	391	196	2,410	1,040	574	212	81	253	185	32
11	24	39	306	171	5,100	950	1,060	207	126	229	166	24
12	26	46	253	152	3,490	8,670	2,080	196	162	152	110	22
13	34	54	212	138	1,960	14,100	2,100	180	162	110	122	29
14	29	52	176	143	1,070	13,800	1,450	166	180	81	126	22
15	34	54	130	122	798	12,900	1,300	166	180	67	88	15
16	36	52	130	118	655	5,400	1,470	166	166	59	59	15
17	39	46	118	114	564	2,050	2,110	166	130	49	52	15
18	24	103	122	118	463	1,210	4,800	157	95	62	46	13
19	24	988	118	112	1,220	866	5,400	152	91	64	42	13
20	34	1,000	114	114	7,200	677	4,500	152	375	67	42	17
21	39	713	98	106	6,750	614	2,990	166	1,370	88	39	22
22	32	463	98	118	4,500	545	2,130	218	1,620	78	39	17
23	39	293	95	130	2,150	489	1,560	180	1,020	67	39	17
24	39	212	95	170	1,130	452	1,200	286	564	56	36	13
25	34	176	91	350	852	417	906	224	344	59	29	11
26	39	143	90	270	596	391	1,120	180	240	54	26	11
27	39	118	92	210	614	382	1,360	143	180	59	26	11
28	36	105	97	170	2,280	382	1,590	122	143	78	26	17
29	34	100	100	150	-	417	1,040	102	171	88	24	22
30	39	106	100	300	-	574	677	91	293	130	26	29
31	36	-	100	5,000	-	1,100	-	81	-	202	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
July 19-31, 1938	849	84	54	65.3	0.052	0.03
August	12,588	2,190	42	406	.325	.37
September	2,733	394	29	91.1	.073	.08
Water year	-	-	-	-	-	-
October 1938	1,061	42	24	33.9	.027	.03
November	5,260	1,000	36	175	.140	.16
December	7,921	906	90	256	.205	.24
Calendar year	-	-	-	-	-	-
January 1939	9,832	5,000	90	317	.254	.29
February	77,082	8,800	463	2,753	2.21	2.30
March	118,456	14,100	382	3,821	3.06	3.53
April	49,387	5,400	536	1,646	1.32	1.47
May	6,541	545	81	211	.169	.19
June	8,460	1,620	59	282	.226	.25
July	4,502	470	49	145	.116	.13
August	2,539	286	24	81.9	.066	.06
September	694	56	11	23.1	.019	.02
Water year 1938-39	291,725	14,100	11	799	.640	8.69

Peak discharge.- Feb. 11 (7 a.m.) 6,000 sec.-ft.; Feb. 20 (8 p.m.) 8,400 sec.-ft.; Mar. 6 (3 a.m.) 8,100 sec.-ft.; Mar. 13 (3:30 a.m.) 15,900 sec.-ft.; Mar. 15 (1:30 a.m.) 15,000 sec.-ft.; Apr. 19 (3 a.m.) 6,000 sec.-ft.

Cuyahoga River at Old Portage, Ohio

Location.- Water-stage recorder, lat. 41°08'04", long. 81°32'49", at highway bridge at Old Portage, Summit County, 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 to September 1939.

Average discharge.- 14 years (1921-35), 434 second-feet.

Extremes.- Maximum discharge during period, 2,750 second-feet Mar. 12 (gage height, 7.91 feet); minimum, 36 second-feet Sept. 4 (gage height, 0.52 foot).
1921-35, 1939: Maximum discharge, 3,820 second-feet Apr. 5, 1929 (gage height, 10.1 feet); minimum, 25 second-feet Dec. 7, 11, 1934.

Remarks.- Records good. Diurnal fluctuation caused by operation of power plants above gage. Flow regulated at Lake Rockwell Dam, about 16 miles above gage, where a mean diversion of 36 second-feet was made for municipal supply of city of Akron. Sewage returned to river below gage.

Rating table, Mar. 1 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

0.6	42	1.2	124	3.0	650	7.0	2,300
.8	62	1.5	196	4.0	1,020		
1.0	88	2.0	332	5.5	1,650		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						1,660	869	430	226	159	212	62
2						1,780	907	337	220	132	234	53
3						1,730	907	394	353	106	277	39
4						1,730	812	405	342	111	207	77
5						1,690	720	370	200	364	158	97
6						1,600	685	362	226	228	104	114
7						1,270	671	337	161	199	97	77
8						1,020	598	344	575	237	140	80
9						869	580	266	535	335	165	78
10						738	616	238	433	260	110	62
11						615	1,060	231	304	173	113	90
12						2,080	1,130	243	252	145	103	91
13						2,350	997	229	326	115	118	85
14						1,950	1,030	185	211	139	105	73
15						1,950	1,460	188	261	115	99	67
16						1,780	1,560	242	280	106	90	69
17						1,440	1,560	237	165	61	85	76
18						1,110	2,160	211	153	98	83	102
19						831	2,260	334	167	93	88	104
20						668	1,950	218	171	115	91	51
21						598	1,690	238	157	99	89	82
22						532	1,440	383	268	101	87	96
23						464	1,190	396	305	98	79	81
24						437	945	339	236	75	78	57
25						422	774	301	219	96	80	76
26						516	632	211	229	150	76	152
27						644	548	192	185	194	75	249
28						564	484	180	202	209	74	114
29						516	440	188	170	298	119	99
30						674	404	176	196	217	85	168
31						907	-	200	-	176	73	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-		
February	-	-	-	-		
March	35,335	2,350	422	1,140		
April	31,079	2,260	404	1,036		
May	8,605	430	176	278		
June	7,728	575	153	258		
July	5,004	364	61	161		
August	3,594	277	73	116		
September	2,721	249	39	90.7		
Water year						

Peak discharge.- Mar. 12 (12 m.) 2,750 sec.-ft.

Little Cuyahoga River at Akron, Ohio

Location.- Water-stage recorder, lat. 41°03'34", long. 81°28'32", at foot of Seiberling Street, Akron, Summit County, half a mile downstream from mouth of Springfield Lake outlet. Zero of gage is 997.41 feet above mean sea level.
Drainage area.- 42.0 square miles.
Records available.- July 1920 to December 1935, March to September 1939.
Average discharge.- 15 years, 1920-35, 34.8 second-feet.
Extremes.- Maximum discharge during period, 652 second-feet Mar. 12 (gage height, 3.02 feet); minimum, 5.3 second-feet Aug. 20 (gage height, 0.15 foot).
1920-35, 1939: Maximum discharge not known; no flow June 24, July 14, 1923, on account of regulation above station.
Remarks.- Records good. Gage-height record furnished by Goodyear Tire and Rubber Co. No water diverted into basin during period Mar. 1 to Sept. 30, 1939, from city of Akron municipal water supply. Water is pumped from below gage, used for condensing purposes, and returned above gage. The following table gives figures of mean discharge in second-feet of this diversion.

March	0.15	June	0	September	0.66
April	.04	July	0		
May	.08	August	.20		

Rating table, Mar. 1 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

0.2	8.0	0.8	74	1.9	305
.3	14.4	1.0	105	2.2	392
.4	22.7	1.3	162	2.6	517
.6	45	1.6	229	3.0	652

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						107	72	41	23	19	18	20
2						80	70	37	22	16	14	18
3						65	52	35	89	15	14	12
4						48	44	35	44	25	13	14
5						102	40	32	23	65	12	23
6						88	65	28	19	32	12	22
7						64	68	26	18	22	15	21
8						44	48	28	111	19	19	20
9						40	46	35	110	19	21	19
10						38	59	35	85	20	14	15
11						46	135	31	62	19	13	18
12						410	103	25	43	19	12	19
13						214	92	23	33	19	16	19
14						138	95	21	33	19	17	19
15						119	157	22	27	18	15	20
16						107	117	24	24	17	14	19
17						95	131	24	19	18	14	16
18						75	278	22	19	19	14	19
19						44	158	104	21	19	14	19
20						32	129	35	22	18	25	19
21						38	110	31	20	18	17	19
22						34	94	41	44	12	18	19
23						39	70	29	65	12	17	19
24						46	55	24	49	14	20	15
25						35	43	21	29	15	21	18
26						43	40	20	19	23	18	24
27						64	35	19	18	20	13	48
28						62	38	19	28	37	19	21
29						45	32	22	29	76	20	17
30						80	39	20	29	47	20	35
31						95	-	20	-	26	21	-

Month	Second-foot-days	Maximum	Minimum	Mean
October				
November				
December				
Calendar year				
January	-	-	-	-
February	-	-	-	-
March	2,537	410	32	81.8
April	2,515	278	32	83.8
May	929	104	19	30.0
June	1,177	111	18	39.2
July	737	76	12	23.8
August	510	25	12	16.5
September	606	48	12	20.2
Water year	-	-	-	-

Peak discharge.- Mar. 12 (11:30 a.m.) 652 sec.-ft.; Apr. 18 (9 a.m.) 392 sec.-ft.; May 19 (4 p.m.) 253 sec.-ft.; June 8 (2 p.m.) 297 sec.-ft.; July 4 (11 p.m.) 239 sec.-ft.; July 28 (8 p.m.) 270 sec.-ft.

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. Prior to Jan. 20, 1939, chain gage at same site and datum. Zero of gage is 674.47 feet above mean sea level.
Drainage area.- 587 square miles.
Records available.- July 1922 to December 1935, February 1938 to September 1939.
Average discharge.- 14 years (1922-35, 1938-39), 619 second-feet.
Extremes.- Maximum discharge during year, 7,900 second-feet Feb. 20, Mar. 1; maximum gage height, 8.88 feet Feb. 20; minimum discharge, 0.2 second-foot Sept. 8, 9 (gage height, 0.40 foot).
1922-35, 1938-39: Maximum discharge observed, about 16,400 second-feet Jan. 19, 1929 (gage height, 12.0 feet); practically no flow July 31, Aug. 1-2, 1934.
Remarks.- Records good except those for periods of ice effect, Dec. 27 to Jan. 4, Jan. 15-31, which were computed on basis of weather records, gage heights, and records for nearby stations and are fair.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 17 and May 26 to June 3)

Oct. 1 to Jan. 19				Jan. 20 to Sept. 30					
1.1	11	2.5	234	0.4	0.2	2.0	151	6.0	2,660
1.3	20	3.0	400	.6	2.6	2.5	305	7.0	3,980
1.5	33	4.0	862	.8	9.9	3.0	510	8.5	6,940
1.7	51	5.0	1,560	1.0	19.9	4.0	1,050		
1.9	82	6.0	2,610	1.5	63	5.0	1,780		
2.1	125	7.5	5,080						

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	22	400	72	2,020	7,110	2,040	203	40	30	83	2.5
2	30	21	587	85	2,020	3,760	1,780	244	22	27	40	1.8
3	25	20	1,020	130	2,460	2,880	1,470	237	26	25	40	1.2
4	19	18	2,970	240	2,660	2,190	870	192	250	25	31	1.1
5	21	19	2,070	3,390	1,980	1,500	496	142	437	102	24	2.3
6	24	20	1,110	4,620	1,660	1,440	357	117	186	77	20	1.9
7	22	20	809	1,600	1,540	1,020	492	96	117	54	20	.8
8	21	20	657	917	1,900	732	555	99	91	52	19	.2
9	19	22	478	564	2,580	605	570	77	41	62	19	.2
10	15	25	400	346	4,050	519	532	77	64	23	17	2.8
11	15	32	363	328	5,880	421	1,030	107	73	26	14	3.7
12	16	30	280	295	3,120	2,720	1,500	120	137	22	13	5.4
13	16	37	234	220	2,100	6,220	1,360	103	124	19	13	5.8
14	15	65	177	177	1,580	3,200	1,780	99	101	21	13	5.4
15	14	92	140	140	1,120	2,280	3,850	71	77	20	13	5.8
16	14	68	80	125	680	1,820	3,410	56	89	16	13	5.8
17	13	59	107	115	429	1,120	1,850	34	56	15	13	6.1
18	14	142	22	110	385	605	2,390	51	45	14	13	6.5
19	14	1,160	26	105	1,560	373	3,820	55	41	14	13	6.9
20	12	1,530	13	100	7,040	302	2,460	37	35	12	13	5.8
21	13	680	37	105	4,960	277	2,100	58	33	14	13	5.8
22	15	382	27	120	2,880	349	1,620	188	46	14	12	4.0
23	14	249	35	170	2,280	453	990	369	58	14	12	4.4
24	16	174	70	180	1,440	441	560	313	547	13	11	5.4
25	21	150	16	150	788	349	361	177	291	13	11	5.0
26	19	150	57	130	524	280	267	98	149	13	9.4	3.7
27	27	166	100	120	680	820	215	71	98	13	9.4	6.9
28	32	177	82	110	3,080	1,130	180	52	66	12	8.6	6.5
29	33	249	72	110	-	555	146	33	34	14	6.5	9.0
30	27	328	67	1,000	-	1,110	144	36	30	157	2.8	28
31	28	-	66	3,000	-	3,500	-	25	-	126	3.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	619	35	12	20.0	0.034	0.04
November	6,127	1,530	18	204	.348	.39
December	12,572	2,970	13	406	.692	.80
Calendar year 1938	-	-	-	-	-	-
January	18,874	4,620	72	609	1.04	1.20
February	65,396	7,040	385	2,264	3.86	4.02
March	50,081	7,110	277	1,616	2.75	3.17
April	39,195	3,850	144	1,306	2.22	2.48
May	3,637	369	25	117	.199	.23
June	5,394	547	22	113	.192	.21
July	1,059	157	12	34.2	.058	.07
August	543.4	83	2.8	17.5	.030	.03
September	150.7	28	.2	5.02	.0086	.01
Water year 1938-39	199,638.1	7,110	.2	547	.932	12.65

Peak discharge.- Feb. 20 (3 p.m.) 7,900 sec.-ft.; Mar. 1 (10 a.m.) 7,900 sec.-ft.; Mar. 13 (7 a.m.) 7,180 sec.-ft.; Apr. 15 (7 p.m.) 4,840 sec.-ft.; Apr. 19 (6 a.m.) 4,390 sec.-ft.

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 to September 1939.

Average discharge.- 11 years (1924-35), 134 second-feet.

Extremes.- Maximum discharge during period, 3,690 second-feet Mar. 1 (gage height, 6.18 feet); no flow at times during August and September.
1924-35, 1939: Maximum discharge, about 6,270 second-feet Jan. 19, 1929; maximum gage height, 9.0 feet Feb. 8, 1925 (backwater from ice jam); no flow at times during 1925-35, 1939.

Remarks.- Records good except those below 5 second-feet, which are fair.

Rating tables, Mar. 1 to Sept. 30, 1939 (gage height, in feet, and discharge, in second-feet)

Mar. 1 to June 22

0.25	0	1.0	60	3.5	1,470
.30	.02	1.1	83	4.0	1,845
.40	.16	1.2	111	4.5	2,220
.50	1.6	1.4	179	5.0	2,620
.60	6.0	1.6	260	5.5	3,020
.70	13.6	2.0	450	6.0	3,490
.80	25	2.4	690		
.90	41	3.0	1,105		

June 22 to Sept. 30

0.25	0	0.9	47
.30	.02	1.0	68
.40	.16	1.1	94
.50	1.7	1.2	124
.60	7.5	1.4	193
.70	15.7	1.6	272
.80	29	1.9	400

Note.- Same as preceding table above 1.9 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						1,890	378	28	6.8	11	1.7	0
2						287	365	39	5.4	12	.6	0
3						168	176	25	4.9	7.5	.4	0
4						121	91	19	11	4.9	.2	0
5						137	60	17	111	12	.2	0
6						292	62	15	36	11	.1	0
7						148	158	14	19	9.1	.1	0
8						76	141	12	11	7.5	.1	0
9						86	121	13	6.8	6.8	.1	0
10						134	141	24	6.0	4.3	.1	0
11						91	403	39	4.4	4.9	.1	0
12						1,270	350	24	3.5	3.2	0	0
13						1,660	207	16	3.5	1.7	0	0
14						336	274	13	3.9	93	.1	0
15						168	1,740	11	3.1	76	0	0
16						114	658	9.8	3.1	24	0	0
17						81	203	8.3	2.7	12	0	0
18						65	1,160	6.8	3.9	6.8	0	0
19						72	872	6.0	11	3.2	0	0
20						69	292	5.4	14	1.7	0	0
21						62	191	5.4	11	.9	0	0
22						76	118	5.4	42	.5	0	0
23						121	89	9.7	1,420	.3	0	0
24						111	65	24	367	.3	0	0
25						86	47	14	112	.2	0	0
26						65	36	9.8	49	.2	0	0
27						560	30	7.5	26	.2	0	0
28						356	25	9.8	16	.2	0	0
29						128	24	6.8	12	11	0	0
30						624	23	12	12	6.1	0	2.2
31						1,300	-	11	-	5.5	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	10,754	1,890	62	347	2.94	3.39
April	8,500	1,740	23	283	2.40	2.68
May	460.7	39	5.4	14.9	.126	.14
June	2,338	1,420	2.7	77.9	.660	.74
July	338	93	.2	10.9	.092	.11
August	3.8	1.7	0	.12	.0010	.001
September	2.2	2.2	0	.07	.00059	.0007
Water year	-	-	-	-	-	-

Peak discharge.- Mar. 1 (1:30 a.m.) 3,690 sec.-ft.; Mar. 13 (12:30 a.m.) 3,390 sec.-ft.; Mar. 31 (1 a.m.) 2,220 sec.-ft.; Apr. 15 (2:30 p.m.) 2,780 sec.-ft.; Apr. 18 (7:30 p.m.) 2,620 sec.-ft.; June 23 (8 a.m.) 2,700 sec.-ft.

Buffalo Creek at Gardenville, N. Y.

Location.- Water-stage recorder, lat. 42°51'15", long. 78°45'30", about 700 feet downstream from Union Road highway bridge in Gardenville, Erie County, and about 2 miles upstream from confluence with Cayuga Creek.
Drainage area.- 145 square miles.
Records available.- September 1938 to September 1939.
Extremes.- Maximum discharge during year, 10,700 second-feet Feb. 20 (gage height, 7.62 feet), from rating curve extended by logarithmic plotting above 1,600 second-feet; minimum, 1.4 second-feet (regulated) Sept. 3, 22; minimum gage height observed, 0.695 foot Aug. 28, 31, Sept. 3 (affected by backwater from leaves and trash).
1938-39: Maximum discharge, that of Feb. 20, 1939; minimum, that of Sept. 3, 22, 1939.
Remarks.- Records good except those for periods of ice effect, Nov. 15-17, Nov. 24 to Dec. 2, Dec. 13 to Jan. 5, Jan. 14 to Feb. 11, Mar. 13, 14 (computed on basis of eight discharge measurements during winter period, gage heights, weather records, and observer's and engineers' notes) and those for periods of backwater from leaves and trash and aquatic growth on control Oct. 7 to Nov. 13, Aug. 24 to Sept. 30 (computed on basis of seven discharge measurements, gage heights, precipitation records, and engineers' notes), all of which are fair.

Rating table, September 1938 to September 1939 except periods of ice effect and backwater from obstructions on control (gage height, in feet, and discharge, in second-feet)

0.74	2.49	0.95	11.0	1.3	60	1.8	207	3.3	1,210	6.3	6,710
.80	4.11	1.00	14.9	1.4	80	2.1	342	3.8	1,770		
.85	6.01	1.05	20.0	1.5	105	2.5	560	4.5	2,800		
.90	8.31	1.10	26.7	1.6	135	2.8	770	5.3	4,310		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	25	220	40	40	1,380	506	78	27	105	17	4.0
2	41	25	120	50	50	364	768	70	21	46	14	3.2
3	36	24	130	80	70	291	310	64	21	28	9.2	3.4
4	34	25	528	90	110	332	220	60	22	20	7.8	3.4
5	35	25	275	1,000	100	630	252	58	19	18	12	6.2
6	35	26	173	1,860	85	1,260	398	54	17	19	10	4.6
7	36	29	212	476	90	356	275	52	14	15	7.2	11
8	33	32	188	335	120	229	173	50	14	18	6.4	9.0
9	33	40	111	182	180	232	172	61	13	53	7.0	8.6
10	31	41	178	284	340	200	670	120	13	28	7.2	9.2
11	30	31	213	271	750	175	1,610	75	15	17	7.3	11
12	28	25	159	140	497	208	452	57	19	13	7.7	8.6
13	27	64	100	98	338	380	332	50	18	13	20	10
14	27	171	70	75	428	340	448	48	20	13	80	8.6
15	27	90	55	60	851	497	1,640	46	31	12	35	7.8
16	27	60	50	50	414	566	451	44	32	9.0	18	8.6
17	25	70	46	46	253	203	294	43	25	9.5	12	4.6
18	24	240	42	44	235	148	413	42	21	9.1	9.6	6.4
19	25	1,030	40	42	332	127	345	36	18	6.7	8.3	5.0
20	27	460	38	40	6,490	166	249	34	17	6.8	8.3	4.0
21	33	184	36	44	906	149	196	34	17	5.3	8.5	4.1
22	38	117	36	48	256	147	169	38	20	7.6	11	4.3
23	36	88	34	50	249	266	159	47	40	6.6	7.6	4.0
24	35	70	46	48	207	833	132	56	54	6.4	6.2	2.6
25	38	60	44	46	199	851	111	43	31	6.7	5.8	6.2
26	40	50	42	40	214	904	102	32	19	5.9	5.6	3.4
27	35	44	40	36	584	1,220	117	27	15	5.9	6.0	6.8
28	31	42	40	40	1,290	380	105	79	13	6.5	4.1	6.0
29	28	100	48	40	-	232	90	87	13	9.0	4.0	14
30	27	200	44	38	-	1,550	88	51	284	13	4.8	54
31	27	-	42	34	-	1,170	-	35	-	24	3.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	995	46	24	32.1	0.221	0.25
November	3,488	1,030	24	116	.800	.89
December	3,370	528	34	109	.752	.87
Calendar year 1938	-	-	-	-	-	-
January	5,727	1,860	34	185	1.28	1.48
February	15,678	6,490	40	560	3.86	4.02
March	15,786	1,550	127	509	3.51	4.05
April	11,247	1,640	88	375	2.59	2.89
May	1,671	120	27	53.9	.372	.43
June	903	284	13	30.1	.206	.23
July	556.0	105	5.3	17.9	.123	.14
August	371.1	80	3.5	12.0	.083	.10
September	242.6	54	2.6	8.09	.056	.06
Water year 1938-39	60,034.7	6,490	2.6	164	1.13	15.41

Peak discharge.- Feb. 20 (2 a.m.) 10,700 sec.-ft.; (2:15 p.m.) 9,230 sec.-ft.

Cayuga Creek near Lancaster, N. Y.

Location.- Water-stage recorder, lat. 42°53'20", long. 78°38'40", upstream from low flat-crested dam in Como Lake Park, 80 feet downstream from mouth of Little Buffalo Creek, 700 feet downstream from highway bridge on Bowen Road and about 2 miles southeast of Lancaster, Erie County.

Drainage area.- 93.3 square miles.

Records available.- September 1938 to September 1939.

Extremes.- Maximum discharge during year, 6,720 second-feet Feb. 20 (gage height, 8.60 feet); maximum gage height, 10.78 feet (ice jam) Feb. 28; practically no flow Aug. 8, 9, when permanent stop logs were installed in dam.
1938-39: Maximum discharge, that of Feb. 20, 1939; maximum gage height, that of Feb. 28, 1939; minimum discharge, that of Aug. 8, 9, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 25-29, Dec. 13 to Jan. 4, Jan. 15 to Feb. 10, Feb. 14-18, Feb. 22 to Mar. 5, Mar. 17-23 (computed on basis of 10 discharge measurements, gage heights, records for Buffalo Creek at Gardenville, engineers' and observer's notes, and weather records), those for period of backwater from obstructions on control, July 8-19 (computed on basis of gage heights), and those for period of faulty gage heights due to ice in well, Mar. 8-11 (computed from record for station on Buffalo Creek at Gardenville), all of which are fair.

Discharge, in second-feet, 1938

Sept. 15	116	Sept. 19	10	Sept. 23	827	Sept. 27	30
16	41	20	11	24	125	28	43
17	22	21	12	25	66	29	27
18	14	22	613	26	37	30	22

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	7.4	187	26	20	1,000	350	45	27	49	1.4	0.4
2	16	7.2	83	32	28	280	495	40	28	20	1.2	.4
3	14	6.9	86	50	40	220	171	37	18	13	1.2	.3
4	13	8.2	446	60	60	240	137	34	15	10	1.2	.4
5	13	6.5	175	497	55	460	178	32	12	8.8	.8	.6
6	15	6.5	119	1,460	50	895	249	30	9.8	8.1	.5	.9
7	15	6.5	124	268	55	234	162	28	8.6	7.5	.3	.9
8	13	9.8	113	165	70	160	111	26	7.9	7.6	.3	1.1
9	12	27	82	111	130	160	120	30	7.0	6.8	.1	1.2
10	11	24	122	160	240	140	680	40	6.8	6.2	.5	1.5
11	11	16	119	134	639	120	1,320	31	7.7	4.7	.4	3.0
12	10	13	102	76	400	148	266	25	6.8	3.6	.4	2.0
13	7.6	75	65	36	257	222	227	23	6.4	3.5	4.9	1.7
14	7.9	140	42	25	320	201	254	22	9.3	4.1	16	2.0
15	8.1	44	34	34	650	309	1,140	20	9.0	3.6	8.6	1.5
16	8.1	29	30	28	300	308	245	19	12	2.9	3.1	1.2
17	8.1	41	28	26	190	120	188	18	11	3.2	1.7	1.2
18	7.7	249	26	24	180	85	336	17	9.0	1.6	1.3	1.0
19	7.9	756	26	22	262	75	227	15	7.9	1.2	1.1	.9
20	8.1	242	24	22	5,100	95	163	15	6.8	1.0	1.6	.7
21	9.1	118	24	24	666	90	128	15	6.6	.8	1.6	.8
22	10	86	22	28	*190	85	116	18	9.5	.8	2.6	.8
23	10	58	20	26	*180	140	111	24	36	.5	1.6	.7
24	11	35	30	28	*150	571	95	31	22	.3	1.1	.6
25	12	40	28	26	*140	560	79	20	15	.3	1.0	.6
26	11	34	28	22	*150	680	75	15	12	.2	.8	.7
27	10	30	26	20	*420	837	77	13	10	.3	.7	1.3
28	8.9	26	26	22	*900	198	68	60	8.6	.5	.6	1.6
29	8.1	50	30	22	-	139	63	70	9.4	.6	.5	3.2
30	7.9	151	28	20	-	1,350	50	29	20	2.3	.5	57
31	7.7	-	26	19	-	778	-	19	-	2.2	.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	330.2	18	7.6	10.7	0.115	0.13
November	2,341.0	756	6.5	78.0	.836	.93
December	2,321	446	20	74.9	.803	.93
Calendar year	-	-	-	-	-	-
January	3,533	1,460	19	114	1.22	1.41
February	11,842	5,100	20	423	4.53	4.72
March	10,900	1,350	75	352	3.77	4.35
April	7,931	1,320	50	264	2.83	3.16
May	861	70	13	27.8	.298	.34
June	375.1	36	6.4	12.5	.134	.15
July	175.2	49	.2	5.65	.061	.07
August	58.1	16	.1	1.87	.020	.02
September	70.2	37	.3	2.34	.025	.03
Water year 1938-39	40,737.8	5,100	1	112	1.20	16.24

Peak discharge.- Feb. 20 (7 a.m.) 6,720 sec.-ft.
*Gage height missing.

Little Tonawanda Creek at Linden, N. Y.

Location.- Staff gage and concrete control, lat. 42°52'35", long. 78°09'45", at highway bridge in Linden, Genesee County.
Drainage area.- 22 square miles.
Records available.- July 1912 to September 1939.
Average discharge.- 26 years (1912-19, 1920-39), 26.7 second-feet.
Extremes.- Maximum discharge observed during year, 1,450 second-feet Feb. 20 (gage height, 10.0 feet); minimum, 0.39 second-foot Sept. 24 (gage height, 0.22 foot).
1912-39: Maximum discharge, about 2,400 second-feet Apr. 22, 1916 (gage height, 14.6 feet), from rating curve extended by logarithmic plotting above 1,500 second-feet; minimum, about 0.1 second-foot Sept. 5-7, 1934, and several times during period Aug. 4-28, 1936.
Remarks.- Records good except those for periods of ice effect, Dec. 23, 27, 28, Jan. 5, 6, 14-16, 25, 26 (computed on basis of five discharge measurements during winter, gage heights, observer's and engineers' notes, and weather records), and those for period of log on control, Mar. 10, 11 (computed on basis of observer's notes and weather records), which are poor. Gage read twice daily. On days of rapidly changing stage the discharge is averaged for intervals of a day from gage-height graph based upon gage readings. Flow during summer possibly affected by pumpage upstream for drilling purposes, but most of it is returned to creek above gage.

Rating table, water year 1938-39 except periods of ice effect and backwater from log on control (gage height, in feet, and discharge, in second-feet)

0.2	0.31	0.5	2.83	1.3	27	5.0	425
.25	.53	.55	3.55	1.6	43	6.0	585
.3	.81	.6	4.39	1.9	63	6.6	692
.35	1.18	.7	6.44	2.3	95		
.4	1.65	.8	8.99	3.0	164		
.45	2.20	1.0	15.3	4.0	284		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	2.1	11	7.2	15	173	95	15	34	15	1.9	0.7
2	3.1	1.9	6.4	8.7	15	109	100	14	22	7.4	1.6	.6
3	2.8	1.9	7.2	9.0	22	70	56	13	9.0	4.8	1.4	.6
4	2.6	1.8	44	8.4	29	74	49	12	6.7	3.6	1.4	.6
5	2.8	1.9	31	21	27	130	56	11	5.4	3.7	1.3	.6
6	3.4	1.8	23	150	26	207	78	10	4.4	3.1	1.1	.7
7	3.2	1.9	18	66	27	81	49	9.3	3.7	2.6	1.1	.7
8	3.1	1.9	15	55	27	60	38	8.7	3.6	3.3	1.1	.7
9	2.8	2.3	13	34	36	49	39	9.6	3.1	4.1	1.1	.7
10	2.6	2.6	28	63	40	40	80	14	2.8	2.8	1.0	.9
11	2.6	2.3	24	43	68	37	189	9.6	2.8	2.1	1.0	.8
12	2.3	2.2	20	25	63	34	86	8.4	2.4	2.2	.9	.7
13	2.1	4.9	14	18	46	33	70	7.6	2.6	2.1	3.6	.7
14	2.1	7.8	11	14	72	30	70	6.9	3.1	2.1	6.1	.7
15	2.1	4.4	7.9	15	110	41	194	6.7	2.8	1.9	2.3	.6
16	2.0	3.6	7.4	17	50	60	74	6.0	2.7	1.8	1.6	.6
17	2.1	3.7	8.4	16	40	34	60	6.0	2.8	1.6	1.3	.6
18	1.9	7.8	8.4	16	36	32	70	5.6	2.6	1.6	1.3	.5
19	1.9	43	7.9	15	51	30	82	5.2	2.3	1.6	1.1	.5
20	2.1	28	7.9	14	692	28	63	4.8	2.3	1.4	1.0	.5
21	2.2	17	7.4	15	175	28	46	4.8	2.1	1.3	1.0	.5
22	2.3	12	6.4	15	87	27	40	5.2	2.2	1.2	1.0	.4
23	2.3	10	5.8	16	109	54	34	6.0	3.4	1.1	1.0	.4
24	2.3	7.9	7.2	16	49	192	30	6.4	2.7	1.1	1.0	.4
25	2.6	6.4	7.4	15	40	243	25	5.2	2.1	1.1	.8	.5
26	2.3	6.7	6.5	14	47	366	24	4.4	1.9	1.0	.8	.6
27	2.1	6.7	6.2	13	63	269	26	4.0	1.6	1.1	.8	.6
28	2.1	6.2	7.2	12	99	104	23	13	2.1	1.1	.8	.7
29	2.1	7.2	7.4	12	-	56	20	10	3.7	2.1	.7	.7
30	2.1	10	7.4	12	-	356	16	6.9	51	3.7	.7	1.4
31	2.1	-	6.9	14	-	196	-	5.2	-	3.1	.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	75.5	3.4	1.9	2.44	0.111	0.13
November	217.9	43	1.8	7.26	.330	.37
December	389.3	44	5.8	12.6	.573	.66
Calendar year 1938	8,633.6	471	.7	23.7	1.08	14.61
January	769.3	150	7.2	24.8	1.13	1.30
February	2,161	692	15	77.2	3.51	3.66
March	3,243	366	27	105	4.77	5.50
April	1,882	194	16	62.7	2.85	3.18
May	254.5	15	4.0	8.21	.373	.43
June	193.9	51	1.6	6.46	.294	.33
July	86.7	15	1.0	2.80	.127	.15
August	42.5	6.1	.7	1.37	.062	.07
September	19.2	1.4	.4	.640	.029	.03
Water year 1938-39	9,334.8	692	.4	25.6	1.16	15.81

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. Datum of gage lowered 1.0 foot Oct. 12, 1938.
Drainage area.- 309 square miles.
Records available.- June 1916 to September 1939.
Average discharge.- 23 years (1916-39), 371 sscond-fest.
Extremes.- Maximum discharge observed during year, 7,180 second-fest Feb. 20 (gage height, 8.54 fsst), from rating curvs extended by logarithmic plotting above 3,600 second-feet; minimum discharge, 5.8 second-feet Sept. 4 (gage height, 0.71 foot).
1916-39: Maximum discharge obssrved, about 10,600 second-feet May 22, 1919 (gage height, 10.1 feet, staff gage, present datum), from rating curve extended by logarithmic plotting above 3,600 second-feet; minimum discharge, that of Sept. 4, 1939.
Remarks.- Records good. Discharge for periods of ics effect, Nov. 26 to Dec. 1, Dec. 15-19, Dec. 22 to Jan. 3, Jan. 14-28, Feb. 4-6, 16, 17, Mar. 1-4, 17-23, computed on basis of fivs discharge measurements during winter, gage heights except Dec. 28, 29, Mar. 2-4, observer's notes, and weather records; that for periods of missing gage heights, Oct. 7, computed on basis of recorded range in stage and observer's readings, and Feb. 23-28, computed on basis of records for stations on Allegheny River at Red House, N. Y., and Larabee, Pa., Conewango Creek at Waterboro Little Tonawanda Creek at Linden, and other Geneses River stations.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-11		Oct. 12 to Apr. 18				Apr. 19 to Sept. 30			
0.5	68	1.2	39	3.1	637	0.7	5.5	1.6	92
.6	83	1.3	51	3.6	948	.8	9.0	1.8	128
.7	100	1.5	83	4.0	1,250	.9	14.5	2.1	196
.8	119	1.7	123	5.0	2,120	1.0	21.0	2.4	280
.9	140	2.0	198	6.0	3,200	1.1	29	2.8	424
		2.3	291	7.0	4,580	1.2	39	3.3	660
		2.7	443	8.0	6,210	1.3	50	3.8	965

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	45	200	104	130	1,350	1,120	233	73	50	28	7.2
2	98	44	181	110	134	1,000	1,190	212	69	38	25	6.9
3	88	41	173	116	302	800	866	196	66	30	38	7.0
4	82	40	678	123	270	750	705	182	63	27	38	7.2
5	78	41	730	185	240	1,020	648	167	56	27	31	12
6	116	44	705	1,020	225	1,460	728	158	53	27	26	11
7	126	44	569	637	236	1,100	680	147	49	25	23	12
8	93	44	483	554	218	893	544	136	47	27	20	13
9	85	47	452	414	246	789	525	134	44	30	20	14
10	77	50	565	577	246	693	574	150	44	27	23	12
11	72	45	490	579	352	584	892	126	51	23	20	12
12	68	41	422	427	299	629	752	115	44	21	18	15
13	64	47	359	326	287	654	648	106	43	24	17	17
14	62	66	278	270	328	564	626	102	72	29	16	16
15	58	62	250	245	1,360	701	1,060	95	60	26	16	13
16	56	56	210	220	1,140	852	740	90	56	22	15	12
17	54	56	200	200	740	540	665	90	53	20	14	13
18	57	79	195	180	717	400	654	84	49	20	12	12
19	56	390	170	166	1,130	350	934	80	47	18	11	11
20	56	560	156	155	6,080	390	682	82	44	17	9.8	12
21	58	449	148	160	3,840	370	568	116	43	16	10	12
22	58	382	145	165	1,640	360	539	129	40	15	11	12
23	54	333	140	130	1,100	440	475	156	54	14	8.6	11
24	51	288	135	165	800	864	408	149	56	13	8.2	10
25	51	256	135	150	700	1,390	369	110	41	14	8.0	10
26	47	225	125	140	650	2,010	347	97	36	14	8.3	12
27	49	195	120	135	700	2,360	340	90	34	14	8.0	45
28	51	180	118	130	850	1,830	302	94	32	14	7.6	83
29	50	190	116	128	-	1,440	293	107	32	22	8.0	36
30	49	205	114	134	-	1,550	256	95	38	28	7.4	45
31	46	-	104	128	-	1,500	-	81	-	29	7.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,120	128	46	68.4	0.221	0.25
November	4,545	560	40	152	.492	.55
December	8,866	730	104	286	.926	1.07
Calendar year 1938	118,065	4,890	19	323	1.05	14.23
January	8,172	1,020	104	264	.854	.98
February	24,960	6,080	130	891	2.88	3.00
March	29,633	2,360	350	956	3.09	3.56
April	19,130	1,190	256	638	2.06	2.30
May	3,909	233	80	126	.408	.47
June	1,489	73	32	49.6	.161	.18
July	721	50	13	23.3	.075	.09
August	513.1	38	7.2	16.6	.054	.06
September	511.3	83	6.9	17.0	.055	.06
Water year 1938-39	104,569.4	6,080	6.9	286	.928	12.57

Peak discharge.- Feb. 20 (1:45 p.m.) 7,180 sec.-ft.

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 mouth of Wolf Creek.

Drainage area.- 1,017 square miles.

Records available.- August 1908 to September 1939.

Average discharge.- 31 years, 1,195 second-feet.

Extremes.- Maximum discharge during year, 28,400 second-feet Feb. 20 (gage height, 11.01 feet); minimum, 29 second-feet Aug. 28 (gage height, 2.07 feet).
1908-39: Maximum discharge, about 44,400 second-feet May 17, 1916 (gage height, 12.8 feet), from rating curve extended above 29,000 second-feet; minimum, about 18 second-feet Oct. 5, 17, 1913 (gage height, 1.70 feet).

Remarks.- Records good except those for periods of ice effect, Nov. 25, 26, Dec. 28 to Jan. 5, Jan. 15 to Feb. 15, Feb. 20, Mar. 10-12, 18-20 (computed on basis of four discharge measurements during winter period, gage heights, observer's notes, weather records, and discharge records from other stations in the Genesee Basin), those for periods of obstructed intake, Apr. 16-18, May 6-22 (computed on basis of four discharge measurements, gage heights, weather records, outside gage readings, and hydrographic comparison with the records for stations at Scio and Jones Bridge), and those for period of faulty or missing gage heights, Feb. 16-18, 22-25 (computed on basis of records for other stations in Genesee Basin), which are fair. Some diurnal fluctuation during low stages caused by power operations. Flow slightly regulated by storage in Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	344	438	634	320	700	6,770	3,820	1,180	264	802	133	70
2	311	427	579	380	700	3,300	4,120	1,170	228	388	96	53
3	314	296	648	360	1,000	2,320	3,410	1,100	246	270	93	47
4	291	166	2,080	360	900	2,280	2,720	783	258	190	93	44
5	269	166	2,620	500	700	3,200	2,500	655	220	151	86	50
6	272	156	1,880	5,700	650	6,850	2,290	660	202	172	91	72
7	260	140	1,550	3,280	700	4,290	2,530	800	184	142	92	74
8	554	168	1,250	2,190	650	2,460	1,890	820	170	157	94	64
9	652	184	1,060	1,480	700	2,560	1,710	800	157	147	86	105
10	686	162	1,690	1,670	850	2,400	1,740	720	144	133	82	218
11	672	170	1,760	2,340	1,200	2,000	3,180	660	143	115	75	236
12	640	285	1,270	1,430	1,100	1,900	3,500	490	126	116	76	232
13	375	412	1,060	984	850	3,430	2,460	440	147	112	69	256
14	229	538	812	684	1,100	2,270	2,460	420	174	104	70	133
15	448	530	685	700	2,400	2,330	6,200	410	171	100	72	73
16	604	490	647	700	4,210	3,900	4,100	380	198	104	71	103
17	617	321	799	700	2,230	2,360	2,600	340	177	95	69	240
18	608	293	850	600	1,690	2,000	2,300	330	167	99	68	247
19	592	1,360	836	550	1,840	1,400	4,790	310	149	89	78	254
20	372	2,360	792	500	17,000	1,800	3,630	300	156	83	71	245
21	213	1,510	792	480	17,300	1,790	2,570	290	148	83	62	135
22	401	1,080	547	600	4,860	1,730	2,260	300	143	80	67	73
23	522	852	468	400	2,460	1,410	2,070	395	427	82	62	65
24	540	708	442	650	1,870	3,260	2,170	378	467	69	53	75
25	493	600	692	800	1,860	6,890	1,940	387	246	76	47	214
26	469	650	739	750	1,830	8,570	1,350	317	189	64	40	222
27	316	750	718	700	2,470	9,150	1,190	287	167	73	32	256
28	190	758	220	750	3,420	6,450	1,010	289	150	64	32	156
29	328	728	280	750	-	4,770	1,260	298	384	70	105	76
30	458	750	360	700	-	4,850	1,280	342	1,410	132	201	227
31	458	-	340	700	-	6,450	-	311	-	217	174	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,498	686	190	435	0.428	0.49
November	17,448	2,360	140	582	.572	.64
December	29,100	2,620	220	939	.923	1.06
Calendar year 1938	380,914	15,000	80	1,044	1.03	13.91
January	32,708	5,700	320	1,055	1.04	1.20
February	77,240	17,300	650	2,759	2.71	2.82
March	115,140	9,150	1,400	3,714	3.65	4.21
April	79,050	6,200	1,010	2,635	2.59	2.89
May	16,362	1,180	287	528	.519	.60
June	7,412	1,410	126	247	.243	.27
July	4,579	802	64	148	.146	.17
August	2,540	201	32	81.9	.081	.09
September	4,297	258	44	143	.141	.16
Water year 1938-39	399,374	17,300	32	1,094	1.08	14.60

Peak discharge.- Feb. 20 (11 p.m.) 28,400 sec.-ft.

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. Zero of gage is 540.00 feet above mean sea level (New York State Conservation Commission levels).

Drainage area.- 1,419 square miles.

Records available.- May 1903 to April 1906, August 1908 to April 1914, July 1915 to September 1939.

Average discharge.- 29 years (1908-13, 1915-39), 1,557 second-feet.

Extremes.- Maximum discharge during year, about 25,500 second-feet Feb. 21 (gage height, 25.58 feet, backwater from ice); minimum, 29 second-feet (regulated) Aug. 28 (gage height, 0.13 foot); minimum daily discharge, 46 second-feet Aug. 27.
1903-06, 1908-14, 1915-39: Maximum discharge, 55,100 second-feet May 17, 1916 (gage height, 25.44 feet); minimum, about 18 second-feet Aug. 29, 1909; minimum daily discharge, 30 second-feet Aug. 8, 1909.

Remarks.- Records good except those for periods of ice effect, Dec. 28 to Jan. 5, Jan. 15 to Mar. 5 (computed on basis of three discharge measurements, gage heights except Jan. 22 to Feb. 4, Feb. 24-27, Mar. 1, observer's and engineers' notes, weather records, and records for station at St. Helena and at Canaseraga Creek near Dansville), those for periods of obstructed intake, May 11-18, May 24 to June 1 (computed on basis of three discharge measurements, gage heights, observer's and engineers' notes, and records for station at St. Helena and at Canaseraga Creek near Dansville), and those for periods of faulty or missing gage heights, Oct. 26-30, Nov. 6-10, 15-19, 21-29, Mar. 6, June 11-22 (computed on basis of weather records and hydrographic comparison with other stations in the Genesee Basin), which are fair. Diurnal fluctuation at low stages caused by operation of power plants. Slight seasonal regulation by storage in Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	493	501	927	420	800	8,000	5,290	1,580	380	1,390	206	124
2	442	482	777	500	800	4,200	4,980	1,490	329	588	146	78
3	377	464	741	480	1,200	3,000	4,240	1,430	366	404	113	64
4	412	282	1,720	460	1,100	3,000	3,350	1,260	444	300	148	60
5	370	238	3,370	700	900	4,200	2,980	896	344	314	102	61
6	353	210	2,370	5,240	850	8,680	2,760	830	296	272	103	83
7	346	195	2,000	4,820	900	6,380	3,090	962	276	218	138	102
8	446	225	1,590	2,970	850	3,940	2,440	984	255	218	134	96
9	770	250	1,320	2,080	900	3,300	2,140	974	228	230	117	70
10	778	220	1,830	1,890	1,100	2,940	2,150	902	218	202	116	202
11	796	245	2,420	3,010	1,600	2,520	3,570	820	215	190	92	240
12	738	256	1,710	1,970	1,400	2,350	4,480	640	195	199	116	255
13	598	437	1,400	1,380	1,100	3,640	3,020	580	225	169	82	250
14	342	565	1,070	841	1,500	2,930	2,870	560	280	184	108	226
15	323	620	849	850	3,400	2,960	5,920	540	260	144	90	120
16	648	580	791	900	5,000	4,700	5,530	500	290	146	97	90
17	654	410	859	850	2,800	3,100	3,520	460	260	148	78	202
18	654	380	1,050	750	2,200	2,430	3,070	440	250	135	106	248
19	648	1,750	982	700	2,600	2,140	5,080	423	225	134	99	272
20	572	2,850	950	650	19,000	2,190	5,260	413	235	122	92	270
21	318	1,850	888	600	24,000	2,260	3,430	397	225	114	86	238
22	325	1,300	778	750	6,000	2,200	2,820	412	215	128	84	156
23	572	1,040	489	550	3,200	1,930	2,430	546	287	88	80	121
24	581	880	547	750	2,400	3,360	2,370	560	557	112	91	110
25	582	740	622	900	2,400	7,340	2,300	540	393	110	63	137
26	540	780	907	850	2,400	9,430	1,950	470	238	107	72	194
27	520	860	853	800	3,200	10,100	1,690	430	239	112	46	279
28	300	880	300	900	4,400	8,220	1,570	410	214	119	70	273
29	270	840	380	850	-	5,540	1,570	420	408	111	72	124
30	500	950	460	800	-	5,380	1,680	460	1,590	180	140	174
31	474	-	440	800	-	8,270	-	450	-	284	209	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	15,742	796	270	508	0.358	0.41
November	21,280	2,850	195	709	.500	.56
December	35,390	3,370	300	1,142	.805	.93
Calendar year 1938	496 105	15,000	85	1,359	.958	13.01
January	40,011	5,240	420	1,291	.910	1.05
February	98,000	24,000	800	3,500	2.47	2.57
March	140,630	10,100	1,930	4,536	3.20	3.69
April	97,530	5,920	1,570	3,251	2.29	2.56
May	21,779	1,580	397	703	.495	.57
June	9,937	1,590	195	331	.233	.26
July	7,172	1,390	88	231	.163	.19
August	3,296	209	46	106	.075	.09
September	4,919	279	60	164	.116	.13
Water year 1938-39	495,686	24,000	46	1,358	.957	13.01

Genesee River at Driving Park Avenue, Rochester, N. Y.

Location.- Water-stage recorder, lat. 43°11'05", long. 77°37'40", 40 feet downstream from Plant 5 of Rochester Gas & Electric Corporation and 100 feet upstream from Driving Park Avenue Bridge, in Rochester, Monroe County.

Drainage area.- 2,467 square miles.

Records available.- December 1919 to September 1939.

Average discharge.- 19 years (1920-39), 2,655 second-feet.

Extremes.- Maximum discharge during year, 19,000 second-feet Feb. 23 (gage height, 9.92 feet); minimum, about 35 second-feet (regulated) Aug. 10 (gage height, -2.19 feet); minimum daily, 600 second-feet Aug. 27.
1919-39: Maximum discharge, about 29,600 second-feet Dec. 2, 1927 (gage height, 13.5 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 Aug. 14, 1927.
Maximum known discharge, about 54,000 second-feet sometime in March 1865.

Remarks.- Records good. Partial gage-height record for Aug. 26. New York State Barge Canal crosses river near southern boundary of Rochester. It discharges into river, from the west, the water it has diverted from Lake Erie and diverts from river, to the east, a smaller amount of water for the canal. Additional regulation is provided by headwater storage in Caneadea Reservoir.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,250	1,110	1,850	850	1,460	10,600	11,800	3,040	1,310	2,830	699	850
2	1,100	1,160	1,430	1,040	1,640	12,200	6,660	2,890	1,260	2,620	952	747
3	1,050	1,090	1,560	1,190	1,510	10,200	7,130	2,750	1,140	1,690	950	720
4	997	1,020	1,800	1,160	1,900	8,190	5,650	2,680	1,100	1,280	879	670
5	1,000	916	3,030	1,200	1,630	7,960	4,400	2,310	1,280	1,150	828	705
6	920	765	3,910	1,890	2,270	10,800	4,110	2,070	1,150	1,270	812	645
7	960	846	3,540	6,790	2,200	12,900	3,950	1,920	1,080	1,160	859	708
8	986	862	2,860	5,370	2,160	9,010	4,190	2,120	1,140	1,210	856	733
9	1,100	879	2,450	3,890	2,180	5,770	3,210	2,050	992	1,090	860	769
10	1,600	887	2,460	3,120	2,170	4,520	3,410	2,050	936	1,170	762	754
11	1,440	824	2,540	2,940	2,530	3,960	6,050	2,030	1,020	1,110	740	746
12	1,500	785	2,920	3,870	3,020	3,660	8,620	1,880	1,040	1,000	771	884
13	1,460	1,030	3,200	3,180	3,700	3,620	7,260	1,720	897	1,020	847	880
14	1,220	1,370	2,450	2,220	3,420	4,320	4,820	1,450	1,010	1,100	855	862
15	1,050	1,220	1,920	1,030	3,400	3,840	5,290	1,520	1,020	920	703	892
16	923	1,320	1,230	1,650	4,630	4,680	9,140	1,400	976	902	747	867
17	1,370	1,320	1,390	1,730	6,010	5,880	7,480	1,400	919	984	765	720
18	1,270	1,240	1,590	1,770	4,810	4,180	5,340	1,340	903	910	748	708
19	1,380	1,210	1,900	1,680	4,090	3,220	5,250	1,300	949	896	774	870
20	1,330	2,140	1,690	1,430	5,650	3,360	8,380	1,220	979	872	683	838
21	1,210	3,270	1,680	1,510	12,400	3,360	6,880	1,210	1,060	780	702	834
22	879	2,780	1,560	1,430	14,500	3,350	5,060	1,290	962	758	718	860
23	856	2,370	1,440	1,700	15,300	3,360	3,770	1,360	1,060	816	730	849
24	1,280	1,950	1,310	1,490	14,000	3,680	3,620	1,430	1,000	866	748	702
25	1,300	1,740	1,250	1,390	9,500	8,190	3,640	1,370	1,290	798	712	789
26	1,210	1,290	1,090	1,600	6,810	11,500	3,600	1,360	1,100	781	760	757
27	1,140	1,450	1,680	1,590	5,690	13,900	3,400	1,380	963	837	600	825
28	1,150	1,740	1,130	1,600	6,610	14,100	3,200	1,360	905	844	642	815
29	932	1,750	1,180	1,540	-	10,000	2,930	1,410	1,060	794	697	903
30	851	1,880	1,090	1,680	-	7,520	2,690	1,350	1,420	995	690	996
31	1,140	-	960	1,560	-	12,100	-	1,340	-	1,040	676	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	35,754	1,500	851	1,153	-	-
November	42,214	3,270	765	1,407	-	-
December	59,990	3,910	960	1,935	-	-
Calendar year 1938	888,070	16,800	638	2,433	0.986	13.39
January	65,090	6,790	850	2,100	-	-
February	145,190	15,300	1,460	5,185	-	-
March	223,930	14,100	3,220	7,224	-	-
April	162,930	11,800	2,690	5,431	-	-
May	54,000	3,040	1,210	1,742	-	-
June	31,921	1,420	897	1,064	-	-
July	34,493	2,830	758	1,113	-	-
August	23,765	952	600	767	-	-
September	23,898	996	645	797	-	-
Water year 1938-39	903,175	15,300	600	2,474	1.00	13.62

Peak discharge.- Feb. 23 (10 p.m.) 19,000 sec.-ft.; Mar. 27 (10:30 a.m.) 16,100 sec.-ft.

Canaseraga Creek near Dansville, N. Y.

Location.- Water-stage recorder, lat. 42°34'15", long. 77°48'35", 400 feet upstream from highway bridge in Cumminsville, 2 miles northwest of Dansville, Livingston County. Zero of gagw is 637.15 feet above mean sea level (bench mark of Corps of Engineers, U. S. Army. Prior to Oct. 1, 1938, recording gage 1¼ miles upstream at independent datum.
Drainage area.- 155 square miles.
Records available.- October 1917 to September 1919 at site 400 feet downstream (published as Canaseraga Creek at Cumminsville, N. Y. and October 1938 to September 1939. July 1910 to December 1912, July 1915 to June 1917, and March 1919 to September 1938 at site 1¼ miles upstream.
Average discharge.- 19 years (1920-39).
Extremes.- Maximum discharge during year, 4,860 second-feet Feb. 20 (gage height, 6.35 feet), from rating curve extended by logarithmic plotting above 2,040 second-feet); minimum, 15 second-feet Sept. 23 (gage height, 0.88 foot).
1910-12, 1915-39: Maximum discharge, about 9,920 second-feet July 8, 1935, from rating curve extended by logarithmic plotting above 2,300 second-feet; minimum, 10 second-feet Aug. 9, 1934.
Remarks.- Records good except those for periods of ice effect, Nov. 26-29, Jan. 14-27, Jan. 30 to Feb. 2, Feb. 5 (computed on basis of seven discharge measurements during winter period, gage heights except Nov. 26-29, Jan. 26, 27, weather records, observer's and engineers' notes, and hydrographic comparison with other records in the Genesee River Basin), and those for periods of missing gage heights, Oct. 1-6, Jan. 28, Sept. 3-8 (computed on basis of recorded range in stage, weather records, and hydrographic comparison with the former station 1¼ miles upstream) and are fair.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 6 to Dec. 10				Dec. 10 to Sept. 30							
1.1	29	1.8	160	0.8	11.0	1.3	57	2.4	419	5.0	3,190
1.2	39	2.0	230	.9	16.5	1.5	91	2.7	614	5.4	3,670
1.3	52	2.2	316	1.0	23.5	1.7	136	2.9	774		
1.4	68	2.3	365	1.1	32.5	1.9	196	3.4	1,275		
1.6	108			1.2	43.5	2.1	272	4.0	1,990		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	35	87	63	54	765	491	158	53	100	25	17
2	66	36	67	75	72	454	489	147	53	55	24	17
3	64	35	69	73	122	361	370	136	50	48	24	16
4	61	33	246	68	150	321	303	129	50	60	24	17
5	56	33	230	128	135	618	281	122	46	79	22	26
6	52	34	200	529	131	900	344	117	44	52	21	21
7	49	35	160	312	119	555	321	110	42	44	22	23
8	47	35	132	260	112	368	252	108	42	44	24	20
9	46	39	120	185	139	340	244	108	40	40	24	20
10	47	36	332	291	158	316	274	108	39	36	22	21
11	44	35	246	252	272	263	480	99	39	35	22	20
12	42	34	198	176	221	268	392	93	37	32	20	21
13	39	47	156	127	193	272	321	91	39	38	20	21
14	39	65	119	110	256	256	307	87	56	34	20	19
15	38	54	107	94	683	326	735	86	48	29	20	19
16	37	48	97	102	362	392	431	82	45	31	19	17
17	36	47	94	90	252	264	345	80	41	29	18	16
18	35	51	89	80	228	212	327	77	41	29	18	18
19	34	215	84	72	547	191	759	73	40	26	18	18
20	33	225	78	66	3,590	210	514	71	40	24	18	18
21	36	162	75	66	1,230	210	392	71	58	24	19	19
22	37	122	66	82	589	196	331	101	36	24	17	17
23	37	104	60	74	454	266	290	102	49	24	16	16
24	36	89	75	76	370	583	256	93	41	26	18	17
25	37	78	70	70	312	820	225	80	35	24	18	18
26	36	68	65	62	348	989	210	73	35	25	17	18
27	36	60	70	56	491	966	210	67	32	29	16	29
28	35	54	50	77	606	571	190	65	38	27	17	25
29	35	60	66	70	-	403	183	65	47	24	17	21
30	34	83	63	64	-	690	170	63	88	29	18	33
31	34	-	60	58	-	667	-	57	-	34	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,328	70	33	42.8	0.276	0.32
November	2,052	225	33	68.4	.441	.49
December	3,633	332	50	117	.755	.87
Calendar year	-	-	-	-	-	-
January	3,908	529	56	126	.813	.94
February	12,196	3,590	54	436	2.81	2.93
March	14,083	989	191	454	2.93	3.38
April	10,437	759	170	348	2.25	2.51
May	2,919	158	57	94.2	.608	.70
June	1,324	88	32	44.1	.285	.32
July	1,155	100	24	37.3	.241	.28
August	618	25	16	19.9	.128	.15
September	598	33	16	19.9	.128	.14
Water year 1938-39	54,251	3,590	16	149	.961	13.03

Peak discharge.- Feb. 20 (8:45 a.m.) 4,860 sec.-ft.

Canadice Lake outlet near Hemlock, N. Y.

Location.- Hook gage, lat. 42°44'25", long. 77°34'15", upstream from weir at foot of Canadice Lake, Ontario County, 4 miles southeast of Hemlock, Livingston County.

Drainage area.- 12.8 square miles.

Records available.- April 1903 to September 1939.

Average discharge.- 36 years (1903-39), 11.4 second-feet.

Remarks.- Data collected, computed, and furnished for publication by the Department of Public Works, Division of Water, city of Rochester, N. Y.

Monthly discharge, water year October 1938 to September 1939

Month	Mean elevation of lake above low-water mark	Discharge in second-feet		Run-off in inches
		Mean	Per square mile	
October	+0.684	1.386	0.110	0.127
November	+.652	1.651	.147	.164
December	+.706	5.471	.434	.500
Calendar year 1938	+1.864	9.330	.740	10.048
January	+.796	9.257	.735	.847
February	+1.453	13.380	1.062	1.106
March	+3.497	27.287	2.166	2.497
April	+3.581	29.621	2.351	2.623
May	+3.189	4.974	.395	.455
June	+2.604	7.621	.605	.675
July	+3.048	16,044	1.273	1.468
August	+1.817	11.055	.877	1.011
September	+.662	7.556	.600	.669
Water year 1938-39	+1.907	11.271	.895	12.142

Note.- Terminal water-surface elevation on Dec. 31, 1938, was 0.55 foot higher than on Dec. 31, 1937, corresponding to an increase in storage of 15,734,655 cubic feet, or a discharge of 0.499 second-foot for the year. This correction applied to the figure for the calendar year gives a mean discharge for the year of 9.829 second-feet, 0.780 second-foot per square mile, and run-off of 10.588 inches from drainage area.

Terminal water-surface elevation on Sept. 30, 1939, was 0.64 foot lower than that on Sept. 30, 1937, corresponding to a decrease in storage of 16,426,505 cubic feet, or a discharge of 0.584 second-foot for the year. This correction applied to the figure for the water year gives a mean discharge for the year of 10.687 second-feet, 0.848 second-foot per square mile, and run-off of 11.511 inches from drainage area.

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. Zero of gage is 246.00 feet above mean sea level (New York Barge Canal datum).

Drainage area.- 5,121 square miles.

Records available.- November 1933 to September 1939. April 1897 to December 1901 and, of doubtful accuracy, October 1927 to September 1928 at High Dam, about three-quarters of a mile upstream.

Extremes.- Maximum discharge during year, 23,200 second-feet Mar. 8 (gage height, 9.87 feet, includes mean daily discharge of canals); minimum (river only), 93 second-feet (regulated) Oct. 27 (gage height, 1.22 feet); minimum daily discharge, 699 second-feet Sept. 9.

1933-39: Maximum discharge, 37,500 second-feet Mar. 28, 1936 (gage height, 13.10 feet, includes mean daily discharge of canals); minimum (river only), 42 second-feet (regulated) Oct. 23, 1935 (gage height, 1.01 feet); minimum daily discharge, 465 second-feet Aug. 12, 1934.

Remarks.- Records good except those for days of missing river gage heights, Feb. 22, 23, which were computed on basis of discharge records of Oswego River Watershed Corporation at Fulton and record of headwater elevations at dam just upstream from gaging station and are fair. This record represents total discharge at Oswego and includes flow in Hydraulic and Barge Canals. Discharge of Hydraulic Canal during periods of faulty gage-height record, Oct. 1-4, 21-23, Dec. 8, 10, 13-29, Jan. 13-16, Apr. 9-11, 28, 29, estimated. A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Barge Canal system in the river basin. Large diurnal fluctuations at low and medium stages caused by operation of power plants upstream. The Oswego River Basin receives water from the Erie division of the Barge Canal through Lock 32, near Pittsford. A small diversion from the watershed is occasionally made from tributary streams through the summit level of the Barge Canal at New London into the Mohawk River Basin. During part of the year the entire flow from 45 square miles of drainage area of Mud Creek may be diverted from Chemung River Basin into Lake Keuka, in the Oswego River Basin. During the year nearly all the flow from 15.7 square miles of Tioughnioga River Basin was diverted into Deruyter Reservoir, in the Oswego River Basin.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,510	3,730	3,160	2,790	4,190	14,200	17,000	9,660	3,780	2,510	2,000	1,450
2	3,830	3,510	3,590	3,530	4,130	14,900	16,700	9,460	3,730	1,750	1,730	975
3	4,390	3,360	3,670	4,070	4,020	15,900	17,100	9,390	3,310	2,280	1,410	1,170
4	4,560	3,470	3,240	4,000	3,760	16,300	17,000	9,420	2,560	2,170	1,250	1,160
5	3,910	2,e60	4,410	4,040	3,560	16,100	16,500	9,080	3,230	3,170	1,220	1,370
6	3,810	2,530	4,590	3,890	3,700	17,500	16,300	8,860	3,320	3,140	1,400	1,180
7	3,930	3,760	5,380	4,780	4,300	18,200	16,100	7,930	3,320	2,770	1,380	864
8	3,790	3,920	4,710	4,890	4,250	17,500	16,000	8,430	3,090	2,520	1,350	1,080
9	3,000	3,160	5,240	5,560	4,050	17,300	15,300	8,280	3,330	1,430	1,260	699
10	4,050	3,300	5,200	5,560	4,040	17,100	14,700	7,300	2,840	2,350	1,210	1,060
11	3,850	2,970	4,330	5,550	4,140	16,300	14,300	6,940	1,780	2,050	875	889
12	3,950	2,660	4,760	5,170	3,740	14,700	14,800	6,240	3,670	1,580	1,240	1,100
13	3,550	1,840	5,270	5,260	3,590	15,000	15,100	5,020	3,360	1,700	971	931
14	3,780	2,980	5,230	4,930	4,250	14,700	15,200	3,960	3,060	1,480	1,280	706
15	3,660	3,200	4,870	4,090	4,530	14,300	15,900	5,070	3,210	1,080	1,400	941
16	2,540	2,400	4,820	4,900	4,400	14,900	15,600	4,910	3,090	988	1,470	1,120
17	3,880	2,170	4,640	5,130	4,980	15,200	15,200	4,660	2,810	1,370	1,220	926
18	3,950	2,680	4,060	4,820	4,590	15,500	14,800	4,510	1,920	1,340	1,080	976
19	3,350	3,010	4,670	4,740	4,600	14,900	12,300	4,050	3,420	1,610	1,090	1,160
20	3,530	1,880	5,410	4,530	7,150	14,600	11,700	3,560	3,190	1,460	1,260	1,000
21	3,520	3,570	5,280	4,380	10,800	14,000	11,500	3,250	2,920	1,170	1,170	1,120
22	2,990	3,990	4,890	3,530	12,700	13,e00	11,800	3,840	2,490	983	1,340	1,020
23	2,300	3,660	4,690	4,530	12,000	13,300	11,500	4,220	2,530	959	1,260	937
24	3,710	2,710	4,700	4,580	10,900	12,300	11,300	4,220	2,420	1,370	1,040	806
25	3,570	3,560	3,580	4,470	10,400	12,400	11,500	3,620	1,690	1,590	1,060	949
26	3,420	3,310	4,150	3,990	10,300	13,300	11,300	3,650	3,120	1,400	1,100	1,050
27	3,500	2,860	5,000	4,080	10,900	15,400	10,800	3,340	3,180	1,250	1,350	1,210
28	3,160	3,750	3,660	3,550	12,500	16,700	11,000	3,200	2,730	1,270	1,030	1,300
29	2,710	3,710	3,780	3,280	-	16,900	10,600	3,830	2,660	1,740	1,260	1,080
30	2,380	3,550	3,120	4,010	-	15,100	10,000	3,900	2,840	1,790	1,230	1,220
31	3,330	-	3,370	4,560	-	16,100	-	3,770	-	2,300	1,160	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	110,410	4,560	2,300	3,562	0.696	0.80
November	94,090	3,990	1,840	3,136	.612	.68
December	137,470	5,410	3,120	4,435	.866	1.00
Calendar year 1938	2,181,202	15,800	992	5,976	1.17	15.69
January	137,190	5,560	2,790	4,425	.864	1.00
February	176,770	12,700	3,560	6,313	1.23	1.28
March	474,400	18,200	12,300	15,300	2.99	3.45
April	418,900	17,100	10,000	13,960	2.73	3.05
May	177,560	9,660	3,200	5,728	1.12	1.29
June	88,600	3,780	1,690	2,953	.577	.64
July	54,570	3,170	959	1,760	.344	.40
August	39,096	2,000	875	1,261	.246	.28
September	31,449	1,450	699	1,048	.205	.23
Water year 1938-39	1,940,505	18,200	699	5,316	1.04	14.10

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 zero of gage is 437.16 feet above mean sea level (general adjustment of 1912).
Drainage area.- 38.7 square miles.
Records available.- March 1937 to September 1939.
Extremes.- Maximum discharge during year, 1,330 second-feet Feb. 20 (gage height, 4.50 feet), from rating curve extended by logarithmic plotting above 350 second-feet; minimum, 1.8 second-feet Aug. 30, 31, Sept. 1, 2 (gage height, 0.42 foot).
1937-39: Maximum discharge, 2,100 second-feet Aug. 27, 1937 (gage height, 5.30 feet), from rating curve extended by logarithmic plotting above 350 second-feet; minimum, that of Aug. 30, 31, Sept. 1, 2, 1939.
Remarks.- Records good except those for periods of ice effect, Nov. 25-28, Dec. 2, 15-17, Dec. 22 to Jan. 2, Jan. 14 to Feb. 12, Mar. 18 (computed on basis of seven discharge measurements made during winter, gage heights, weather records, and records for stations at Fall Creek near Ithaca and Owego Creek near Owego), and those for periods of missing gage heights, Dec. 6, 7, Sept. 30 (computed on basis of fragmentary gage-height record and records for Fall Creek near Ithaca), which are fair.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 20				Feb. 20 to Sept. 30					
0.6	6.0	1.6	117	0.44	2.2	1.0	31	2.5	334
.7	10.3	1.8	157	.5	3.3	1.2	51	3.0	519
.8	16	2.0	205	.6	6.4	1.4	76	3.5	750
.9	23	2.5	350	.7	10.8	1.6	110	3.8	905
1.0	32	3.0	547	.8	16	1.8	148		
1.2	54	3.5	805	.9	23	2.0	193		
1.4	82	3.7	925						

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	8.0	21	14	14	184	125	36	11	5.4	3.9	2.2
2	9.3	8.0	16	16	16	104	178	34	11	4.6	2.9	2.2
3	9.7	7.6	17	15	18	89	114	33	9.8	4.5	2.9	2.3
4	8.8	7.2	68	14	17	86	93	30	8.8	4.2	33	3.3
5	8.0	9.4	55	17	16	133	84	29	8.0	4.5	14	4.2
6	7.9	8.4	135	50	18	175	124	27	7.6	4.2	7.2	3.1
7	7.2	9.2	64	36	20	116	108	25	7.2	3.9	5.4	3.1
8	8.1	7.6	49	32	19	78	82	24	9.7	4.2	4.8	2.9
9	8.0	13	42	28	18	74	81	23	8.4	4.5	4.2	3.1
10	8.2	9.4	109	34	19	65	82	24	8.0	3.9	3.9	3.3
11	8.2	8.0	79	33	19	53	88	21	7.6	3.3	3.6	3.3
12	7.2	8.4	62	26	18	50	82	20	7.6	3.9	3.3	3.1
13	7.6	7.6	47	22	24	49	70	19	11	4.2	2.9	3.6
14	7.2	7.6	38	18	29	46	67	19	18	4.2	2.7	2.7
15	6.8	8.0	30	17	180	51	141	17	11	3.6	2.7	2.5
16	6.4	7.2	25	18	109	65	90	17	8.8	3.6	2.5	2.2
17	6.8	8.4	27	17	89	49	78	16	8.0	3.3	2.5	2.3
18	7.6	10	26	16	82	43	77	15	8.0	3.3	2.7	2.5
19	6.0	35	24	15	126	38	75	14	6.8	3.3	2.5	2.3
20	5.4	36	22	14	897	41	67	14	6.8	3.3	2.9	2.9
21	9.4	27	20	15	265	40	58	15	6.4	3.3	2.7	3.6
22	7.2	23	18	14	138	38	55	35	6.4	2.9	2.3	2.9
23	7.6	20	15	13	101	52	50	28	6.4	2.7	2.5	2.7
24	9.2	15	18	14	87	116	47	20	5.7	2.9	2.7	2.9
25	8.0	14	17	13	76	142	43	15	5.4	2.9	3.1	2.9
26	7.8	14	15	13	98	216	39	13	5.4	2.7	2.5	5.2
27	7.7	13	17	12	135	221	70	14	5.4	7.1	2.5	9.9
28	8.4	13	15	13	146	161	50	17	5.4	4.8	2.3	6.8
29	8.0	17	14	14	-	125	46	16	5.4	3.3	2.3	4.5
30	8.0	20	13	15	-	169	40	13	6.4	5.4	2.2	5.7
31	8.0	-	15	14	-	146	-	11	-	4.8	2.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	247.7	11	6.0	7.99	0.218	0.25
November	400.0	36	7.2	13.3	.362	.40
December	1,131	135	15	36.5	.995	1.15
Calendar year 1938	11,106.1	386	2.5	30.4	.828	11.25
January	602	50	12	19.4	.529	.61
February	2,794	897	14	99.8	2.72	2.83
March	3,012	221	38	97.2	2.65	3.06
April	2,404	178	39	80.1	2.18	2.43
May	654	36	11	21.1	.575	.66
June	241.4	18	5.4	8.05	.219	.24
July	122.9	7.1	2.7	3.96	.108	.12
August	137.8	33	2.2	4.45	.121	.14
September	104.0	9.9	2.2	3.47	.095	.11
Water year 1938-39	11,850.8	897	2.2	32.5	.888	12.00

Peak discharge.- Feb. 20 (5 p.m.) 1,330 sec.-ft.

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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. Zero of gage is 794.81 feet above sea level (general adjustment of 1912).
Drainage area.- 124 square miles.
Records available.- February 1925 to September 1939. July 1908 to June 1909, at site 1½ miles downstream.
Average discharge.- 14 years (1925-39), 185 second-feet.
Extremes.- Maximum discharge during year, 4,400 second-feet Feb. 20 (gage height, 5.25 feet); minimum, 3.5 second-feet (regulated) Aug. 23 (gage height, 0.15 foot).
1925-39: Maximum discharge, 15,500 second-feet July 8, 1935 (gage height, 9.52 feet), from average of computed discharge over each of four dams; minimum, about 3 second-feet Aug. 25, 1927 (gage height, 0.18 foot).
Revisions.- The figures of maximum and minimum discharge for water years 1934-35 to 1937-38, some of which have been revised, are given in the following table:

Water year	Maximum			Minimum		
	Date	Discharge (sec.-ft.)	Gage height (feet)	Date	Discharge (sec.-ft.)	Gage height (feet)
1934-35	July 8	15,500	9.52	Oct. 21	17	0.44
1935-36	Mar. 18	*5,040	5.57	Aug. 4	11	.27
1936-37	Apr. 6	*1,880	3.64	Oct. 6	13	.31
1937-38	Oct. 29	*2,580	4.17	Aug. 7	†13	-

*Revised figure, superseding that published previously. †Estimated.
Note.- The figure of crest discharge for the hurricane flood of Sept. 22, 1938, has been revised to 2,550 sec.-ft., and supersedes that published in Water-Supply Paper 867.
Remarks.- Records good except those for periods of ice effect, Nov. 28-28, Dec. 4, Jan. 2-6, Jan. 13 to Feb. 15, Mar. 12-14, 19-21, Apr. 25 to May 2, Sept. 30 (computed on basis of recorded range in stage and records of Owego Creek near Owego and Cayuga Inlet near Ithaca), which are fair. During the year Cornell University diverted 238,332,000 gallons about a mile above gage for water supply and thus reduced the mean discharge at the station 1.00 second-foot for the year.
Revisions.- Revised figures of discharge for water years 1934-35 to 1937-38, superseding those published in Water-Supply Papers 784, 799, 804, 824, and 854, are given herein.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 6, 1938				Dec. 7, 1938 to Sept. 30, 1939							
0.8	48	1.6	235	0.2	5.5	.7	40	1.4	149	3.0	1,200
.9	59	1.8	334	.3	10.4	.8	49	1.6	223	3.5	1,710
1.0	71	2.0	452	.4	16.5	.9	59	1.8	320	4.0	2,340
1.2	103	2.5	795	.5	23.5	1.0	70	2.0	434	4.5	3,080
1.4	157			.6	31.5	1.2	99	2.5	775		

Discharge, in second-feet, 1934-39

1934-35

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	64	481	70	85	125	396	404	69	36	130	37
2	66	77	633	65	90	133	429	247	60	32	115	36
3	49	63	302	60	90	260	329	239	56	28	99	34
4	44	74	230	55	85	300	264	640	72	27	87	38
5	37	125	207	50	75	271	252	415	80	25	76	60
6	37	102	191	60	65	870	273	466	64	26	74	42
7	41	153	154	190	60	702	273	1,370	57	104	76	36
8	35	286	130	500	65	331	230	981	79	8,280	80	35
9	33	256	100	2,000	75	224	368	487	80	3,740	72	60
10	30	174	90	2,100	80	247	658	510	69	1,240	68	80
11	30	195	85	735	65	498	683	368	56	626	200	52
12	24	191	80	389	60	991	552	282	46	459	125	44
13	22	156	80	230	60	412	493	256	41	757	80	39
14	23	144	75	200	70	292	532	226	38	349	71	37
15	22	130	75	180	130	241	554	199	34	269	65	71
16	26	142	85	170	400	549	482	177	34	329	60	91
17	28	191	100	190	300	826	346	160	37	223	86	57
18	22	170	85	160	220	467	573	144	89	175	63	55
19	20	147	150	150	174	385	867	130	71	146	52	55
20	22	156	320	170	147	349	863	122	76	143	51	50
21	22	130	220	374	119	664	504	113	73	133	45	52
22	24	116	166	814	110	564	385	106	108	128	44	50
23	34	144	144	380	103	405	339	100	133	153	43	42
24	45	477	125	220	106	493	287	99	90	304	59	38
25	36	248	111	170	118	349	239	93	86	278	37	34
26	42	170	116	140	260	269	203	83	68	219	35	28
27	104	147	85	120	216	226	188	79	56	150	38	52
28	83	142	91	110	142	328	184	78	58	120	44	37
29	72	142	113	100	-	507	170	91	47	117	40	45
30	69	150	85	95	-	863	489	88	42	112	38	40
31	62	-	80	90	-	544	-	78	-	133	38	-

Discharge, in second-feet, of Fall Creek near Ithaca, N. Y., 1934-39--Continued

1935-36

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	104	95	60	55	300	418	198	72	26	15	22
2	117	71	90	60	55	240	615	180	65	23	14	21
3	76	60	70	130	55	200	650	800	58	26	13	19
4	56	51	50	280	60	190	370	600	56	36	12	16
5	46	54	46	320	60	340	328	460	52	30	13	14
6	41	79	44	240	60	280	514	360	50	24	18	13
7	41	82	42	200	55	220	572	224	42	22	21	14
8	41	100	48	180	55	170	411	239	51	21	17	15
9	38	99	460	170	55	220	374	174	55	19	15	16
10	35	74	506	220	55	460	380	146	47	17	14	14
11	34	90	283	215	55	1,400	380	134	45	16	14	13
12	37	90	219	196	55	5,370	424	124	48	16	16	13
13	34	380	192	192	54	1,240	798	157	46	16	14	15
14	32	600	338	188	54	688	489	223	39	16	14	16
15	31	360	472	164	56	1,020	623	148	37	15	13	19
16	30	260	620	177	58	1,970	450	127	37	15	15	19
17	27	220	358	110	57	1,780	351	115	33	15	23	19
18	27	200	274	95	57	4,070	334	102	38	15	18	21
19	34	190	243	80	51	2,630	334	362	50	15	16	20
20	32	215	216	70	50	1,460	286	374	46	14	18	18
21	28	219	130	70	50	1,780	302	173	39	14	18	15
22	30	156	110	65	48	1,240	380	137	35	14	17	15
23	34	117	100	65	48	906	253	117	33	16	16	14
24	37	85	90	60	46	779	227	106	30	20	15	13
25	38	88	85	60	54	1,160	194	106	30	22	15	18
26	39	89	80	60	124	900	174	95	28	19	14	19
27	36	91	75	60	294	772	166	99	31	16	14	19
28	31	110	70	55	379	781	151	95	28	16	12	18
29	34	143	70	55	359	548	184	91	29	16	16	21
30	101	112	65	55	-	463	235	83	27	16	23	16
31	128	-	65	55	-	578	-	80	-	15	22	-

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	45	42	275	223	168	560	227	81	122	61	86
2	18	43	55	188	120	174	680	194	74	104	42	81
3	19	96	74	200	110	152	630	170	90	97	34	95
4	19	150	80	170	130	172	510	154	117	83	28	146
5	16	470	74	110	130	286	650	146	86	68	26	116
6	14	281	67	90	120	231	1,440	390	74	59	24	86
7	14	258	74	130	120	180	980	350	85	55	24	68
8	16	291	64	390	170	172	570	206	75	49	26	60
9	15	223	62	415	630	210	690	174	75	45	28	52
10	16	177	75	285	425	136	600	160	134	41	38	47
11	21	140	295	202	192	132	502	148	156	40	124	45
12	23	115	465	174	184	122	500	132	93	58	98	44
13	22	108	204	148	180	132	490	156	72	53	62	47
14	20	102	144	275	223	118	392	239	178	44	49	80
15	19	122	146	990	202	129	710	360	325	51	40	80
16	18	124	132	485	170	122	800	270	162	59	31	65
17	27	102	310	226	140	80	500	210	108	55	28	54
18	80	132	180	820	138	120	460	295	144	42	26	48
19	74	92	85	580	138	140	465	253	290	36	23	46
20	44	106	280	285	148	150	330	227	154	35	28	48
21	32	106	246	455	168	246	315	206	280	32	34	45
22	28	106	148	770	840	285	860	204	870	30	66	41
23	32	89	102	475	510	330	980	350	315	28	56	42
24	54	82	134	315	350	415	540	194	180	26	39	32
25	72	90	151	1,540	280	560	363	151	134	25	34	34
26	54	99	385	820	204	310	297	129	110	26	36	32
27	99	63	345	420	200	224	350	170	97	27	1,020	30
28	64	54	291	275	164	208	440	174	144	26	580	34
29	46	70	198	277	-	184	370	127	160	25	190	32
30	44	58	234	248	-	188	267	104	112	24	124	30
31	52	-	368	231	-	335	-	91	-	102	100	-

Discharge, in second-feet, of Fall Creek near Ithaca, N. Y., 1934-39--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	282	189	173	180	160	249	133	48	29	19	37
2	27	249	154	179	140	220	189	115	47	34	18	36
3	26	258	126	140	220	320	179	103	60	30	17	38
4	27	210	123	110	413	190	171	99	58	27	16	36
5	28	179	127	110	249	180	157	96	50	24	15	35
6	30	171	148	100	348	937	145	99	44	22	14	33
7	29	161	140	190	972	509	151	87	44	21	13	37
8	29	151	100	200	456	337	189	81	47	20	14	108
9	33	154	120	100	451	254	229	88	46	19	14	80
10	39	139	110	95	834	216	309	105	44	19	16	50
11	41	122	100	90	310	210	401	101	39	28	925	46
12	42	110	95	95	273	235	648	94	49	35	275	50
13	31	552	90	90	458	659	460	85	76	25	88	400
14	32	622	85	85	1,100	898	324	81	62	22	56	300
15	31	330	90	75	486	450	263	328	45	25	44	1,300
16	30	282	160	70	320	457	249	304	37	28	37	390
17	29	235	260	65	268	746	197	142	33	21	34	215
18	28	273	1,300	60	381	1,050	206	101	32	22	350	270
19	31	218	918	55	677	573	294	82	31	22	175	230
20	49	214	435	60	376	503	242	147	31	21	100	500
21	91	197	308	65	250	465	235	181	29	22	78	960
22	65	175	273	70	223	380	529	125	28	38	640	2,050
23	1,090	168	288	80	240	318	414	99	26	34	195	1,150
24	982	168	187	110	218	372	240	112	25	27	125	680
25	364	161	197	1,500	210	292	201	141	23	23	110	398
26	239	186	179	684	160	249	175	96	26	20	82	288
27	266	267	150	260	180	244	157	82	44	16	68	231
28	461	295	142	190	100	240	142	75	37	18	60	227
29	1,980	414	129	160	-	254	127	69	30	21	52	179
30	718	249	114	209	-	227	136	60	28	17	46	157
31	386	-	117	284	-	235	-	54	-	20	41	-

Peak discharge.- Oct. 29 (8:15 a.m.) 2,580 sec.-ft.; Jan. 25 (4:15 p.m.) 2,410 sec.-ft.; Sept. 22 (about 4 a.m.) 2,550 sec.-ft. (supersedes figurespublished in Water-Supply Paper 867).

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	142	52	136	76	66	817	581	150	46	24	16	8.9
2	125	54	90	94	70	466	876	130	44	25	15	8.4
3	110	48	94	86	76	342	548	119	41	23	15	8.4
4	99	48	330	80	74	364	393	117	38	20	60	9.4
5	99	49	272	82	68	562	450	108	35	24	48	10
6	98	58	647	320	74	922	764	101	34	24	27	12
7	92	57	369	300	80	674	786	94	32	20	20	12
8	85	58	232	232	76	350	465	89	35	20	18	11
9	82	80	195	152	74	310	471	88	48	23	16	10
10	79	84	632	183	76	284	422	150	36	21	16	11
11	77	65	505	248	76	223	636	99	35	18	16	12
12	72	57	320	136	72	215	548	85	59	17	14	12
13	68	52	246	114	80	205	399	79	58	16	13	13
14	65	64	176	98	98	200	381	76	84	17	14	12
15	64	70	130	90	380	206	784	73	71	16	15	10
16	59	59	128	94	496	246	495	67	56	16	13	9.4
17	60	59	149	98	399	228	375	62	46	15	12	8.4
18	58	76	143	92	375	179	370	59	40	15	12	7.9
19	56	169	127	84	403	159	410	55	35	13	12	7.9
20	76	312	119	70	2,860	159	375	55	32	13	11	8.4
21	94	198	112	76	1,560	155	294	55	32	12	11	9.4
22	81	142	96	84	626	150	289	74	32	11	11	9.4
23	69	117	66	50	422	153	255	89	32	9.9	10	7.9
24	65	101	106	80	364	380	232	79	35	9.9	9.9	7.9
25	94	93	96	76	300	762	210	66	32	10	9.9	7.9
26	78	90	90	68	422	1,520	200	55	28	9.4	9.9	8.4
27	66	88	103	66	747	1,600	400	55	26	38	11	12
28	60	92	56	64	530	945	240	73	24	28	10	18
29	60	110	52	68	-	610	220	76	22	19	9.4	15
30	58	117	71	70	-	699	180	62	24	19	8.9	16
31	56	-	67	66	-	993	-	55	-	20	8.4	-

Peak discharge.- Feb. 20 (3:10 p.m.) 4,400 sec.-ft.; Mar. 27 (1 p.m.) 1,780 sec.-ft.

Discharge, in second-feet, of Fall Creek near Ithaca, N. Y., 1934-39--Continued

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 1934	1,295	104	20	41.8	0.337	0.39
November	4,862	477	63	162	1.31	1.46
December	4,969	633	65	160	1.29	1.49
Calendar year	-	-	-	-	-	-
January 1935	10,337	2,100	50	333	2.69	3.10
February	3,570	400	60	128	1.03	1.07
March	13,665	991	125	441	3.56	4.10
April	12,405	867	170	414	3.34	3.73
May	8,831	1,370	78	285	2.30	2.65
June	1,971	133	34	65.7	.530	.59
July	18,859	8,280	25	608	4.90	5.65
August	2,172	200	35	70.1	.565	.65
September	1,397	91	28	46.6	.376	.42
Water year 1934-35	84,333	8,280	20	231	1.86	25.30
October 1935	1,389	128	27	44.8	.361	.42
November	4,589	600	51	153	1.23	1.37
December	5,606	620	42	181	1.46	1.68
Calendar year 1935	84,791	8,280	25	232	1.87	25.43
January 1936	3,987	320	55	129	1.04	1.20
February	2,514	379	46	86.7	.699	.75
March	32,155	4,070	170	1,037	8.36	9.64
April	11,367	798	151	379	3.06	3.41
May	6,429	800	80	207	1.67	1.92
June	1,277	72	27	42.6	.344	.38
July	581	36	14	18.7	.151	.17
August	495	23	12	16.0	.129	.15
September	505	22	13	16.8	.135	.15
Water year 1935-36	70,894	4,070	12	194	1.56	21.24
October 1936	1,091	99	14	35.2	.284	.33
November	3,994	470	43	133	1.07	1.19
December	5,510	465	42	178	1.44	1.66
Calendar year 1936	69,905	4,070	12	191	1.54	20.95
January 1937	12,264	1,540	90	396	3.19	3.68
February	6,609	840	110	236	1.90	1.98
March	6,411	560	80	207	1.67	1.92
April	17,241	1,440	267	575	4.64	5.18
May	6,361	390	91	205	1.65	1.90
June	4,975	870	72	166	1.34	1.50
July	1,567	122	24	50.5	.407	.47
August	3,119	1,020	23	101	.815	.94
September	1,746	146	30	58.2	.469	.52
Water year 1936-37	70,888	1,540	14	194	1.56	21.27
October 1937	7,284	1,980	26	235	1.90	2.19
November	7,192	622	110	240	1.94	2.16
December	6,954	1,300	85	224	1.81	2.09
Calendar year 1937	81,723	1,980	23	224	1.81	24.53
January 1938	5,754	1,500	55	186	1.50	1.73
February	10,493	1,100	100	375	3.02	3.14
March	12,380	1,050	160	399	3.22	3.71
April	7,608	648	127	254	2.05	2.29
May	3,565	328	54	115	.927	1.07
June	1,219	76	23	40.6	.327	.36
July	750	38	16	24.2	.195	.22
August	3,737	925	13	121	.976	1.13
September	10,511	2,050	33	350	2.82	3.15
Water year 1937-38	77,447	2,050	13	212	1.71	23.24
October 1938	2,447	142	56	78.9	.636	.73
November	2,719	312	48	90.6	.731	.82
December	5,955	647	52	192	1.55	1.79
Calendar year 1938	67,138	2,050	13	184	1.48	20.14
January 1939	3,497	320	50	113	.911	1.05
February	10,944	2,860	66	391	3.15	3.28
March	15,078	1,600	150	486	3.92	4.52
April	13,049	876	180	435	3.51	3.92
May	2,595	150	55	83.7	.675	.78
June	1,192	84	22	39.7	.320	.36
July	566.2	38	9.4	18.3	.148	.17
August	492.4	60	8.4	15.9	.128	.15
September	314.0	18	7.9	10.5	.085	.09
Water year 1938-39	58,848.6	2,860	7.9	161	1.30	17.66

Owasco Lake outlet near Auburn, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°56'45", long. 76°36'05", 2¼ 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 1939.

Average discharge.- 26 years (1913-39), 284 second-feet.

Extremes (regulated).- Maximum discharge during year, 1,060 second-feet Feb. 28 (gage height, 3.45 feet); minimum, about 10 second-feet Sept. 2 (gage height, 1.48 feet, backwater from weeds and aquatic growth); minimum daily, 17 second-feet July 25.
1912-39: Maximum discharge, 2,090 second-feet Mar. 19, 1936 (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 excellent except those for periods of backwater from weeds and aquatic growth, Oct. 1 to Jan. 24, May 20 to July 17, and July 21 to Sept. 12, which were computed on basis of nine discharge measurements, gage heights except during Nov. 19-25 and June 3-9, and record of elevations of Owasco Lake and are good. Diurnal fluctuation in flow caused by operation of mills in Auburn; seasonal regulation at State dam. Water supply for Auburn taken from Owasco Lake, part of which returns as sewage to outlet above gaging station.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	160	155	165	170	185	759	893	362	155	135	47	45
2	145	155	165	170	182	813	920	362	155	130	47	40
3	175	160	165	175	172	831	929	356	155	124	49	40
4	165	170	170	175	165	816	911	356	155	122	49	52
5	240	165	175	165	167	820	893	356	155	118	45	64
6	260	165	185	180	176	848	822	356	155	112	45	43
7	260	165	180	175	184	835	857	292	155	114	47	54
8	250	165	175	175	181	850	920	256	155	110	45	52
9	250	155	180	165	180	820	920	258	155	110	47	49
10	260	155	170	180	181	788	911	256	155	110	45	47
11	260	155	155	180	179	759	920	257	165	58	50	54
12	260	145	175	185	180	740	920	258	150	30	38	43
13	260	155	180	185	172	761	902	256	145	29	43	45
14	205	155	175	185	178	762	848	252	150	29	56	45
15	160	165	175	180	195	740	822	259	145	35	68	45
16	150	165	160	185	181	716	814	258	145	37	45	44
17	155	165	170	185	190	694	782	257	155	35	50	43
18	155	165	165	185	163	658	798	256	145	34	41	42
19	155	165	180	180	187	632	848	259	135	36	41	43
20	155	165	160	180	308	568	758	250	145	36	47	43
21	145	165	180	180	401	506	694	260	135	56	50	45
22	130	165	175	180	561	488	654	280	145	76	52	41
23	130	160	155	160	622	407	638	270	135	22	47	20
24	135	160	160	155	614	400	535	260	140	18	47	35
25	150	160	185	140	614	387	418	205	135	17	49	43
26	160	160	185	125	630	394	387	150	130	43	45	41
27	155	165	190	121	654	540	388	155	135	43	43	40
28	155	175	180	142	724	634	356	155	135	80	47	32
29	145	165	185	148	-	642	355	135	145	58	43	31
30	130	165	180	153	-	719	352	135	140	56	43	30
31	150	-	170	162	-	827	-	150	-	60	43	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,665	260	130	183	0.880	1.01
November	4,850	175	145	162	.779	.87
December	5,430	190	155	175	.841	.97
Calendar year 1938	100,794	828	40	276	1.33	18.02
January	5,266	185	121	170	.817	.94
February	8,546	724	165	305	1.47	1.53
March	21,154	850	387	682	3.28	3.78
April	22,165	929	352	739	3.55	3.96
May	7,927	362	135	256	1.23	1.42
June	4,405	165	130	147	.707	.79
July	2,073	135	17	66.9	.322	.37
August	1,454	68	38	46.9	.225	.26
September	1,291	64	20	43.0	.207	.23
Water year 1938-39	90,226	929	17	247	1.19	16.13

Note.- Decrease in storage in Owasco Lake during calendar year 1938, about 436,464,000 cubic feet (equivalent mean discharge 13.8 sec.-ft.; run-off 0.90 inch); decrease in elevation, 1.52 ft.; decrease during water year 1938-39, about 887,286,000 cubic feet (equivalent mean discharge, 28.1 sec.-ft.; run-off 1.83 inches); decrease in elevation, 3.09 ft.

East Branch of 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.

Drainage area.- 189 square miles.

Records available.- April 1923 to September 1939.

Average discharge.- 16 years (1923-39), 550 second-feet.

Extremes.- Maximum discharge during year, 4,420 second-feet Apr. 26 (gage height, 5.31 feet); minimum, 13.5 second-feet (regulated) Sept. 21 (gage height, 0.10 foot).
1923-39: Maximum discharge, about 16,500 second-feet Oct. 6, 1932 (gage height, 9.18 feet), from rating curve extended logarithmically above 2,700 second-feet; minimum, 10 second-feet (regulated) Sept. 30, 1937 (gage height, 0.05 foot).

Remarks.- Records good except those for periods of ice effect, Dec. 29 to Jan. 6, Jan. 17 to Feb. 19, Feb. 24, 25 (computed on basis of five discharge measurements, gage heights, observer's and engineers' notes, and weather records), and those for periods of fragmentary gage-height records, June 17-24, June 29 to July, July 2-5, 9, 11-17, 26, 27, 29-31 (computed on basis of occasional readings by observer and recorded range in all of which are fair.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 25						Apr. 26 to Sept. 30					
0.9	91	1.8	385	4.5	2,980	0.1	13.5	0.8	75	2.5	760
1.0	110	2.0	480	4.8	3,470	.2	17.5	1.0	110	3.0	1,140
1.1	134	2.5	760			.3	23	1.2	157	3.5	1,630
1.2	162	3.0	1,140			.4	30	1.4	215	4.0	2,240
1.4	226	3.5	1,630			.5	39	1.7	323	4.5	2,980
1.6	300	4.0	2,240			.6	49	2.1	510	5.0	3,820

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	266	173	251	140	140	916	1,380	1,540	218	111	65	17
2	226	159	196	180	130	788	2,410	1,380	177	93	71	15
3	206	148	210	160	150	694	1,450	1,150	132	83	36	20
4	186	140	587	150	140	607	1,070	1,100	173	60	80	18
5	165	157	906	180	130	633	868	996	147	57	59	23
6	156	308	1,660	320	120	940	895	966	117	61	53	35
7	142	296	1,340	466	120	857	879	916	91	51	33	40
8	140	246	656	480	110	718	751	788	96	40	29	44
9	140	350	724	413	110	652	751	686	91	63	42	69
10	134	325	908	516	120	561	666	893	120	40	35	77
11	124	262	894	837	130	445	1,300	608	90	34	51	139
12	127	230	691	706	130	432	1,310	424	199	27	30	136
13	122	355	519	538	140	394	989	340	159	25	186	75
14	117	881	440	481	140	367	918	300	235	38	211	78
15	110	613	298	346	180	341	1,110	266	239	59	90	52
16	110	470	277	333	220	333	993	245	268	44	61	30
17	104	436	316	280	360	302	1,030	215	237	39	37	30
18	100	768	341	240	400	274	1,320	191	335	35	37	24
19	99	1,970	337	220	440	269	2,410	174	209	32	29	49
20	148	1,320	296	200	752	270	2,210	157	137	26	33	36
21	252	811	255	170	1,070	262	2,050	174	104	21	70	20
22	248	565	224	170	956	259	3,340	257	88	27	72	23
23	187	480	192	150	809	265	2,720	327	152	16	37	20
24	280	324	230	180	650	303	2,280	270	279	17	50	19
25	920	266	240	170	500	468	2,720	212	186	15	119	20
26	733	231	199	160	546	978	3,820	171	134	35	88	26
27	442	237	213	150	685	2,120	3,680	147	94	20	57	45
28	318	248	172	160	745	2,040	3,210	318	98	26	34	68
29	253	250	170	180	-	1,760	2,410	456	69	116	24	64
30	210	277	160	170	-	1,620	1,990	298	68	77	26	67
31	187	-	150	150	-	1,520	-	206	-	110	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,952	920	99	224	1.19	1.37
November	13,316	1,970	140	444	2.35	2.62
December	14,252	1,660	150	460	2.43	2.80
Calendar year 1938	196,710	6,000	38	539	2.85	38.70
January	8,996	837	140	290	1.53	1.76
February	10,123	1,070	110	362	1.92	2.00
March	22,382	2,120	259	722	3.82	4.40
April	52,960	3,820	666	1,765	9.34	10.42
May	16,171	1,540	147	522	2.76	3.18
June	4,744	335	68	158	.836	.93
July	1,500	116	15	48.4	.256	.30
August	1,667	211	22	60.2	.319	.37
September	1,381	139	15	46.0	.243	.27
Water year 1938-39	154,644	3,820	15	424	2.24	30.42

Peak discharge.- Apr. 26 (3 a.m.) 4,420 sec.-ft.

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 mouth of Sugar River and 2 miles northeast of Boonville, Oneida County.
Drainage area.- 295 square miles.
Records available.- February 1911 to September 1939.
Average discharge.- 28 years (1912-39), 659 second-feet.
Extremes.- Maximum discharge during year, 4,270 second-feet Apr. 26 (gage height, 8.62 feet); maximum gage height, 9.01 feet Feb. 22 (ice jam); minimum discharge, 66 second-feet (regulated) July 25, 26 (gage height, 3.46 feet).
1911-39: Maximum discharge, about 10,000 second-feet Mar. 28, 1913 (gage height, about 12.5 feet); minimum, about 5 second-feet (regulated) Aug. 26, 1918 (gage height, 2.40 feet).
Remarks.- Records good except those for periods of ice effect, Nov. 27, 28, Dec. 3, 22, 23, Dec. 27 to Jan. 10, Jan. 14 to Mar. 27 (computed on basis of five discharge measurements, gage heights except Jan. 23, 28, Feb. 4, 6-11, 18, 25, Mar. 6-16, 19, 21, weather records, and records for stations on nearby streams), and those for period of missing gage heights Aug. 28 to Sept. 2 (computed on basis of records for Moose River at McKeever, for stations on nearby streams, and for operation of Forestport feeder dam), all of which are fair. Flow partially regulated by storage in 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 table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.5	71	4.2	214	6.1	1,200
3.6	85	4.5	311	6.9	1,900
3.8	119	4.9	475	7.8	2,900
4.0	162	5.4	736	8.4	3,840

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	484	286	547	360	360	1,100	1,750	2,040	552	430	164	87
2	444	270	444	360	360	950	2,200	1,730	457	372	155	85
3	413	266	420	340	360	800	1,990	1,410	388	294	148	84
4	396	254	646	340	380	700	1,500	1,020	341	220	167	89
5	376	260	858	380	360	650	1,260	936	330	177	220	174
6	360	414	1,670	500	360	800	1,190	897	270	157	200	136
7	333	547	2,350	750	360	1,000	1,320	821	232	146	162	110
8	318	426	1,650	800	360	1,000	1,200	713	214	155	146	166
9	308	405	1,240	700	380	850	1,140	690	217	172	153	409
10	304	417	1,290	750	420	700	983	1,050	203	160	150	290
11	290	364	1,780	1,020	480	600	1,280	923	220	121	139	270
12	280	333	1,480	923	500	550	1,460	725	388	114	131	263
13	270	399	1,210	730	500	500	1,270	630	392	108	218	194
14	257	742	963	650	480	500	1,160	572	480	131	557	155
15	250	742	640	500	650	480	1,180	537	513	129	366	170
16	241	596	547	500	650	500	1,120	475	513	112	222	167
17	241	542	603	480	700	500	1,160	434	665	108	153	157
18	238	666	624	480	950	460	1,350	409	1,000	105	125	141
19	235	1,570	603	460	950	440	1,980	396	616	98	119	135
20	241	2,060	562	440	1,400	420	2,360	376	417	91	121	157
21	266	1,430	508	420	1,800	400	2,040	396	330	88	131	214
22	294	1,020	460	420	1,700	400	2,940	510	286	101	119	206
23	286	827	400	380	1,300	380	3,360	790	296	84	110	200
24	313	725	470	400	950	400	2,630	702	470	99	101	195
25	681	593	489	380	750	480	2,500	635	392	88	129	190
26	760	508	417	360	700	750	3,760	503	294	78	129	184
27	562	480	500	360	750	1,300	3,680	444	229	88	112	195
28	503	460	440	380	900	2,260	3,440	588	195	112	101	266
29	484	475	400	400	-	1,990	2,960	1,180	182	131	112	232
30	405	494	380	400	-	1,670	2,440	928	300	148	105	247
31	318	-	360	380	-	1,780	-	685	-	172	98	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	11,151	760	235	360	1.22	1.41
November	18,573	2,060	254	619	2.10	2.34
December	24,951	2,350	360	805	2.73	3.15
Calendar year 1938	240,300	4,980	108	658	2.23	30.30
January	15,743	1,020	340	508	1.72	1.98
February	19,830	1,800	360	708	2.40	2.50
March	25,310	2,260	380	816	2.77	3.19
April	58,603	3,760	983	1,953	6.62	7.39
May	24,145	2,040	376	779	2.64	3.04
June	11,384	1,000	182	379	1.28	1.43
July	4,589	430	78	148	.502	.58
August	5,058	557	93	163	.553	.64
September	5,568	409	84	186	.631	.70
Water year 1938-39	224,905	3,760	78	616	2.09	28.35

Peak discharge.- Apr. 26 (4 p.m.) 4,270 sec.-ft.

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 1939.
Average discharge.- 19 years (1920-39), 3,893 second-feet.
Extremes.- Maximum discharge during year, 16,000 second-feet Apr. 29 (gage height, 6.84 feet); minimum, 37 second-feet (regulated) Aug. 13 (gage height, -0.07 foot); minimum daily, 137 second-feet (regulated) Sept. 4.
1920-39: Maximum discharge, 33,900 second-feet Apr. 9, 1928 (gage height, 10.6 feet); minimum, 10 second-feet (estimated) Sept. 2, 1934 (gage height, -0.19 foot); minimum daily, that of Sept. 4, 1939.
Maximum discharge known, about 39,700 second-feet sometime in April 1869.
Remarks.- Records excellent except those for periods of ice effect, Jan. 2-5, Jan. 26 to Feb. 1, Feb. 16-18 (computed on basis of five discharge measurements during winter, gage heights, and weather records), and those for period of partial gage-height record, Mar. 9, 10, all of which are good. Flow partly regulated by storage in Stillwater Reservoir, Fulton Chain of Lakes, and other reservoirs in upper drainage basin. During canal season water is diverted out of drainage basin through Forestport Feeder and Black River Canal (flowing south). Large diurnal fluctuation at low and medium stages caused by operation of mills and power plants in and upstream from Watertown.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 29

1.7	1,350	2.6	2,880	4.5	7,480
1.8	1,490	2.8	3,280	5.0	9,070
2.0	1,790	3.0	3,700	6.0	12,600
2.2	2,120	3.5	4,840	6.8	15,800
2.4	2,490	4.0	6,080		

Apr. 30 to Sept. 30

0.2	102	0.7	355	1.9	1,610
.3	138	1.0	583	2.2	2,120
.4	181	1.3	859		
.5	232	1.6	1,190		

Note.- Same as preceding table above 2.2 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,000	2,300	3,030	2,410	2,450	6,090	12,600	12,700	2,420	1,460	1,140	1,040
2	3,040	2,130	2,980	2,200	2,310	6,500	13,400	11,000	2,170	1,460	1,220	932
3	2,500	1,980	2,360	2,900	2,210	6,420	12,900	9,560	1,900	1,510	1,100	495
4	2,750	1,910	2,930	3,000	2,250	6,130	12,000	8,110	1,450	1,260	1,190	137
5	2,520	1,940	5,120	2,600	2,330	5,690	11,000	7,060	1,240	1,400	1,240	918
6	2,170	1,890	6,460	2,860	1,970	5,850	9,530	6,120	1,430	1,500	1,080	933
7	2,140	2,120	8,350	3,500	2,170	6,720	7,650	5,390	1,410	1,410	1,060	905
8	1,800	2,020	9,090	3,980	2,200	6,730	7,250	4,970	1,240	1,300	1,150	1,130
9	1,730	2,660	9,500	4,090	2,120	6,340	6,570	4,970	1,160	1,110	1,240	1,170
10	1,480	2,860	8,610	4,700	2,220	5,900	6,210	4,980	1,080	949	1,250	1,300
11	1,960	2,830	7,720	6,330	2,190	5,460	6,570	5,230	1,070	1,180	1,230	1,360
12	1,870	2,570	7,310	5,660	2,520	4,800	7,350	5,240	1,060	1,200	1,320	1,510
13	1,740	2,460	6,980	5,060	2,410	3,940	7,140	4,630	2,160	1,260	563	1,580
14	1,630	2,890	6,410	4,530	2,830	3,840	7,080	3,610	2,540	1,240	1,040	1,550
15	1,960	3,850	4,820	3,870	2,470	3,660	7,100	3,160	2,280	1,120	1,270	1,480
16	1,880	3,960	3,810	2,940	2,400	3,470	6,830	3,030	2,360	804	1,430	1,290
17	1,350	3,670	3,120	2,790	2,500	3,280	6,540	2,570	2,330	899	1,340	1,100
18	1,540	3,800	3,090	2,700	2,700	3,240	7,060	2,170	2,750	1,060	1,230	1,080
19	1,940	5,110	3,100	2,440	3,020	2,910	8,970	1,900	3,620	1,180	1,220	1,120
20	2,070	6,420	3,420	2,320	3,570	2,690	10,000	1,630	3,120	1,180	956	1,260
21	2,300	6,790	3,260	2,190	5,680	2,960	10,700	1,440	2,560	1,160	1,110	1,040
22	2,290	6,310	2,970	1,980	6,170	2,780	11,700	1,640	2,100	1,030	1,140	1,200
23	2,070	5,100	2,670	2,180	6,250	2,800	12,300	2,030	1,800	936	1,190	1,330
24	1,980	4,150	2,400	2,290	6,150	2,640	13,500	2,530	1,940	1,000	918	1,080
25	2,750	3,190	2,360	2,040	5,940	3,320	13,800	2,630	1,740	1,060	822	964
26	3,640	2,210	2,140	2,200	5,290	4,360	13,200	2,560	1,910	1,110	1,040	1,240
27	4,000	2,080	2,270	2,200	5,030	9,900	13,400	2,200	1,820	1,180	939	1,490
28	3,360	2,140	2,390	2,100	5,430	10,400	15,200	1,850	1,660	1,150	1,160	1,380
29	2,960	2,480	2,700	1,800	-	11,500	15,600	1,970	1,510	1,040	1,120	1,490
30	2,480	2,700	2,290	2,400	-	12,900	14,800	3,150	1,650	1,120	1,060	1,380
31	2,100	-	2,200	2,500	-	13,100	-	3,080	-	1,000	1,070	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	72,200	4,000	1,350	2,329	1.24	1.43
November	97,320	6,790	1,890	3,244	1.73	1.93
December	135,880	9,500	2,140	4,383	2.34	2.70
Calendar year 1938	1,447,833	22,700	664	3,967	2.11	28.71
January	94,780	6,330	1,800	3,057	1.63	1.88
February	94,780	6,250	1,970	3,385	1.80	1.87
March	176,540	13,100	2,690	5,695	3.04	3.50
April	308,350	15,600	6,210	10,280	5.48	6.11
May	133,330	12,700	1,440	4,301	2.29	2.64
June	57,520	3,620	1,060	1,917	1.02	1.14
July	36,288	1,510	804	1,171	.624	.72
August	34,338	1,430	563	1,124	.599	.69
September	34,884	1,580	137	1,163	.620	.69
Water year 1938-39	1,276,710	15,600	137	3,498	1.86	25.30

Mill Creek sluiceway at Boonville, N. Y.

Location.- Water-stage recorder, lat. 43°29'10", long. 75°19'40", about 500 feet upstream from Schuyler Street, Boonville, Oneida County, and a quarter of a mile upstream from confluence with Mill Creek.

Records available.- October 1933 to September 1939.

Extremes.- Maximum discharge during year, 18 second-feet (regulated) sometime between July 2 and 8 (gage height, 0.59 foot, result of flushing operation); minimum 0.16 second-foot (regulated) May 28 (gage height, 0.035 foot) during period of no diversion.
1933-39: Maximum discharge, 146 second-feet (regulated) Oct. 3, 1934; maximum gage height, 2.86 feet sometime during period Dec. 11-16, 1933 (ice jam); no flow during periods of no diversion.

Remarks.- Records good except those below 1 second-foot, which are fair, those for periods of ice effect, Dec. 1-5, 14-17, 20, 22, Jan. 11, 12, Jan. 22 to Mar. 26 (computed on basis of four discharge measurements during winter period, gage heights except Jan. 23-27, Feb. 17, 22-25, Feb. 28 to Mar. 4, Mar. 8-11, 15-24, weather records, observer's and engineers' notes), and those for periods of faulty or missing gage heights, which are poor. The sum of this record and that of Black River Canal (flowing south) represents the total diversion from Black River at Forestport through Forestport feeder and includes also the run-off from about 14 square miles tributary to the canal system and Mill Creek. This record shows the amount of water returned to Black River.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	10	1.1	*0.8	0.9	*5.4	3.0	*1.4	0.2	*0.8	0.7	1.8
2	2.3	9.9	1.0	*.7	.9	*3.6	3.0	*1.1	.2	.7	.8	1.7
3	2.9	9.9	1.0	*.7	.9	*2.6	*3.2	*.9	.2	*.7	.9	1.7
4	3.6	9.9	2.8	*.6	.9	*2.2	*3.4	1.5	.2	*.7	.8	1.7
5	3.4	9.9	5.8	*.6	.9	3.6	*3.6	1.4	.2	*.7	1.8	1.7
6	2.8	9.9	10	*2.2	.9	7.8	*3.9	1.1	.2	*.7	2.0	1.7
7	.8	9.9	8.8	*8.2	.9	5.4	*4.2	.6	.3	*.7	1.8	1.5
8	.8	9.9	6.9	5.8	.8	*3.6	5.8	.6	.4	*1.0	1.8	1.6
9	6.1	9.6	5.3	3.4	.8	*2.6	*8.8	.5	.3	1.3	1.7	1.5
10	12	9.6	7.4	6.2	.8	*2.2	*8.7	.3	.3	1.3	1.5	1.6
11	12	9.3	7.3	8.8	.8	*1.8	*8.6	.3	.4	*1.3	1.5	1.6
12	12	9.3	5.5	6.2	.8	1.7	*8.6	*1.8	.4	*1.3	1.4	1.9
13	11	9.8	4.0	*4.2	.8	1.5	*8.5	*3.2	.3	*1.3	2.0	2.2
14	11	9.6	3.2	*3.0	.8	1.4	*8.4	3.2	.4	*1.3	1.8	2.2
15	11	8.6	2.5	*2.3	.7	*1.3	*8.3	3.1	.4	*1.8	1.8	2.3
16	11	5.2	2.2	*2.0	.6	*1.3	*8.2	2.5	.4	2.3	1.7	1.8
17	11	4.8	2.2	*1.7	*.6	*1.1	*8.2	.2	*.4	2.2	1.7	1.7
18	11	7.4	*1.7	*1.5	.6	*1.1	*8.1	.3	*.4	2.3	1.7	1.7
19	11	7.8	*1.5	*1.4	.6	*1.1	*8.0	.3	*.4	2.2	1.8	1.7
20	11	7.4	1.4	*1.3	1.8	*1.0	*7.9	.2	*.4	1.7	1.8	1.7
21	11	5.5	1.2	*1.3	5.0	*1.0	*7.9	.3	*.4	1.0	1.7	1.7
22	11	3.4	1.3	1.1	*3.6	*1.0	*7.8	.3	*.4	.9	1.7	1.7
23	11	2.2	*1.1	*1.1	*2.6	*1.0	*7.8	.3	*.4	.9	1.7	1.7
24	11	2.2	*1.1	*1.1	*2.2	*1.1	*7.4	.3	*.6	.9	2.7	1.7
25	12	1.8	1.0	*1.0	*1.8	1.3	*7.8	.3	.9	.9	2.7	2.2
26	12	1.7	*1.0	*1.0	2.5	1.5	*11	.3	*.9	.8	2.3	2.8
27	11	1.1	*1.0	*1.0	6.2	1.7	*7.0	.3	*.9	.9	2.3	2.6
28	11	.6	*.9	1.0	*7.8	1.8	*4.2	.2	*.9	.8	2.3	2.3
29	11	.7	*.9	.9	-	2.0	2.9	.2	*.9	.7	2.2	2.2
30	11	.8	*.9	.9	-	2.2	*1.8	.3	*.9	1.0	2.0	2.1
31	11	-	*.8	.9	-	2.5	-	.3	-	.7	2.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	272.0	12	0.8	8.77		
November	197.7	10	.6	6.59		
December	92.8	10	.8	2.99		
Calendar year 1938	1,190.6	36	.1	3.26		
January	72.9	8.8	.6	2.35		
February	48.5	7.8	.6	1.73		
March	69.4	7.8	1.0	2.24		
April	196.0	11	1.8	6.53		
May	27.6	3.2	.2	.89		
June	13.6	.9	.2	.45		
July	35.8	2.3	.7	1.15		
August	54.6	2.7	.7	1.76		
September	56.2	2.8	1.5	1.87		
Water year 1938-39	1,137.1	12	.2	3.12		

*Gage-height record faulty or missing; discharge computed on basis of recorded range in stage, record of gate operations at head of sluiceway, comparative studies, and fragmentary information.

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", No. 1 on main canal at Lock 69, and No. 2 on Lansingkill spillway, 100 feet downstream from head gates in summit level of canal, 600 feet upstream from Lock 70, and 2 miles south of Boonville, Oneida County.

Records available.- September 1915 to September 1939 (during canal seasons).

Remarks.- Records good except those for periods of missing gage heights, 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. During period Nov. 23 to May 15, when no water was diverted, the canal carried a small flow made up of leakage through head gates and run-off from the area draining into canal above station.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	*33							*15	64	46	52
2	58	*33							*14	63	46	52
3	55	*33							*13	60	46	52
4	49	*33							13	58	47	52
5	45	*33							23	57	52	59
6	45	*34							31	57	54	56
7	44	*35							47	57	53	55
8	*44	*36							50	56	53	58
9	*37	*37							*50	45	54	*64
10	*27	*37							50	42	54	*58
11	*27	*36							53	53	53	*54
12	*27	*35							55	55	53	*50
13	*27	40							55	56	60	*48
14	*28	22							64	58	66	*45
15	*30	4							61	56	57	*43
16	*33	3							64	55	54	40
17	32	3							58	55	52	42
18	30	7							58	55	51	57
19	31	14							54	55	51	58
20	30	7							52	55	51	58
21	32	4							59	54	52	64
22	32	3							61	39	51	67
23	31	3							66	54	51	67
24	33	-						*16	67	39	50	67
25	42	-							64	44	50	67
26	41	-							61	*57	*50	67
27	36	-							59	*55	*50	69
28	34	-							56	*43	51	45
29	*33	-							58	*35	36	19
30	*33	-							63	35	48	*54
31	*32	-							-	44	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,133	59	27	36.5		
November 1-23	525	40	3	22.8		
December	-	-	-	-		
Calendar year	-	-	-	-		
January	-	-	-	-		
February	-	-	-	-		
March	-	-	-	-		
April	-	-	-	-		
May 16-31	256	-	-	16.0		
June	1,496	67	13	49.9		
July	1,611	64	35	52.0		
August	1,592	66	36	51.4		
September	1,639	69	19	54.6		
Water year						

*Gage height missing; discharge estimated.

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 of Moose River.

Drainage area.- 365 square miles.

Records available.- May 1922 to September 1939. June 1900 to December 1922 at site at Moose River, 2½ miles downstream.

Average discharge.- 31 years (1907-13, 1914-39), 841 second-feet.

Extremes.- Maximum discharge during year, 5,980 second-feet Apr. 28 (gage height, 9.32 feet); minimum, 115 second-feet Sept. 4 (gage height, 1.62 feet).

1900-39: Maximum discharge recorded, about 16,500 second-feet Mar. 27, 1913 (gage height, 16.2 feet, former site and datum, from floodmarks); minimum discharge, about 42 second-feet July 21, 23, 25-27, 1913.

Revision.- The figure of maximum discharge for the water year 1927-28 has been revised to 11,100 second-feet Apr. 8 (gage height, 13.14 feet). This figure supersedes that published in Water-Supply Paper 664.

Remarks.- Records excellent except those for periods of ice effect, Nov. 26 to Dec. 4, Dec. 21 to Mar. 26 (computed on basis of four discharge measurements during winter period, gage heights except Dec. 24-27, Dec. 20 to Jan. 3, Jan. 5-10, weather records, records of operation of Old Forge Reservoir, and comparison with records of nearby streams), and those for period of missing gage heights, Dec. 16-18 (computed on basis of recorded range in stage, weather records, records of operation of Old Forge Reservoir, and comparison with records of nearby streams), which are fair. Flow regulated to some extent by storage in Fulton Chain of Lakes. Occasional slight diurnal fluctuation during low and medium stages caused by operation of paper mill in McKeever.

Revisions.- Revised figures of discharge for the water year 1927-28, superseding those published in Water-Supply Paper 664, are given herein.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1, 1938 to Apr. 26, 1939						Apr. 27 to Sept. 30, 1939					
2.0	212	3.8	1,000	7.0	3,450	1.6	111	3.5	790	8.0	4,450
2.4	339	4.7	1,570	8.0	4,470	2.0	202	4.5	1,380	9.1	5,720
2.9	539	6.0	2,560	8.9	5,480	2.3	283	5.7	2,270		
						2.7	426	7.0	3,400		

Discharge, in second-feet, 1927-28, 1938-39

1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	376	310	4,260	2,880	550	700	1,500	2,120			404	607
2	388	296	3,560	2,490	550	700	1,500	3,090			324	242
3	464	341	2,520	1,710	600	650	1,400	3,010		650	324	304
4	700	1,620	1,960	1,360	650	650	1,400	2,670			522	317
5	1,020	2,380	1,780	1,210	700	650	1,900	5,600			901	296
6	798	1,560	1,570	1,060	650	650	4,200	5,240		685	994	286
7	660	1,190	1,360	945	600	650	6,940	4,050		581	1,150	289
8	685	1,060	3,730	890	550	650	10,400	3,270		338	1,150	334
9	710	1,060	4,740	835	600	600	6,790	2,820		564	1,010	257
10	612	862	2,350	760	650	600	4,720	2,400		376	912	453
11	536	760	1,850	710	600	650	3,850	2,080		314	785	412
12	448	1,340	1,680	685	550	650	3,090	1,780		324	505	576
13	1,180	1,740	1,570	685	500	1,100	2,480	1,360		376	705	785
14	1,830	1,220	2,230	660	550	1,700	1,850	1,220		366	394	760
15	1,120	1,000	2,360	735	850	1,800	2,430	972		242	334	635
16	890	890	1,850	810	900	1,900	2,270	972		580	328	371
17	800	919	1,570	810	750	1,700	1,920	918		380	320	720
18	612	3,090	1,540	735	700	1,400	1,640	810		356	317	556
19	554	2,590	1,360	660	650	1,200	1,750			292	194	492
20	563	1,610	1,240	600	600	1,000	2,040			286	324	480
21	885	1,240	1,150	600	550	950	1,880			303	300	480
22	760	1,060	1,030	600	500	950	1,750			205	286	484
23	660	1,530	918	550	550	950	1,610			492	303	470
24	563	3,090	785	600	600	1,000	1,670			424	310	710
25	480	2,560	750	700	850	1,100	1,600	750		324	334	472
26	420	2,020	700	650	750	1,300	1,500			300	264	456
27	352	1,860	650	600	700	1,600	1,330			292	448	348
28	342	2,660	650	550	700	1,800	1,500			490	370	452
29	345	2,710	660	550	650	1,700	1,270			496	317	637
30	342	3,090	785	550	-	1,600	1,430			655	303	539
31	328	-	1,090	550	-	1,500	-			454	334	-

Discharge, in second-feet, of Moose River at McKeever, N. Y., 1927-28, 1938-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	884	413	680	550	500	1,000	1,750	3,070	510	391	164	122
2	785	429	600	550	500	900	1,860	2,680	426	406	173	120
3	706	482	600	550	500	800	1,700	2,330	368	336	162	120
4	650	487	750	550	500	750	1,400	2,200	336	286	160	118
5	553	478	1,160	550	480	700	1,200	2,140	309	260	176	145
6	466	585	2,270	550	480	800	1,070	2,110	280	243	212	260
7	453	770	2,940	600	480	1,000	1,030	2,200	257	238	185	289
8	413	665	1,790	550	500	950	923	2,120	243	230	162	343
9	375	645	1,320	560	500	850	879	1,830	235	224	155	343
10	350	650	1,510	380	500	750	775	2,540	224	220	157	352
11	329	605	2,010	500	500	700	923	2,080	228	204	155	395
12	392	562	1,580	500	480	650	1,110	1,540	538	192	153	380
13	530	571	1,200	480	480	600	1,020	1,270	578	188	157	376
14	562	848	1,080	460	480	600	934	1,140	467	192	202	354
15	370	956	912	440	600	550	918	1,040	519	188	200	336
16	228	805	850	420	650	550	830	758	446	183	192	329
17	390	735	750	400	750	500	846	480	664	178	169	322
18	449	805	700	400	1,100	500	978	471	1,220	171	162	315
19	433	1,430	640	440	1,100	480	1,490	413	834	164	153	315
20	487	1,730	600	420	1,300	480	2,140	434	640	160	148	318
21	495	1,190	550	420	1,700	460	2,050	426	542	157	148	322
22	526	890	480	400	1,600	460	3,290	406	480	155	153	318
23	513	785	460	400	1,300	480	3,550	582	467	151	151	315
24	535	695	440	440	1,000	600	2,820	622	550	148	148	315
25	980	553	420	600	900	750	3,100	532	519	148	148	312
26	1,010	600	400	550	800	1,300	5,480	463	422	146	146	309
27	810	550	380	550	850	2,610	5,720	414	368	146	142	318
28	645	600	360	550	900	3,520	5,670	521	326	144	137	346
29	517	700	480	500	-	3,040	4,810	895	283	146	133	361
30	466	650	550	500	-	2,330	3,750	818	299	148	129	383
31	433	-	550	500	-	1,980	-	645	-	160	122	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 1927	20,223	1,830	328	652	1.79	2.06
November	47,658	3,090	296	1,589	4.35	4.85
December	54,298	4,740	650	1,752	4.80	5.53
Calendar year 1927	325,551	4,740	195	892	2.44	33.11
January 1928	27,730	2,880	550	895	2.45	2.82
February	18,600	900	500	641	1.76	1.90
March	34,250	1,900	600	1,105	3.03	3.49
April	79,610	10,400	1,270	2,654	7.27	8.11
May	54,132	5,600	-	1,746	4.78	5.51
June	19,950	-	-	665	1.82	2.03
July	13,745	-	205	443	1.21	1.40
August	15,466	1,150	194	499	1.37	1.58
September	14,220	785	242	474	1.30	1.45
Water year 1927-28	399,882	10,400	194	1,096	3.00	40.73
October 1938	16,734	1,010	228	540	1.48	1.71
November	21,864	1,730	413	729	2.00	2.23
December	28,982	2,940	360	935	2.56	2.95
Calendar year 1938	309,792	8,310	156	849	2.33	31.58
January 1939	15,060	600	360	486	1.33	1.53
February	21,430	1,700	480	765	2.10	2.19
March	31,640	3,520	460	1,021	2.80	3.23
April	64,016	5,720	775	2,134	5.85	6.53
May	39,170	3,070	406	1,264	3.46	3.99
June	13,578	1,220	224	453	1.24	1.38
July	6,303	406	144	203	.556	.64
August	4,954	212	122	160	.438	.50
September	8,951	395	118	298	.816	.91
Water year 1938-39	272,662	5,720	118	747	2.05	27.79

Middle Branch of Moose River at Old Forge, N. Y.

Location.- Staff gage, lat. 43°42'50". long. 74°58'10", in Old Forge, Herkimer County, 400 feet downstream from State dam.

Drainage area.- 52 square miles.

Records available.- November 1911 to September 1939.

Average discharge.- 27 years (1912-39), 106 second-feet.

Extremes.- Maximum discharge during year, 416 second-feet May 4 (gage height, 3.4 feet); minimum daily, about 0.1 second-foot many times during year when gates in dam were closed and no spilling occurred.

1911-39: Maximum discharge, 862 second-feet Mar. 23, 1921, from rating curve extended by logarithmic plotting above 450 second-feet; minimum, that for water year 1938-39.

Remarks.- Records good except those for periods of backwater from North Branch Dec. 9-16, 18, 19, 23-25, Mar. 27 to Apr. 25 (computed on basis of one discharge measurement and record of gate operations at Old Forge Dam), and those for periods of faulty gage heights May 20 and June 4-6 (computed on basis of record of gate operations at Old Forge Dam), which are fair. On days of changes in gate openings the 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 storage in Fulton Chain of Lakes.

Rating table, water year 1938-39 except periods of backwater (gage height, in feet, and discharge, in second-feet)

0.0	0.1	0.3	2.9	0.6	9.6	0.9	22	1.6	79	3.0	314
.1	.7	.4	4.6	.7	13	1.0	28	2.0	129	3.3	389
.2	1.6	.5	6.8	.8	17	1.2	41	2.5	209		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	212	141	209	228	248	102		338	1.2	40	41	38
2	132	828	209	228	248	102		314	.7	40	41	38
3	182	228	209	228	248	102		344	.7	40	41	79
4	148	228	209	218	238	102		389	.7	40	41	159
5	79	218	161	218	238	102		365	.7	40	41	200
6	74	218	1.1	228	240	102		365	.7	40	41	236
7	54	218	1.1	171	269	102		365	.7	40	41	258
8	34	218	1.1	.7	269	102		338	.7	40	41	258
9	34	209		.7	258	102		338	.6	40	40	258
10	34	209		.7	258	102		338	.5	38	40	258
11	133	209		.6	258	102		314	.2	38	40	258
12	218	209	1.1	.5	258	102	0.6	314	.7	38	40	248
13	209	209		.1	248	102		314	.7	38	40	248
14	171	209		.1	238	102		302	.6	38	41	248
15	56	209		.1	228	102		195	.6	38	40	248
16	248	209		.1	228	102		.1	.9	38	40	238
17	248	209	.1	20	218	102		.1	20	38	40	238
18	248	162	.1	79	209	102		.1	93	38	40	244
19	238	51	.1	79	209	102		.4	122	38	40	269
20	248	.1	.1	68	151	102		.5	122	38	40	258
21	238	.1	.1	68	96	102		.6	122	38	40	258
22	238	.1	.1	68	96	134		.5	122	38	40	258
23	238	.1	.1	118	96	228	2.0	.1	116	38	40	248
24	238	.1	.1	269	102	228	e.0	.1	102	38	40	238
25	228	.1	.1	269	102	218	18	.1	97	38	40	238
26	228	.1	.1	238	102	164	108	.3	74	39	40	238
27	201	113	.1	238	102		314	.1	63	41	40	248
28	122	209	114	238	102		365	1.2	38	41	40	248
29	122	209	228	248	-	1.1	338	2.8	40	41	38	238
30	122	209	238	248	-		354	3.2	40	41	38	238
31	122	-	228	248	-		-	1.5	-	41	38	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,147	248	34	166	-	-
November	4,551.7	228	.1	151	-	-
December	1,818.2	238	.1	58.7	-	-
Calendar year 1938	39,572.1	389	.1	108	2.08	28.29
January	4,018.6	269	.1	130	-	-
February	5,557	269	96	198	-	-
March	3,119.5	228	-	101	-	-
April	1,518.2	365	-	50.6	-	-
May	4,938.7	389	.1	159	-	-
June	1,181.7	122	.2	39.4	-	-
July	1,212	41	38	39.1	-	-
August	1,243	41	38	40.1	-	-
September	6,729	269	38	224	-	-
Water year 1938-39	41,014.6	389	.1	112	2.15	29.35

Note.- Increase in combined storage in Old Forge and Sixth Lake Reservoirs during calendar year 1938 about 44,300,000 cubic feet (equivalent mean discharge, 1.40 sec.-ft.; run-off 0.57 inch); decrease during water year 1938-39 about 665,200,000 cubic feet (equivalent mean discharge, 21.1 sec.-ft.; run-off 5.51 inches).

Middle Branch of Moose River near McKeever, N. Y.

Location.- Water-stage recorder, lat. 43°37'45", long. 75°04'55", half a mile upstream from confluence of Middle and South Branches of Moose River and 1½ miles northeast of McKeever, Herkimer County.

Drainage area.- 148 square miles.

Records available.- October 1925 to September 1939.

Average discharge.- 14 years, 332 second-feet.

Extremes.- Maximum discharge during year, 1,470 second-feet Apr. 29 (gage height, 5.73 feet); maximum gage height, 6.31 feet Jan. 26 (ice jam); minimum, 67 second-feet Sept. 3 (gage height, 2.23 feet).
1925-39: Maximum discharge, 2,100 second-feet Apr. 27, 1926 (gage height, 6.6 feet); minimum, about 42 second-feet Aug. 26, 1931 (gage height, 1.98 feet).

Remarks.- Records excellent except those for periods of ice effect, Nov. 23 to Dec. 4, Dec. 13-19, Dec. 21 to Jan. 7, Jan. 9, Jan. 11 to Mar. 27 (computed on basis of three discharge measurements during winter period, gage heights except Feb. 1, 2, 20-28, weather records, and records for Middle Branch of Moose River at Old Forge and Moose River at McKeever), which are fair. Flow partly regulated by storage in Fulton Chain of Lakes.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.2	63	3.1	213	4.6	775
2.5	103	3.5	322	5.3	1,190
2.8	150	4.0	499	5.8	1,520

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	562	233	360	360	340	320	532	1,350	175	154	87	66
2	483	274	360	360	340	320	579	1,260	158	150	84	68
3	438	325	360	360	340	300	528	1,130	147	140	83	67
4	409	332	400	360	340	300	483	1,070	140	130	84	68
5	330	335	427	360	340	280	445	1,020	131	123	83	154
6	270	341	503	360	340	300	409	940	122	120	82	233
7	270	338	420	360	340	320	381	872	111	127	76	270
8	226	332	423	297	360	340	348	817	106	117	75	310
9	192	338	442	130	360	320	322	756	102	117	79	296
10	177	335	472	135	360	300	298	786	96	112	79	298
11	167	332	476	150	360	300	325	750	110	108	78	322
12	283	325	460	150	360	280	328	714	156	106	76	304
13	409	335	440	140	360	280	310	675	142	104	84	295
14	420	361	400	140	340	260	298	637	140	106	92	292
15	245	368	360	140	340	260	301	606	131	101	84	269
16	112	364	340	130	340	260	286	341	123	98	82	289
17	306	381	320	130	360	260	307	135	152	96	79	289
18	341	449	300	150	400	260	338	182	204	96	78	284
19	325	420	280	200	400	240	406	199	259	94	76	295
20	361	319	256	200	420	240	453	192	275	91	78	307
21	341	286	240	190	420	240	495	182	270	88	78	304
22	335	264	220	190	400	240	680	140	261	87	78	298
23	332	240	200	180	360	260	695	127	270	85	76	292
24	354	220	190	220	360	360	709	143	256	84	76	286
25	395	200	180	380	340	360	807	160	238	85	76	281
26	392	200	170	380	320	420	917	158	208	83	75	284
27	381	190	170	340	300	420	1,160	156	192	82	74	292
28	312	300	160	340	320	409	1,420	168	175	82	73	301
29	256	380	280	340	-	445	1,460	204	147	84	70	301
30	246	380	380	340	-	503	1,420	204	158	85	69	307
31	238	-	380	340	-	549	-	195	-	88	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,908	562	112	320	2.16	2.49
November	9,497	449	190	317	2.14	2.39
December	10,369	503	160	334	2.26	2.61
Calendar year 1938	122,299	1,580	65	335	2.26	30.73
January	7,892	380	130	255	1.72	1.98
February	9,980	420	300	356	2.41	2.51
March	9,966	549	240	321	2.17	2.50
April	17,440	1,460	286	581	3.93	4.38
May	16,319	1,350	127	526	3.55	4.09
June	5,155	275	98	172	1.16	1.29
July	5,223	154	82	104	.703	.81
August	2,433	92	69	78.5	.530	.61
September	7,746	322	67	258	1.74	1.94
Water year 1938-39	109,928	1,460	67	301	2.03	27.60

Independence River at Sperryville, N. Y.

Location.- Staff gage, lat. 43°46'30", long. 75°18'05", half a mile upstream from highway bridge at Sperryville, Lewis County, and 9½ miles east of Lowville.

Drainage area.- 85 square miles.

Records available.- December 1927 to September 1939.

Average discharge.- 11 years (1928-39), 169 second-feet.

Extremes.- Maximum discharge during year, 1,450 second-feet Apr. 26 (gage height, 5.3 feet, from graph based on gage readings); minimum, 14 second-feet Sept. 2 and 3 (gage height, 0.97 foot).

1927-39: Maximum discharge, 4,700 second-feet Oct. 6, 1932 (gage height, 9.2 feet, from graph based on gage readings), from rating curve extended above 1,310 second-feet; minimum, 14 second-feet Aug. 31 to Sept. 2, 1934, Sept. 2, 3, 1939; minimum gage height, 0.88 foot Aug. 31 to Sept. 2, 1934.

Remarks.- Records good except those for periods of ice effect, Nov. 26-28, Dec. 2, 3, Dec. 16 to Jan. 9, Jan. 15, Jan. 20 to Mar. 26, which were computed on basis of three discharge measurements during winter period, gage heights, observer's notes, and weather records and are fair. Gage read twice daily. On days of rapidly changing stage the discharge is averaged for intervals of a day from graph based on gage readings.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.9	11	1.2	30	1.8	95	2.6	240	4.0	735
1.0	16	1.4	47	2.0	126	3.0	358	4.5	975
1.1	23	1.6	68	2.2	162	3.5	527	5.2	1,390

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	134	71	102	70	55	240	472	405	68	98	21	15
2	123	68	95	70	55	240	527	329	58	76	20	14
3	106	64	90	70	55	200	455	262	51	57	19	15
4	98	61	162	70	55	170	358	225	56	46	20	16
5	89	59	315	75	50	150	301	203	60	40	24	21
6	84	71	724	120	55	180	249	192	52	39	24	19
7	76	62	1,050	190	50	240	262	172	47	36	21	22
8	71	78	597	220	55	220	249	162	45	34	24	23
9	71	104	374	200	55	190	237	152	44	35	25	23
10	68	143	344	203	60	170	192	214	42	31	22	22
11	65	106	389	288	65	150	315	192	42	28	23	33
12	61	82	315	301	70	140	405	152	166	26	21	37
13	59	85	237	274	70	130	389	134	143	26	22	30
14	57	231	214	225	75	120	301	120	118	26	35	32
15	54	210	162	190	85	110	329	108	124	25	36	22
16	53	126	150	162	90	130	214	101	98	24	28	20
17	51	126	150	143	90	120	249	91	232	24	22	19
18	51	115	140	134	120	120	329	85	301	24	20	17
19	49	342	130	118	160	110	606	81	162	24	18	16
20	71	490	110	110	240	100	780	77	104	24	18	16
21	126	405	100	100	300	95	648	77	82	21	22	17
22	134	237	95	95	260	90	825	89	67	20	25	16
23	104	182	90	90	220	90	925	126	166	20	22	16
24	104	143	85	85	180	95	735	115	162	19	20	17
25	192	108	85	80	160	120	735	94	126	18	41	16
26	192	95	80	75	140	240	1,270	77	89	18	40	20
27	143	110	80	70	160	566	1,390	69	67	18	26	22
28	113	100	75	65	200	925	1,150	81	54	20	21	26
29	96	110	75	65	-	875	825	124	48	21	18	27
30	88	112	75	60	-	648	586	108	64	22	16	30
31	76	-	75	60	-	508	-	88	-	23	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,859	192	49	92.2	1.08	1.24
November	4,316	490	59	144	1.69	1.89
December	6,775	1,050	75	219	2.58	2.97
Calendar year 1938	70,686	2,120	26	194	2.28	30.94
January	4,078	301	60	132	1.55	1.79
February	3,230	300	50	115	1.35	1.41
March	7,482	925	90	241	2.84	3.27
April	16,288	1,390	192	543	6.39	7.13
May	4,505	405	69	145	1.71	1.97
June	2,935	301	42	97.9	1.15	1.28
July	963	96	18	31.1	.366	.42
August	730	41	16	23.5	.276	.32
September	639	37	14	21.3	.251	.28
Water year 1938-39	54,803	1,390	14	150	1.76	23.97

Stillwater Reservoir near Beaver River, N. Y.

Location.- Float-tape gage, lat. 43°53'50", long. 75°03'05", at Stillwater Reservoir Dam, 7½ miles west of Beaver River post office, Herkimer County. Datum of gage is mean sea level (general adjustment of 1912).
Drainage area.- 172 square miles.
Records available.- February 1925 to September 1939.
Extremes.- Maximum elevation during year, 1,679.36 feet May 23 (contents, 4,640,000,000 cubic feet); minimum, 1,660.80 feet Sept. 30 (contents, 828,000,000 cubic feet).
1925-39: Maximum elevation, 1,679.46 feet May 4, 1929 (contents, 4,669,000,000 cubic feet); minimum since first filling, 1,644.94 feet Mar. 23, 1931 (contents not determined).
Remarks.- Reservoir originally formed about 1885; enlarged at various times and in 1924 enlarged to a usable capacity, 4,623,000,000 cubic feet between elevations 1,650.3 feet 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 are made about 8 a.m. by Black River Regulating District, who furnish the record.

Capacity table, elevation, in feet, and contents, in million cubic feet (Prepared in 1925 by Black River Regulating District from maps resulting from surveys by New York Conservation Commission and Black River Regulating District)

1,650.3	0	1,654.0	183	1,665.0	1,428	1,677.5	4,116
1,650.5	7	1,655.0	253	1,667.5	1,558	1,679.3	4,623
1,651.0	26	1,657.5	465	1,670.0	2,341		
1,652.0	69	1,660.0	731	1,672.5	2,876		
1,653.0	122	1,662.5	1,052	1,675.0	3,466		

Elevation, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72.57	70.05	69.10	70.17	65.79	62.51	65.35	76.98	79.22	77.64	73.27	67.19
2	72.71	69.88	68.99	70.06	65.60	62.56	65.61	77.33	79.14	77.57	73.08	66.98
3	72.81	69.72	68.87	69.94	65.39	62.59	66.21	77.63	79.05	77.60	72.86	66.90
4	72.82	69.54	68.84	69.85	65.19	62.60	66.60	77.86	79.03	77.54	72.69	66.90
5	72.79	69.36	68.79	69.64	64.99	62.78	66.88	78.09	79.01	77.46	72.53	66.78
6	72.76	69.39	68.96	69.54	64.79	62.99	67.15	78.32	78.90	77.33	72.33	66.52
7	72.68	69.43	69.63	69.44	64.81	63.11	67.44	78.51	78.62	77.19	72.12	66.26
8	72.61	69.17	69.99	69.49	64.41	63.15	67.66	78.68	78.74	77.04	71.92	66.03
9	72.62	69.02	70.25	69.44	64.20	63.19	67.91	78.82	78.65	77.01	71.72	65.81
10	72.57	68.91	70.52	69.30	63.98	63.21	68.12	79.04	78.57	76.89	71.53	65.55
11	72.42	68.76	70.82	69.23	63.81	63.20	68.36	79.18	78.59	76.71	71.35	65.35
12	72.28	68.59	71.04	69.15	63.61	63.33	68.65	79.26	78.62	76.52	71.14	65.13
13	72.16	68.56	71.19	69.04	63.41	63.53	68.90	79.29	78.51	76.36	70.91	64.91
14	71.98	68.56	71.23	68.90	63.20	63.50	69.13	79.30	78.48	76.18	70.77	64.60
15	71.84	68.52	71.26	68.76	63.01	63.45	69.37	79.30	78.43	76.02	70.58	64.36
16	71.81	68.43	71.26	68.62	62.89	63.41	69.58	79.28	78.41	75.93	70.37	64.13
17	71.71	68.29	71.24	68.45	62.73	63.38	69.75	79.26	78.45	75.80	70.15	64.04
18	71.57	68.17	71.35	68.27	62.57	63.34	69.99	79.28	78.46	75.64	69.91	63.90
19	71.39	68.24	71.32	68.15	62.39	63.42	70.27	79.30	78.45	75.48	69.72	63.62
20	71.29	68.49	71.21	67.92	62.33	63.57	70.71	79.30	78.35	75.32	69.53	63.34
21	71.19	68.69	71.09	67.74	62.37	63.43	71.07	79.32	78.30	75.15	69.35	63.11
22	71.07	68.86	70.99	67.57	62.42	63.28	71.54	79.34	78.24	74.97	69.15	62.84
23	71.04	68.95	70.88	67.41	62.38	63.02	72.11	79.36	78.20	74.91	68.96	62.55
24	70.95	69.18	70.76	67.23	62.32	62.73	72.55	79.33	78.20	74.75	68.75	62.31
25	70.81	69.21	70.81	67.07	62.26	62.47	73.02	79.28	78.20	74.55	68.62	62.08
26	70.73	69.38	70.90	66.88	62.46	62.38	73.77	79.27	78.25	74.37	68.43	61.82
27	70.61	69.48	70.84	66.69	62.56	62.59	74.60	79.24	78.12	74.18	68.22	61.59
28	70.48	69.39	70.73	66.49	62.46	63.35	75.41	79.28	77.98	74.01	68.02	61.36
29	70.30	69.30	70.58	66.30	-	63.98	76.06	79.30	77.83	73.83	67.81	61.10
30	70.32	69.19	70.45	66.12	-	64.50	76.58	79.29	77.79	73.64	67.60	60.86
31	70.22	-	70.31	65.97	-	64.95	-	79.27	-	73.46	67.39	-

Note.- Add 1,600.00 feet to obtain elevations above mean sea level.

Elevation and contents, water year October 1938 to September 1939

Date	Elevation* (feet)	Contents (million cubic feet)	Change in contents during month (equivalent mean second-feet)
Sept. 30	72.53	2,883	-
Oct. 31	70.11	2,363	-194
Nov. 30	69.13	2,167	-75.6
Dec. 31	70.22	2,386	+81.8
Calendar year 1938	-	-	+2.5
Jan. 31	65.85	1,568	-305
Feb. 28	62.49	1,051	-214
Mar. 31	65.22	1,464	+154
Apr. 30	76.85	3,940	+955
May 31	79.24	4,606	+249
June 30	77.69	4,167	-169
July 31	73.33	3,066	-411
Aug. 31	67.26	1,815	-467
Sept. 30	60.80	828	-381
Water year 1938-39	-	-	-65.2

*Reservoir elevations at midnight obtained by interpolation.

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Beaver River below Stillwater Dam, near Beaver River, N. Y.

Location.- Float-tape gage, lat. 43°53'50", long. 75°03'05", at Stillwater Reservoir Dam, 7½ miles west of Beaver River post office, Herkimer County.

Drainage area.- 172 square miles.

Records available.- May 1908 to September 1939.

Average discharge.- 31 years (1909-39), 382 second-feet (not adjusted for storage).

Extremes.- 1908-39: Maximum discharge, 3,700 second-feet May 3, 1926; practically no flow at times when gates in dam are closed and there is no spilling.

Remarks.- Records good. Flow regulated by storage in Stillwater Reservoir (capacity, 4,824,000,000 cubic feet). Discharge determined from ratings for Stillwater Dam gates and spillway. Record of gate openings and reservoir elevations furnished by Board of Black River Regulating District.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	567	465	570	568	352	12	15	427	457	603	492
2	14	567	465	567	565	352	12	16	425	20	600	371
3	220	564	463	567	565	352	12	21	330	229	600	12
4	335	562	526	565	562	180	12	23	131	331	597	144
5	411	405	543	564	559	11	12	25	424	502	597	549
6	411	167	145	562	556	255	12	27	423	585	594	545
7	408	561	13	390	553	358	12	29	422	581	591	543
8	304	559	13	200	551	358	12	30	420	441	591	539
9	171	556	13	613	548	358	12	31	419	181	586	536
10	595	556	13	610	545	358	12	33	159	678	586	534
11	592	553	13	610	542	265	12	135	148	655	583	530
12	592	405	186	610	539	11	13	298	609	597	578	527
13	589	149	426	607	536	259	13	354	495	574	578	527
14	589	551	426	607	533	360	13	354	361	574	575	521
15	432	551	426	604	530	360	13	354	251	432	575	518
16	167	550	426	601	529	360	13	354	251	290	590	387
17	586	548	302	601	527	360	13	243	251	572	648	136
18	584	515	206	598	524	269	13	187	251	569	570	510
19	583	284	647	598	523	11	13	187	432	567	517	507
20	581	12	607	595	521	312	13	187	366	567	515	504
21	581	13	578	592	521	491	13	187	366	564	513	501
22	413	13	578	589	523	579	13	270	363	426	512	497
23	209	13	578	589	523	662	13	416	363	311	510	494
24	684	13	399	586	521	657	14	471	279	617	508	490
25	642	13	13	583	262	652	14	360	26	617	505	487
26	575	13	189	583	156	652	14	304	410	612	505	484
27	573	156	576	580	524	320	14	226	600	612	502	481
28	572	469	575	577	480	11	14	265	599	609	500	478
29	419	468	573	574	-	11	14	304	597	608	498	474
30	152	467	572	571	-	12	15	304	597	606	495	383
31	570	-	570	571	-	12	-	391	-	603	495	-

Month	Observed				Adjusted for change in contents*		
	Second-foot-days	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches
October	13,568	684	14	438	244	1.42	1.64
November	10,820	567	12	361	285	1.66	1.85
December	11,525	647	13	372	454	2.64	3.04
Calendar year 1938	145,920	1,040	12	400	402	2.34	31.79
January	17,634	613	200	569	264	1.53	1.76
February	14,386	568	156	514	300	1.74	1.81
March	9,560	662	11	308	462	2.69	3.10
April	387	15	12	12.9	968	5.63	6.28
May	6,401	471	15	206	455	2.65	3.06
June	11,195	609	26	373	204	1.19	1.33
July	15,585	678	20	503	92	.535	.62
August	17,217	648	495	555	88	.512	.59
September	13,701	549	12	457	76	.442	.49
Water year 1938-39	141,979	684	11	389	324	1.88	25.57

*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 1939.

Extremes.- Maximum discharge during year, 1,460 second-feet Apr. 29 (gage height, 4.04 feet); minimum, 32 second-feet (regulated), Oct. 1 (gage height, 1.02 feet); minimum daily, 46 second-feet Oct. 2.
1930-39: Maximum discharge, 3,390 second-feet Apr. 19, 1933 (gage height, 5.80 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. Partial gage-height record Apr. 8, 9. Flow of Beaver River completely regulated during year at Stillwater Dam. (See records for Beaver River below Stillwater Dam, near Beaver River.) Between Stillwater Dam and this station the flow is further regulated and controlled by operation of nine power-plant ponds. Diurnal fluctuation at low and medium stages.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

1.1	42	1.5	114	1.9	222	2.6	495
1.2	57	1.6	138	2.0	254	3.0	702
1.3	74	1.7	164	2.2	326	3.5	1,025
1.4	95	1.8	192	2.4	406	4.0	1,420

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	252	629	727	393	713	744	909	611	328	389	639	526
2	46	662	565	699	705	827	363	701	339	255	592	306
3	452	554	371	651	677	637	768	616	220	369	612	144
4	538	714	656	583	613	520	712	434	78	222	672	302
5	491	708	675	581	334	276	747	358	291	626	665	430
6	456	335	777	597	693	719	522	304	408	575	278	512
7	408	485	936	493	682	759	428	95	306	565	608	507
8	449	594	930	275	669	756	441	248	339	493	582	484
9	159	526	849	742	647	648	177	326	288	136	592	429
10	478	698	528	680	684	546	398	330	215	601	553	302
11	691	683	305	720	742	720	494	341	113	629	618	476
12	547	678	564	703	527	301	450	326	652	631	345	612
13	525	397	- 602	746	732	561	456	262	610	633	347	517
14	510	592	639	816	728	652	488	85	431	578	720	628
15	593	573	698	557	605	730	557	299	625	349	591	508
16	344	656	548	708	721	491	288	329	490	129	512	545
17	434	729	482	726	745	639	733	319	496	579	620	253
18	607	722	250	884	677	509	690	328	140	669	649	463
19	657	606	599	717	559	215	673	327	466	626	412	480
20	729	638	512	680	884	525	979	172	567	616	317	482
21	618	713	722	679	836	486	943	59	575	601	604	505
22	455	398	718	548	795	487	927	249	372	542	630	618
23	319	370	682	782	780	377	374	382	481	268	491	301
24	685	353	713	632	775	642	645	465	293	678	479	165
25	694	387	312	727	755	713	622	453	200	665	522	546
26	732	277	574	772	524	669	772	504	437	608	472	556
27	706	134	677	758	741	1,040	888	296	596	643	402	596
28	606	440	735	732	748	978	1,360	127	580	658	636	579
29	671	494	754	613	-	859	1,380	297	594	594	472	398
30	294	535	655	732	-	816	459	329	702	253	577	269
31	701	-	691	700	-	902	-	333	-	665	510	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	15,847	732	46	511		
November	16,260	729	134	542		
December	19,426	936	250	627		
Calendar year 1938	223,057	1,820	46	611	2.08	28.22
January	20,426	816	275	659		
February	19,288	884	334	689		
March	19,744	1,040	215	637		
April	19,843	1,380	*177	661		
May	10,307	701	59	332		
June	12,232	702	78	408		
July	15,847	678	129	511		
August	16,719	720	278	539		
September	13,439	628	144	448		
Water year 1938-39	199,376	1,380	46	546	1.86	25.22

*Partly estimated.

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.

Drainage area.- 89 square miles.

Records available.- September 1929 to September 1939.

Average discharge.- 10 years (1929-39), 210 second-feet.

Extremes.- Maximum discharge during year, 4,760 second-feet Mar. 27 (gage height, 7.70 feet); minimum, 0.8 second-foot (regulated) Sept. 17 (gage height, 0.195 foot); minimum daily discharge, 2.0 second-feet (estimated) July 9.
1929-39: Maximum discharge, that of Mar. 27, 1939; minimum, 0.8 second-foot (regulated) July 22 to Aug. 2, 1933, and Sept. 17, 1939; minimum daily discharge, 0.8 second-foot July 22 to Aug. 2, 1933.

Remarks.- Records good except those for periods of ice effect, Dec. 29 to Jan. 6, Jan. 26-28, Feb. 15-18, 21, 23-25 (computed on basis of three discharge measurements, gage heights, and weather records), that for day when well was partly frozen, Nov. 27, and and that for day when power plant was shut down and gage-height record affected by silt in well, July 9, all of which are fair. Diurnal fluctuation at low and medium stages caused by operation of power plant.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	90	58	124	64	62	560	954	398	36	16	24	2.9
2	76	55	108	62	61	548	1,170	349	30	15	15	2.6
3	65	52	99	60	53	450	721	296	24	13	14	3.3
4	58	50	796	60	106	381	479	266	23	12	14	3.7
5	53	53	709	90	110	360	404	253	26	12	14	4.2
6	48	111	1,370	240	108	538	384	216	24	11	7.8	3.6
7	57	98	695	388	96	556	426	148	20	8.3	3.5	3.5
8	54	85	410	359	90	446	379	163	22	4.3	2.7	10
9	54	293	397	306	82	352	345	214	17	2.0	3.0	22
10	52	187	484	939	74	284	316	371	16	8.0	11	16
11	48	127	411	762	92	226	804	209	16	7.4	10	26
12	45	98	310	399	117	198	696	134	30	5.4	7.8	26
13	79	279	218	284	117	168	471	90	39	4.6	8.9	17
14	40	444	163	225	111	149	454	82	53	5.1	12	15
15	29	258	116	155	104	135	495	71	74	6.4	12	14
16	25	193	142	147	98	175	399	61	48	5.8	8.6	8.6
17	31	226	139	116	94	164	456	55	139	7.2	7.9	3.1
18	20	516	158	93	114	139	1,160	50	151	6.5	4.4	6.2
19	33	870	156	84	160	141	2,130	38	66	4.5	4.7	9.7
20	152	509	141	79	654	132	1,410	34	38	2.3	3.1	8.4
21	252	334	117	80	620	119	1,320	40	27	3.3	7.7	3.7
22	152	234	103	62	515	113	1,890	55	21	3.2	5.3	2.8
23	94	163	90	73	400	111	1,430	72	28	3.0	4.8	5.2
24	142	92	95	78	340	121	1,160	60	49	3.8	6.0	4.2
25	329	86	101	75	290	212	1,510	47	40	3.1	5.7	5.0
26	208	80	89	72	314	962	1,540	40	28	3.2	4.7	11
27	134	93	84	68	388	2,340	1,340	34	20	3.4	2.6	13
28	101	86	66	76	422	1,490	1,010	38	16	3.3	3.1	11
29	82	99	76	90	-	1,120	705	65	13	3.3	2.8	14
30	69	118	72	86	-	960	514	57	13	29	2.5	12
31	63	-	68	64	-	948	-	44	-	38	2.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,735	329	20	88.2	0.991	1.14
November	5,947	870	50	198	2.22	2.48
December	8,115	1,370	66	262	2.94	3.39
Calendar year 1938	86,279.4	2,370	6.1	236	2.65	36.03
January	5,736	939	60	185	2.08	2.40
February	5,822	654	61	208	2.34	2.44
March	14,598	2,340	111	471	5.29	6.10
April	26,472	2,130	316	882	9.91	11.06
May	4,050	398	34	131	1.47	1.70
June	1,147	151	13	38.2	.429	.48
July	253.4	38	2.0	8.17	.092	.11
August	236.1	24	2.5	7.62	.086	.10
September	287.7	26	2.6	9.59	.108	.12
Water year 1938-39	75,399.2	2,340	2.0	207	2.33	31.52

Peak discharge.- Mar 27 (2 a.m.) 4,760 sec.-ft.; Apr. 19 (1:45 a.m.) 2,970 sec.-ft.; Apr. 22 (1:30 a.m.) 2,470 sec.-ft.

East Branch of Oswegatchie River at Cranberry Lake, N. Y.

Location.- Water-stage recorder, lat. 44°13'15", long. 74°51'00", about 900 feet downstream from dam at outlet of Cranberry Lake, in village of Cranberry Lake, St. Lawrence County. Prior to Oct. 1, 1938, staff gage 80 feet upstream at same datum.

Drainage area.- 144 square miles.

Records available.- May 1923 to September 1939.

Average discharge.- 16 years, 304 second-feet.

Extremes.- Maximum discharge during year, 499 second-feet (regulated) Dec. 16 (gage height, 5.49 feet); minimum, 34 second-feet (regulated) Sept. 15 (gage height, 3.39 feet).
1923-39: Maximum daily discharge, 1,620 second-feet Apr. 17-20, 1933; minimum occurred when gates in dam were closed and there was no discharge over spillway.

Remarks.- Records excellent. Discharge Oct. 1-9 computed from once-daily hook-gage readings and record of gate operations at Cranberry Lake Dam. On rapidly changing stage of Oct. 3 discharge was averaged for intervals of day, from graph based on hook-gage readings and record of operation at dam. Flow completely regulated by operation of gates in Cranberry Lake Dam.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

3.9	86	4.2	131	4.8	264
4.0	100	4.4	168	5.0	323
4.1	116	4.6	212	5.5	503

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	242	240	479	342	411	436	414	212	264	248	248
2	106	242	242	475	339	411	436	414	212	264	248	245
3	182	242	240	471	336	411	377	410	212	264	245	245
4	259	242	237	471	336	411	227	369	212	261	245	245
5	259	245	234	467	333	411	230	354	212	261	245	242
6	256	245	234	467	329	411	232	293	212	261	245	242
7	256	242	195	463	326	407	190	293	212	261	245	242
8	256	245	92	463	326	407	149	293	212	261	245	263
9	253	242	92	382	326	407	149	293	229	261	242	296
10	253	242	94	329	326	407	149	293	261	261	251	293
11	253	242	94	329	326	407	149	296	259	259	270	293
12	253	242	94	329	326	403	151	282	261	259	270	293
13	253	242	96	329	326	413	153	248	264	259	270	290
14	253	242	96	329	326	444	153	248	261	256	267	239
15	250	242	282	329	326	444	153	248	261	256	267	225
16	250	242	430	351	326	440	151	242	261	256	264	296
17	250	242	495	452	326	440	153	214	261	256	264	293
18	250	240	495	452	326	436	155	214	261	253	264	293
19	253	242	491	452	326	433	157	214	261	253	264	293
20	253	242	487	448	336	429	158	214	261	253	264	290
21	253	242	487	448	342	425	160	214	261	253	264	271
22	250	242	487	444	342	421	162	214	264	253	261	281
23	248	242	487	444	342	418	164	214	264	250	259	278
24	250	242	409	444	342	418	166	217	264	250	256	276
25	248	242	261	386	342	414	168	217	264	250	253	277
26	248	242	261	349	339	418	172	217	264	250	250	281
27	248	242	402	349	339	421	176	217	261	248	250	273
28	248	242	491	345	374	425	210	217	261	248	250	270
29	248	240	487	345	-	429	237	214	264	248	250	273
30	245	240	483	342	-	433	265	214	264	250	248	276
31	245	-	479	342	-	433	-	212	-	248	248	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,435	259	106	240		
November	7,263	245	240	242		
December	9,694	495	92	313		
Calendar year 1938	109,116	1,080	77	299	2.08	28.17
January	12,505	479	329	403		
February	9,351	374	326	334		
March	13,038	444	403	421		
April	5,988	436	149	200		
May	8,213	414	212	265		
June	7,428	264	212	248		
July	7,927	264	248	256		
August	7,912	270	242	255		
September	8,122	296	225	271		
Water year 1938-39	104,876	495	92	287	1.99	27.09

Note.- Decrease in storage in Cranberry Lake Reservoir during calendar year 1938 about 12,266,500 cubic feet (equivalent mean discharge, 0.389 sec.-ft.; run-off 0.04 inch), decrease in elevation, 0.04 ft.; decrease during water year 1938-39 about 1,698,909,700 cubic feet (equivalent mean discharge, 53.9 sec.-ft.; run-off 5.08 inches), decrease in elevation, 5.54 ft.

East Branch of 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 Northern New York Utilities, Inc., 2¾ miles north of Oswegatchie, St. Lawrence County.

Drainage area.- 263 square miles.

Records available.- October 1924 to September 1939.

Average discharge.- 14 years (1925-39), 534 second-feet.

Extremes.- Maximum discharge during year, 1,600 second-feet (regulated) Feb. 22 (gage height, 4.95 feet); minimum, about 6 second-feet (regulated) July 5, 6, 9 (gage height, 0.92 foot); minimum daily, 92 second-feet May 7.
1924-39: Maximum discharge, 4,010 second-feet Apr. 6, 1928 (gage height, 7.1 feet), from rating curve extended by logarithmic plotting above 1,900 second-feet; minimum, probably less than 1 second-foot during complete shut-down of power plant and ponding of entire flow of river; minimum daily, 1 second-foot (regulated) July 25, 1928.

Remarks.- Records excellent except those for periods of missing gage heights, Nov. 15, 16, June 19 to July 4, which were computed on basis of record of record of output for Flat Rock power plant and are good. Large diurnal fluctuation at low and medium stages caused by operation of power plant; seasonal flow partly regulated by storage in Cranberry Lake (see records for East Branch of Oswegatchie River at Cranberry Lake, N. Y.)

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

1.9	92	2.7	260	4.0	840
2.1	128	3.0	355	4.5	1,190
2.4	187	3.4	519	4.9	1,550

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	497	415	375	257	529	645	885	812	358	320	299	267
2	222	408	430	670	529	697	393	822	374	320	283	265
3	368	341	324	598	519	797	332	665	318	270	287	257
4	332	321	332	539	317	332	1,120	496	309	245	295	245
5	409	332	416	591	310	455	745	561	402	386	291	252
6	330	253	875	583	523	729	749	309	300	294	280	273
7	319	378	990	540	469	788	695	92	264	299	288	265
8	322	346	721	714	421	825	659	368	328	306	368	302
9	316	372	604	536	491	653	420	508	390	302	297	336
10	364	323	671	684	486	621	700	792	274	295	245	260
11	332	419	346	846	482	341	727	671	267	315	271	351
12	317	372	552	827	428	258	763	581	269	314	294	313
13	323	376	538	762	523	713	833	325	502	440	259	264
14	326	371	600	807	480	525	1,090	328	501	329	262	294
15	389	380	694	608	478	609	334	400	446	324	267	263
16	323	450	594	630	519	481	212	320	347	325	264	308
17	263	552	587	415	547	494	714	415	452	312	263	304
18	270	580	473	422	576	358	722	440	329	337	270	256
19	272	486	548	575	576	396	958	512	360	370	293	249
20	270	494	563	433	525	759	1,500	266	290	352	211	321
21	383	436	532	476	676	1,160	1,390	259	340	314	285	255
22	400	555	541	484	979	770	1,150	374	390	320	268	256
23	326	469	593	483	803	269	742	424	410	320	265	251
24	329	418	520	531	744	425	1,320	404	280	323	285	237
25	366	401	588	593	832	649	1,020	453	340	326	286	238
26	522	322	576	331	698	739	1,020	470	310	288	287	254
27	459	325	413	386	713	1,300	1,110	498	370	300	256	339
28	474	402	600	579	701	1,480	1,070	263	500	286	259	253
29	314	398	587	422	-	1,430	1,060	397	390	300	261	330
30	359	400	595	465	-	1,350	278	239	560	260	268	329
31	366	-	585	484	-	862	-	411	-	292	272	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	10,862	522	222	350		
November	12,095	580	253	403		
December	17,265	990	324	557		
Calendar year 1938	193,560	2,850	166	530	2.02	27.38
January	17,269	846	257	557		
February	15,874	979	310	567		
March	22,309	1,480	258	720		
April	25,211	1,500	212	840		
May	14,075	865	92	454		
June	10,970	560	264	366		
July	9,784	440	245	316		
August	8,559	368	211	276		
September	8,387	351	237	280		
Water year 1938-39	172,660	1,500	92	473	1.80	24.40

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 1939.
Average discharge.- 23 years, 1,710 second-feet.
Extremes.- Maximum discharge during year, 7,630 second-feet Apr. 3 (gage height, 6.01 feet); minimum, 320 second-feet Sept. 1, 2, 25 (gage height, 0.99 foot).
1916-39: Maximum discharge, 15,600 second-feet Jan. 11, 1930 (gage height, 9.1 feet); minimum, 200 second-feet Aug. 18, 1934 (gage height, 0.65 foot).
Remarks.- Records excellent except those for periods of ice effect, Dec. 2, 3, 16, 17, 22, 23, Dec. 26 to Jan. 6, Jan. 22, 26, 27, Feb. 15-18, Feb. 27 to Mar. 22 (computed on basis of five discharge measurements during winter period, observer's notes, gage heights, and weather records), and those for periods of missing gage heights, July 15-22, July 29 to Aug. 5, Aug. 7-11, 13-17, 28-29 (computed on basis of sum of discharge of East Branch near Oswegatchie and that of West Branch near Harrisville and observer's readings), which are fair. Seasonal flow slightly regulated by storage in Cranberry Lake; slight diurnal fluctuation at low and medium stages caused by power operations. During high stages on Grass River, part of flow of that stream may pass from Grass River through Upper Lake, Indian Creek, and Lower Lake and enter Oswegatchie River at Rensselaer Falls, 4½ miles upstream.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 2				Apr. 3 to Sept. 30			
1.3	505	3.0	2,200	1.0	324	2.6	1,780
1.6	730	4.0	3,670	1.2	422	3.5	2,980
2.0	1,080	5.0	5,480	1.4	560	4.7	4,990
2.5	1,600	6.0	7,590	1.9	1,010	6.0	7,610

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,660	794	995	920	818	2,000	6,890	3,590	793	626	593	333
2	1,380	770	860	800	778	2,500	7,460	2,880	748	652	552	338
3	1,170	754	820	760	810	2,600	7,590	2,630	766	559	508	346
4	1,020	770	1,020	960	904	2,550	6,930	2,440	695	515	479	391
5	878	762	1,350	920	913	2,450	5,990	2,230	610	472	447	491
6	861	674	1,600	1,100	778	2,200	5,330	1,850	577	454	441	428
7	827	642	2,500	2,050	674	2,600	4,650	1,590	602	472	500	422
8	794	674	3,160	2,590	762	2,900	4,850	1,360	635	500	530	401
9	746	698	3,410	2,680	852	2,800	5,120	1,220	552	466	490	406
10	706	738	3,320	2,900	786	2,500	5,160	1,280	522	422	440	396
11	674	778	2,960	3,400	836	2,200	5,030	1,630	500	441	400	390
12	635	836	2,730	3,510	967	1,950	5,100	1,960	474	479	401	385
13	628	913	2,400	3,160	967	1,650	4,670	1,900	476	500	396	422
14	658	931	2,210	2,680	940	1,400	4,360	1,710	680	447	390	454
15	635	1,050	1,800	2,230	900	1,500	4,520	1,350	941	500	360	472
16	582	1,210	1,450	1,880	860	1,450	4,670	1,100	1,070	460	370	441
17	575	1,250	1,450	1,530	880	1,550	4,180	1,080	1,100	440	374	385
18	612	1,350	1,530	1,420	900	1,550	3,830	991	1,030	420	364	369
19	590	1,600	1,490	1,080	1,000	1,400	4,150	896	972	400	356	338
20	568	1,930	1,370	895	1,080	1,240	4,950	886	953	420	360	380
21	561	2,000	1,390	922	1,140	1,240	5,560	934	934	440	356	390
22	619	1,950	1,250	860	1,360	1,600	5,830	877	820	460	346	364
23	765	1,830	1,160	878	1,560	1,830	5,750	936	678	447	380	356
24	870	1,710	1,080	754	1,810	1,500	5,580	1,140	643	406	369	351
25	827	1,560	1,080	827	1,900	1,290	5,310	1,230	713	380	351	342
26	836	1,290	1,020	860	1,900	1,610	4,950	1,220	610	406	356	342
27	958	994	920	840	1,850	4,010	4,540	1,190	593	390	340	411
28	1,130	878	1,060	754	1,800	6,410	4,290	1,150	655	411	330	441
29	1,080	878	1,000	668	-	7,150	4,130	1,030	626	522	328	422
30	994	967	940	730	-	7,080	3,950	877	626	560	346	494
31	861	-	920	852	-	6,820	-	877	-	577	351	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	25,700	1,660	561	829	0.852	0.98
November	33,181	2,000	642	1,106	1.14	1.27
December	50,245	3,410	820	1,621	1.67	1.92
Calendar year 1938	608,006	11,000	343	1,666	1.71	23.26
January	46,400	3,510	668	1,497	1.54	1.78
February	30,725	1,900	674	1,097	1.13	1.18
March	81,530	7,150	1,240	2,630	2.70	3.11
April	156,520	7,590	3,830	5,184	5.33	5.95
May	46,034	3,590	877	1,485	1.53	1.76
June	21,574	1,100	474	719	.739	.82
July	14,644	652	380	472	.485	.56
August	12,604	593	328	407	.418	.48
September	11,901	494	333	397	.408	.46
Water year 1938-39	530,058	7,590	328	1,452	1.49	20.27

West Branch of 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 Geers Corners and 4 miles downstream from Harrisville, Lewis County.
Drainage area.- 258 square miles.
Records available.- July 1916 to September 1939.
Average discharge.- 23 years (1916-39), 521 second-feet.
Extremes.- Maximum discharge during year, 2,620 second-feet Mar. 28 (gage height, 5.99 feet); minimum, 35 second-feet Sept. 25 (gage height, 0.98 foot).
1916-39: Maximum discharge, 6,920 second-feet Jan. 9, 1930 (gage height, 9.6 feet), from rating curve extended above 2,400 second-feet; minimum, 25 second-feet Sept. 1, 1934 (gage height, 0.86 foot).
Remarks.- Records good except those for periods of ice effect, Nov. 25-28, Dec. 1, 2, Dec. 24 to Jan. 5, Jan. 20-30, Feb. 4-18, Mar. 20, 27 (computed on basis of five discharge measurements during winter, gage heights except during Jan. 26-28, and weather records), and those for period of backwater from unknown cause, Nov. 14-17 (computed on basis of one discharge measurement, gage heights, and weather records), which are fair. Slight diurnal fluctuations, principally during low flows, caused by pondage for operation of pulp mill at Harrisville.

Rating tables, water year 1938-39 except periods of backwater (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 11				Jan. 13 to Sept. 30					
1.9	147	3.5	710	0.9	28	2.1	204	4.1	1,095
2.0	168	4.0	1,000	1.3	65	2.4	288	5.0	1,750
2.2	216	4.5	1,355	1.5	89	2.8	428	5.7	2,360
2.6	332	4.9	1,670	1.8	138	3.3	648		
3.0	480								

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	539	249	260	210	199	788	1,580	1,320	220	140	141	42
2	455	233	250	205	199	844	1,600	1,110	197	131	112	39
3	363	222	244	205	207	844	1,540	939	178	124	94	38
4	332	213	362	200	205	818	1,320	805	165	114	89	42
5	293	191	590	225	200	766	1,130	714	160	104	137	42
6	270	223	848	398	200	816	1,010	653	154	101	153	42
7	254	253	1,290	594	200	882	975	595	148	107	109	46
8	238	248	1,640	680	200	910	963	568	142	120	86	45
9	204	292	1,470	670	200	866	945	580	134	118	81	46
10	230	377	1,220	660	205	772	876	766	95	117	81	49
11	193	366	1,030	776	245	653	959	822	122	129	80	54
12	201	332	923	860	250	586	1,130	729	257	120	74	58
13	194	322	798	816	260	536	1,110	627	317	107	69	56
14	185	410	685	703	250	460	1,050	506	354	96	68	52
15	185	490	601	536	245	444	1,060	444	484	92	68	49
16	161	480	514	452	245	481	1,060	398	438	85	64	47
17	175	450	476	351	260	493	1,010	358	422	82	59	43
18	166	493	436	307	290	468	1,060	334	528	80	57	41
19	165	626	432	270	320	392	1,420	330	466	75	56	38
20	224	776	380	245	391	380	2,020	272	367	69	55	36
21	364	821	346	220	555	347	2,040	288	286	67	66	37
22	406	755	316	205	638	337	1,880	318	236	64	62	38
23	346	650	285	200	693	330	2,020	398	215	61	55	40
24	349	514	280	195	703	337	1,900	431	240	59	51	40
25	405	380	260	195	693	406	1,740	389	257	59	49	35
26	519	330	250	190	648	596	1,730	344	258	55	46	44
27	484	300	260	190	658	1,300	1,890	284	230	55	44	54
28	433	290	225	185	673	2,240	1,930	276	190	72	42	85
29	352	288	220	185	-	2,290	1,810	270	160	116	41	93
30	316	308	215	200	-	1,990	1,570	264	146	165	40	98
31	299	-	210	185	-	1,720	-	244	-	187	43	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,300	539	161	300	1.16	1.34
November	11,882	821	191	396	1.53	1.71
December	17,216	1,640	210	555	2.15	2.48
Calendar year 1938	197,096	4,630	82	540	2.09	28.40
January	11,513	860	185	371	1.44	1.66
February	10,032	703	199	358	1.39	1.45
March	25,092	2,290	330	809	3.14	3.62
April	42,328	2,040	876	1,411	5.47	6.10
May	16,346	1,320	244	527	2.04	2.35
June	7,566	528	95	252	.977	1.09
July	3,071	187	55	99.1	.384	.44
August	2,272	153	40	73.3	.284	.33
September	1,469	98	35	49.0	.190	.21
Water year 1938-39	158,087	2,290	35	433	1.68	22.78

Grass River at Pyrites, N. Y.

Location.- Water-stage recorder, lat. 44°31'30", long. 75°11'50", 1,000 feet downstream from lowsr 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 1939.
Average discharge.- 15 years, 595 second-feet.
Extremes.- Maximum discharge during year, 3,330 second-feet Apr. 20 (gage height, 7.16 feet), from rating curve extended by logarithmic plotting above 2,170 second-feet; maximum gage height, 7.98 feet Apr. 2 (ice jam); minimum discharge, 67 second-feet Sept. 4 (gage height, 1.24 feet); minimum daily discharge, 71 second-feet Sept. 3.
1924-39: Maximum discharge, about 8,300 second-feet Nov. 18, 1927 (gage height, 13.0 feet), from rating curve extended by logarithmic plotting above 2,100 second-feet; minimum, 37 second-feet July 15, 1933; minimum daily discharge, 59 second-feet Aug. 29 to Sept. 1, 1934.
Remarks.- Records good except those for periods of ice effect, Nov. 25 to Dec. 4, Dec. 14 to Apr. 9 (computed on basis of seven discharge measurements during winter period, gage heights for Nov. 28, 29, Dec. 17, 21, Jan. 30, 31, Mar. 5-10, Apr. 2-9, partial gage heights for some of remaining period, weather records, engineers' notes, and records for station on St. Regis River at Brasher Center and West Branch of Oswegatchie River near Harrisville), which are fair, and those for periods of faulty or missing gage heights, which are poor. Occasional diurnal fluctuations at low and medium stages caused by operation of power plants.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 19						Apr. 20 to Sept. 30					
1.7	161	2.4	412	4.0	1,250	1.2	60	2.5	438	6.0	2,500
1.8	192	2.6	500	5.0	1,900	1.4	98	3.1	710	7.0	3,200
2.0	259	3.0	697	6.0	2,800	1.7	168	4.0	1,190		
2.2	332	3.5	965			2.0	255	5.0	1,800		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	482	239	*320	*240	*220	*1,000	*1,800	1,570	454	192	*190	*73
2	412	228	*300	*240	*220	*800	2,000	1,270	375	207	153	73
3	371	225	*300	*220	*200	*850	1,800	1,040	320	198	134	71
4	336	218	*460	*220	*200	*550	1,500	895	288	182	*136	73
5	310	218	*818	*320	*200	500	1,300	805	278	163	*132	78
6	295	242	*1,200	*460	*200	700	1,200	755	275	158	*127	78
7	289	266	*1,630	*800	*190	1,100	1,200	705	275	166	116	75
8	277	270	*1,570	*700	*190	850	1,300	670	252	173	107	80
9	263	295	*1,210	*550	*190	700	1,300	660	236	*306	111	82
10	252	344	*1,160	*850	*220	600	1,210	860	230	*379	120	94
11	245	328	*1,160	*1,100	*240	*500	1,390	955	212	*252	127	111
12	239	291	*1,070	*850	*260	*440	1,400	795	496	*196	120	141
13	235	291	*867	*700	*260	*400	1,140	655	*740	*173	116	156
14	225	468	*700	*550	*260	*380	1,170	563	*525	*163	109	127
15	218	586	*600	*480	*260	*360	1,460	500	*920	*158	107	111
16	212	491	*500	*420	*240	*500	1,390	458	*800	*153	100	109
17	208	412	600	*360	*240	*440	1,240	430	*589	*156	94	105
18	205	*434	*500	*320	*300	*400	1,590	414	475	*156	90	94
19	205	*778	*440	*300	*400	*360	2,570	406	390	150	88	85
20	228	*899	*400	*300	*550	*340	3,200	406	*320	134	92	78
21	358	749	360	*300	*850	*320	2,660	406	*272	122	109	76
22	400	591	*340	*280	*750	*320	2,640	502	*230	116	127	76
23	363	*482	*320	*280	*600	*300	2,970	805	*221	116	116	78
24	321	371	*300	*260	*500	*300	2,670	955	*285	107	105	80
25	367	*340	*300	*260	*460	*340	2,300	935	345	102	96	78
26	429	*300	*280	*260	*440	*550	2,250	735	327	98	*90	96
27	379	*340	*280	*240	*600	*2,200	2,560	557	292	100	*88	125
28	332	320	*260	*240	*800	*2,600	2,680	492	246	*102	*84	306
29	295	320	*260	*240	-	*2,400	2,460	646	212	*148	*80	414
30	270	*340	*260	220	-	*2,000	2,000	710	192	*236	*76	356
31	252	-	*240	220	-	*1,800	-	589	-	*218	*74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,272	482	205	299	0.893	1.03
November	11,674	899	218	389	1.16	1.29
December	19,005	1,630	240	613	1.83	2.11
Calendar year 1938	205,491	4,800	110	563	1.68	22.81
January	12,930	1,100	220	417	1.24	1.43
February	10,040	850	190	359	1.07	1.11
March	24,700	2,600	300	797	2.38	2.74
April	56,350	3,200	1,140	1,878	5.61	6.26
May	22,134	1,570	406	714	2.13	2.46
June	11,372	920	192	379	1.13	1.26
July	5,282	379	98	170	.507	.58
August	3,414	190	74	110	.328	.38
September	3,579	414	71	119	.355	.40
Water year 1938-39	189,752	3,200	71	520	1.55	21.05

*Gage-height record faulty or missing; discharge computed on basis of fragmentary gage-height record, weather records, and records for St. Regis River at Brasher Center and West Branch of Oswegatchie River near Harrisville.

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. at Piercefield, St. Lawrence County.

Drainage area.- 722 square miles.

Records available.- August 1908 to September 1939.

Average discharge.- 31 years (1908-39), 1,291 second-feet.

Extremes.- Maximum discharge during year, 5,810 second-feet May 2 (gage height, 10.47 feet); minimum, 34 second-feet (regulated) Sept. 28, 29 (gage height, 1.465); minimum daily, 35 second-feet (regulated) Sept. 29.
1908-39: Maximum discharge, 7,580 second-feet Apr. 17, 1922 (gage height, 11.8 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. Large diurnal fluctuation in flow for short periods caused by operation of paper mill. Seasonal distribution of flow appreciably regulated by natural storage in lakes and ponds above station.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

1.4	30	3.0	213	6.7	1,760
1.7	49	3.5	318	7.8	2,660
1.9	64	4.1	479	9.0	3,900
2.2	94	4.8	728	10.5	5,850
2.6	147	5.7	1,145		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,210	994	868	960	918	946	1,520	5,640	1,350	726	405	219
2	3,080	999	860	969	923	956	1,630	5,770	1,170	590	606	211
3	2,890	994	873	926	937	956	1,700	5,710	1,160	561	591	188
4	2,710	965	923	740	965	1,020	1,750	5,570	1,130	644	570	145
5	2,550	932	989	770	960	1,250	1,770	5,360	1,100	688	367	82
6	2,370	909	1,220	919	956	1,310	1,800	5,100	921	624	236	80
7	2,240	948	1,420	994	965	1,290	1,810	4,860	765	502	428	68
8	2,120	1,050	1,510	1,050	965	1,260	1,810	4,650	777	446	370	97
9	1,980	1,010	1,590	1,030	965	1,230	1,800	4,480	769	458	244	123
10	1,820	980	1,700	1,020	982	1,210	1,780	4,390	761	476	242	118
11	1,570	956	1,800	1,020	951	1,180	1,790	4,300	770	410	232	139
12	1,360	928	1,890	1,000	956	1,150	1,770	4,240	948	358	228	152
13	1,320	909	1,930	970	951	1,140	1,750	4,140	874	302	222	162
14	1,250	882	1,990	918	923	1,120	1,750	3,960	753	364	226	152
15	1,050	891	1,930	909	937	1,100	1,750	3,750	757	352	240	172
16	1,030	878	1,890	891	923	1,080	1,730	3,500	627	340	244	168
17	965	873	1,860	886	909	1,050	1,730	3,220	461	323	242	121
18	882	864	1,820	905	882	1,040	1,750	3,000	491	320	246	176
19	876	882	1,780	989	864	1,010	1,830	2,810	556	375	230	188
20	918	886	1,750	975	886	994	1,960	2,620	609	707	213	185
21	951	903	1,680	951	891	975	2,110	2,450	578	748	209	137
22	880	805	1,620	937	905	937	2,340	2,330	536	748	217	129
23	732	546	1,550	900	905	914	2,600	2,270	651	720	232	103
24	836	536	1,480	860	905	886	2,870	2,200	910	779	357	38
25	909	550	1,430	868	905	882	3,170	2,120	1,260	665	500	38
26	824	570	1,370	873	909	941	3,520	2,040	1,270	613	690	79
27	873	584	1,340	878	923	1,090	3,890	1,890	987	542	738	146
28	794	617	1,270	873	928	1,180	4,420	1,580	612	426	708	60
29	788	705	1,140	873	-	1,270	4,970	1,560	446	271	611	35
30	975	860	1,040	886	-	1,380	5,370	1,540	646	269	332	94
31	989	-	1,020	914	-	1,470	-	1,530	-	380	236	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	45,744	3,210	732	1,476	2.04	2.35
November	25,406	1,050	536	847	1.17	1.30
December	45,533	1,990	860	1,469	2.03	2.34
Calendar year 1938	506,965	4,210	319	1,389	1.92	26.09
January	28,674	1,050	740	925	1.28	1.48
February	25,989	982	864	928	1.29	1.34
March	34,217	1,470	882	1,104	1.53	1.76
April	70,440	5,370	1,520	2,348	3.25	3.63
May	108,590	5,770	1,530	3,503	4.85	5.59
June	24,645	1,350	446	822	1.14	1.27
July	15,727	779	269	507	.702	.81
August	11,212	738	209	362	.501	.58
September	3,805	219	35	127	.176	.20
Water year 1938-39	439,982	5,770	35	1,205	1.67	22.65

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.
Drainage area.- 616 square miles.
Records available.- August 1910 to November 1917, January 1919 to September 1939.
Average discharge.- 26 years (1910-13, 1914-17, 1919-39), 1,088 second-feet.
Extremes.- Maximum discharge during year, 5,220 second-feet Apr. 28 (gage height, 9.12 feet); maximum gage height, 9.44 feet Mar. 27 (ice jam); minimum discharge, 152 second-feet Sept. 23 (gage height, 5.74).
1910-17, 1919-39: Maximum discharge, 16,800 second-feet Apr. 6, 1937 (gage height, 12.82 feet), from rating curve extended by logarithmic plotting above 8,240 second-feet; maximum gage height recorded, about 15.3 feet Apr. 6, 1937 (ice jam); minimum discharge, about 34 second-feet Aug. 8, 1917 (gage height, 5.25 feet).
Remarks.- Records good except those for periods of ice effect, Dec. 1, 2, Dec. 15 to Jan. 6, Jan. 14 to Apr. 17 (computed on basis of six discharge measurements during winter period, gage heights except Feb. 23 to Mar. 3, engineers' notes and weather records, and hydrographic comparison with nearby stations), and those for periods of faulty or missing gage heights, Nov. 12-15, May 6-11 (computed on basis of recorded range in stage, weather records, and hydrographic comparison with record of Grass River at Pyrites), which are fair. Diurnal fluctuation caused by operation of power plant upstream.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 27						Apr. 28 to Sept. 30			
5.9	250	6.4	683	8.0	3,020	5.7	129	7.2	1,720
6.0	321	6.6	915	8.5	3,950	5.8	187	8.0	3,020
6.1	399	6.8	1,170	9.0	4,970	6.0	330	8.7	4,350
6.2	485	7.0	1,440			6.3	592	9.1	5,180
6.3	580	7.5	2,180			6.6	913		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	990	399	380	360	320	1,400	2,600	3,530	1,140	612	338	201
2	891	383	300	360	320	1,200	3,200	2,970	962	703	279	194
3	795	352	321	340	300	1,000	2,600	2,550	833	622	266	187
4	728	368	579	340	300	800	2,200	2,100	713	554	315	194
5	604	344	903	500	300	700	1,900	1,930	642	526	285	241
6	516	352	1,280	750	300	900	1,800	1,760	767	463	278	221
7	452	376	2,320	1,300	300	1,600	2,000	1,610	778	1,280	270	207
8	403	399	2,240	1,220	300	1,300	2,200	1,540	767	1,270	270	201
9	399	408	1,810	1,070	300	1,100	2,400	1,520	602	992	308	194
10	472	442	1,870	1,320	320	900	2,200	1,720	532	767	308	207
11	388	416	1,900	1,740	340	750	2,400	1,820	573	713	308	248
12	321	399	1,780	1,290	360	650	2,200	1,500	612	533	315	285
13	365	376	1,550	1,040	340	600	1,800	1,290	971	507	292	338
14	348	595	1,270	850	340	550	2,000	1,180	1,180	481	344	248
15	340	701	1,100	700	340	500	2,600	1,130	1,500	446	270	262
16	348	717	900	650	320	650	2,200	1,050	1,450	395	248	308
17	278	590	1,000	500	320	600	2,000	1,010	1,310	338	228	210
18	314	504	850	360	440	550	2,730	986	1,250	362	221	181
19	329	975	750	500	650	500	3,910	962	1,190	362	201	210
20	344	1,160	650	400	900	480	4,110	937	1,020	354	277	175
21	408	1,130	600	460	1,200	460	3,950	890	810	346	407	164
22	453	898	550	420	1,100	440	4,660	1,150	705	338	353	158
23	459	747	500	400	900	420	4,970	1,960	689	300	300	164
24	420	583	480	400	750	400	4,700	2,520	793	262	270	175
25	504	395	450	380	650	480	4,270	2,040	986	248	221	187
26	580	344	440	360	600	800	4,430	1,680	1,010	214	214	294
27	552	425	420	360	800	4,000	4,930	1,410	879	201	221	254
28	476	383	420	340	1,100	3,800	5,160	1,190	724	207	255	533
29	442	468	400	340	-	3,000	4,800	1,310	632	221	221	647
30	468	494	380	320	-	2,600	4,190	1,480	545	344	214	735
31	442	-	380	320	-	2,400	-	1,310	-	408	201	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	14,829	990	278	478	0.776	0.89
November	16,123	1,160	344	537	.872	.97
December	28,783	2,320	300	928	1.51	1.74
Calendar year 1938	360,638	9,000	173	988	1.60	21.76
January	19,690	1,740	320	635	1.03	1.19
February	14,510	1,200	300	518	.841	.88
March	35,530	4,000	400	1,146	1.86	2.14
April	95,110	5,160	1,800	3,170	5.15	5.75
May	50,035	3,530	890	1,614	2.62	3.02
June	26,563	1,500	532	885	1.44	1.61
July	15,369	1,280	201	496	.805	.93
August	8,498	407	201	274	.445	.51
September	7,823	735	158	261	.424	.47
Water year 1938-39	332,863	5,160	158	912	1.48	20.10

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 Corporation.
Drainage area.- 132 square miles.
Records available.- July 1925 to September 1939.
Average discharge.- 14 years, 231 second-feet.
Extremes.- Maximum discharge during year, 1,320 second-feet Apr. 28 (gage height, 3.45 feet); minimum, 23 second-feet (regulated) Sept. 13 (gage height, 0.51 foot); minimum daily, 74 second-feet Aug. 18, Sept. 2, 3.
1925-39: Maximum discharge, 2,890 second-feet Apr. 25, 1926 (gage height, 5.0 feet), from rating curve extended above 2,340 second-feet on basis of velocity-area study; minimum, 20 second-feet (regulated) Oct. 25, 1934 (gage height, 0.46 foot); minimum daily, 28 second-feet Sept. 4, 1934.
Remarks.- Records good. Periods of missing gage heights, Feb. 22, Mar. 5, Apr. 6-8, 23, 24, computed on basis of record of power output at plant upstream. Diurnal fluctuation at low and medium stages caused by operation of power plant. A small diversion from tributary stream above gage is used as water supply for village of Malone.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

1.0	67	1.5	165	2.5	605
1.1	80	1.6	194	3.0	960
1.2	95	1.8	260	3.4	1,280
1.3	115	2.0	340		
1.4	139	2.2	435		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	152	101	125	142	112	192	221	717	252	180	92	83
2	176	89	95	142	115	202	237	588	197	157	90	74
3	113	115	114	142	130	191	236	479	210	179	94	74
4	146	102	136	122	133	180	232	425	164	122	126	76
5	108	89	162	144	107	160	235	391	190	138	107	113
6	136	136	310	170	115	187	240	368	251	128	90	152
7	118	110	431	209	128	198	245	364	233	229	88	98
8	118	123	323	200	124	172	245	354	159	132	78	131
9	101	112	260	168	114	186	251	379	189	184	93	106
10	126	112	320	128	102	164	240	444	157	110	134	121
11	103	116	316	223	151	157	269	375	136	152	90	172
12	90	90	274	145	112	157	263	330	336	104	90	163
13	130	145	246	130	130	144	236	283	284	89	92	97
14	90	155	208	117	119	157	244	248	338	135	90	131
15	120	152	143	143	127	146	290	229	368	89	92	90
16	103	106	160	158	133	153	263	203	287	94	79	140
17	88	149	195	158	155	139	266	202	268	121	75	93
18	101	118	160	133	138	137	421	168	251	89	74	93
19	90	225	157	145	127	139	652	191	228	121	99	130
20	135	192	155	126	167	146	765	210	162	96	246	91
21	129	172	123	126	220	139	710	190	181	90	139	107
22	146	157	211	158	220	126	850	269	118	89	94	114
23	125	139	155	110	204	136	964	422	174	88	94	92
24	124	116	166	134	200	142	875	651	223	88	95	100
25	152	116	173	149	190	137	785	469	229	88	140	123
26	151	117	114	118	165	187	964	364	204	86	136	127
27	157	126	176	117	173	392	1,210	308	174	79	92	150
28	113	113	125	129	172	483	1,270	277	187	96	92	234
29	141	107	184	131	-	438	1,100	389	120	177	92	162
30	93	142	149	121	-	386	892	353	199	103	92	132
31	137	-	167	127	-	302	-	287	-	142	90	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,812	176	88	123	0.932	1.07
November	3,842	225	89	128	.970	1.08
December	6,033	431	95	195	1.48	1.71
Calendar year 1938	75,158	2,020	60	206	1.56	21.18
January	4,465	223	110	144	1.09	1.26
February	4,083	220	102	146	1.11	1.16
March	6,177	483	126	199	1.51	1.74
April	15,671	1,270	221	522	3.95	4.41
May	10,947	717	188	353	2.67	3.08
June	6,469	368	118	216	1.64	1.83
July	3,775	229	79	122	.924	1.07
August	3,175	246	74	102	.773	.89
September	3,569	234	74	119	.902	1.01
Water year 1938-39	72,018	1,270	74	197	1.49	20.31

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., 1 mile south of Chateaugay, Franklin County.
Drainage area.- 112 square miles.
Records available.- September to December 1908, October 1926 to September 1939.
Average discharge.- 13 years (1926-39), 179 second-feet.
Extremes (regulated).- Maximum discharge during year, 1,050 second-feet Apr. 29 (gage height, 4.96 feet); minimum, 47 second-feet Nov. 22 (gage height, 1.10 feet); minimum daily discharge, 78 second-feet Sept. 29.

1908, 1926-39: Maximum discharge, 2,060 second-feet Apr. 8, 1928 (gage height, 7.3 feet), from rating curve extended by logarithmic plotting above 970 second-feet; minimum, 6 second-feet Nov. 20, 1928 (gage height, 0.23 foot); minimum daily discharge, 26 second-feet July 8, 1934.

Remarks.- Records good except those for periods of ice effect, Nov. 26-30, Dec. 14 to Mar. 23, Mar. 26, 27 (computed on basis of five discharge measurements during winter period, gage heights except Jan. 24-26, Mar. 13-16, weather records, observer's and engineers' inspections, and records of gate operations at Forge Dam on Chateaugay Lake), and those for periods of faulty or missing gage-height record, June 30 to July 2, July 5, 6 (computed on basis of fragmentary gage-height record, records of gate operations at Forge Dam on Chateaugay Lake and hydrographic study), which are fair. Flow regulated by storage in Upper and Lower Chateaugay Lakes. Large diurnal fluctuation at all stages caused by power operations.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Sept. 27						Sept. 27-30	
1.4	74	2.4	212	4.0	649	1.5	77
1.6	97	2.8	290	4.4	805	1.6	88
1.8	123	3.2	389	4.8	975	1.7	100
2.0	150	3.6	511				

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	97	98	110	118	200	284	881	257	155	104	101
2	107	97	97	108	120	190	306	831	248	155	103	99
3	106	97	110	104	122	180	271	691	235	154	108	99
4	107	95	112	104	120	180	273	592	226	154	105	100
5	107	99	102	106	120	185	275	480	226	150	105	104
6	106	100	120	122	120	230	275	400	238	145	105	100
7	105	98	107	116	118	210	274	292	235	143	105	99
8	104	99	104	112	118	230	274	223	233	135	102	100
9	102	98	109	114	118	240	277	189	230	127	106	95
10	101	97	116	140	120	240	273	148	228	124	105	97
11	102	96	113	130	118	240	290	141	231	124	104	100
12	101	93	114	120	120	240	276	141	229	124	103	96
13	101	101	112	116	125	245	272	140	228	122	105	96
14	100	96	110	112	135	250	293	139	241	124	103	92
15	99	97	108	110	135	250	282	138	240	122	102	94
16	99	95	108	110	130	250	266	138	235	123	105	89
17	98	97	106	110	140	260	271	138	242	122	104	88
18	98	100	104	110	140	240	368	137	237	122	102	87
19	99	101	104	104	135	260	364	134	233	121	102	87
20	100	98	104	110	150	270	327	131	229	121	102	84
21	100	93	104	118	170	245	349	131	217	121	100	81
22	99	86	104	124	165	260	368	178	158	121	100	80
23	100	97	106	124	160	260	431	179	161	120	101	85
24	102	97	106	122	155	263	542	352	163	117	104	86
25	102	97	110	122	155	256	825	301	161	111	107	86
26	100	96	112	120	165	350	837	241	159	111	104	85
27	99	96	112	120	180	440	861	238	158	106	102	95
28	98	94	112	120	185	314	939	240	158	105	101	83
29	98	96	112	120	-	302	921	293	157	106	102	78
30	98	100	106	118	-	288	903	284	155	105	101	84
31	97	-	112	118	-	272	-	264	-	105	102	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,142	107	97	101		
November	2,903	101	86	96.8		
December	3,354	120	97	108		
Calendar year 1938	60,839	975	80	167	1.49	20.17
January	3,594	140	104	116		
February	3,857	185	118	138		
March	7,840	440	180	253		
April	12,767	939	266	426		
May	8,805	881	131	284		
June	6,348	257	155	212		
July	3,895	155	105	126		
August	3,204	108	100	103		
September	2,750	104	78	91.7		
Water year 1938-39	62,459	939	78	171	1.53	20.74

Note.- Increase in storage in Chateaugay Lakes during calendar year 1938, about 66,211,200 cubic feet (equivalent mean discharge, 2.10 sec.-ft.; run-off 0.26 inch); increase in elevation, 0.50 ft., decrease during water year 1938-39, about 238,360,320 cubic feet (equivalent mean discharge, 7.56 sec.-ft.; run-off 0.92 inch); decrease in elevation, 1.80 ft.

Richelieu River (Lake Champlain) at Rouses Point, N. Y.

Location.- Water-stage recorder, lat. 44°59'45", long. 73°21'40", at outlet of Lake Champlain, 90 feet north of Rutland Railroad bridge in Rouses Point, Clinton County, and 1 mile south of Fort Montgomery. Zero of gage is 93.00 feet above mean sea level (general adjustment of 1929). Prior to Oct. 15, 1938, staff gage at same datum on railroad bridge was used.

Drainage area.- 8,277 square miles.

Records available.- January 1875 to September 1939. Prior to 1870, at St. Johns, Quebec (maximum and minimum monthly stage, published in Water-Supply Paper 97). Monthly discharge January 1875 to September 1916, at Chambly, Quebec (published in Water-Supply Paper 424). 1871-75, unpublished record of gage heights obtained by Corps of Engineers, U. S. Army, at Fort Montgomery.

Extremes.- Maximum gage height during year, 8.10 feet May 1; minimum, 0.20 foot Sept. 26.
1871-1939: Maximum gage height observed, 8.80 feet Mar. 30, 1903; observations at St. Johns, Quebec, indicate a maximum computed gage height of 8.83 feet during April 1869; minimum observed, -0.60 foot Nov. 13, 1908.

Remarks.- Staff gage read once daily Oct. 1-14. Gage-height record Oct. 1-14 furnished by Corps of Engineers, U. S. Army.

Gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.82	2.51	1.76	3.03	2.15	2.42	3.61	8.07	5.37	3.51	1.90	1.29
2	3.80	2.43	1.85	2.94	2.15	2.43	4.03	8.06	5.28	3.41	1.88	1.25
3	3.82	2.60	2.23	2.92	2.08	2.52	4.23	8.00	5.24	3.42	2.00	1.19
4	3.75	2.52	1.90	2.90	2.07	2.52	4.31	7.94	5.06	3.39	1.98	1.44
5	3.80	2.40	1.90	2.94	2.08	2.53	4.35	7.85	4.96	3.38	1.93	1.15
6	3.50	2.31	2.16	2.91	2.04	2.63	4.42	7.80	4.78	3.37	1.98	1.01
7	3.55	2.36	2.53	2.89	2.02	2.70	4.46	7.71	4.75	3.36	1.93	.97
8	3.65	2.40	2.81	2.84	2.03	2.82	4.57	7.73	4.67	3.33	1.89	1.02
9	3.42	2.22	2.89	2.84	1.96	2.89	4.59	7.71	4.54	3.21	2.04	.98
10	3.40	2.20	3.05	2.86	2.07	2.93	4.64	7.64	4.44	3.15	1.83	1.01
11	3.50	2.19	3.39	2.75	1.94	2.95	4.70	7.54	4.41	3.09	1.78	.92
12	3.34	2.04	3.59	2.76	1.95	2.94	4.75	7.41	4.38	2.97	1.90	.93
13	3.50	2.35	3.68	2.77	1.87	2.96	4.78	7.39	4.29	3.06	1.89	.96
14	3.30	2.00	3.76	2.73	1.89	2.97	4.82	7.23	4.28	2.96	1.68	1.05
15	3.18	1.91	3.63	2.71	1.91	2.98	4.89	7.15	4.31	2.86	1.67	.99
16	3.10	1.94	3.72	2.68	1.94	2.92	4.98	6.98	4.16	2.74	1.69	.95
17	3.01	2.16	3.99	2.60	2.02	2.91	5.05	6.76	4.16	2.61	1.64	.73
18	2.96	2.00	3.60	2.57	1.99	2.89	5.21	6.52	4.10	2.53	1.61	.78
19	3.04	1.91	3.55	2.55	1.97	2.87	5.39	6.46	4.19	2.47	1.61	.86
20	2.85	2.05	3.52	2.52	2.01	2.87	5.83	6.31	4.03	2.37	1.64	.84
21	2.81	2.03	3.50	2.51	2.05	2.81	6.22	6.21	3.87	2.30	1.58	.72
22	2.75	2.33	3.37	2.46	2.16	2.80	6.58	6.10	3.83	2.26	1.53	.76
23	2.90	1.88	3.49	2.37	2.24	2.78	6.95	6.03	3.86	2.25	1.50	.75
24	2.79	1.92	3.49	2.39	2.28	2.77	7.24	6.04	3.73	2.18	1.54	.68
25	2.70	1.83	3.31	2.27	2.27	2.78	7.45	5.98	3.62	2.12	1.50	.89
26	2.92	2.04	3.31	2.25	2.31	2.85	7.66	5.88	3.58	2.07	1.40	.60
27	2.62	1.91	3.39	2.24	2.33	3.01	7.73	5.85	3.57	2.11	1.36	.73
28	2.58	2.03	3.20	2.22	2.39	3.27	7.91	5.70	3.54	2.08	1.35	.67
29	2.58	2.12	3.29	2.15	-	3.47	8.03	5.64	3.58	2.06	1.38	1.03
30	2.43	1.91	3.09	2.09	-	3.61	8.07	5.63	3.56	2.09	1.25	.70
31	2.51	-	3.10	2.12	-	3.72	-	5.45	-	2.04	1.24	-

Monthly gage height, water year October 1938 to September 1939

Month	Gage height, in feet		
	Maximum	Minimum	Mean
October	3.82	2.43	3.16
November	2.60	1.61	2.14
December	3.99	1.76	3.10
January	3.03	2.09	2.61
February	2.39	1.67	2.08
March	3.72	2.42	2.89
April	8.07	3.81	5.59
May	8.07	5.45	6.86
June	5.37	3.54	4.27
July	3.51	2.04	2.73
August	2.04	1.24	1.66
September	1.44	.60	.93
Water year 1938-39	8.07	.60	3.18

Lake Champlain at Burlington, Vt.

Location.- Water-stage recorder, lat. 44°29'00", long. 73°13'30", half a mile north of railroad station in Burlington, Chittenden County. Prior to Sept. 8, float gage at site 0.1 mile, south at same datum. Zero of gage ie about 92.5 feet above mean sea level.

Records available.- May 1907 to September 1939.

Extremes.- Maximum gage height observed during year, 8.33 feet May 1, 2; minimum, 0.61 foot Sept. 25.
1907-39: Maximum gage height observed, 8.65 feet Mar. 27, 28, 1936; minimum, -0.25 foot Dec. 4, 1908.

Remarks.- Gage read once daily on days for which gage heights are shown; not read on other days. Gage-height record prior to Sept. 8 furnished by Water Department, city of Burlington.

Gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.07	2.68	2.04	3.22	2.26	2.48	3.89	8.33	5.58	3.34	2.12	1.40
2	4.04	2.67	2.03	3.18	2.22	2.51	4.22	8.33	5.46	3.44	2.06	1.36
3	4.01	2.61	2.15	3.18	2.24	2.56	4.34	8.28	5.33	3.44	1.98	1.36
4	3.96	2.48	2.00	3.16	2.24	2.55	4.44	8.16	5.19	3.28	2.12	1.34
5	3.92	2.50	1.95	3.09	2.16	2.60	4.51	8.08	5.05	3.33	2.00	1.28
6	3.90	2.52	2.26	3.16	2.12	2.62	4.51	8.03	5.04	3.28	-	1.20
7	3.84	2.46	2.62	3.06	2.17	2.76	4.61	8.00	4.88	3.18	-	1.20
8	3.80	2.40	2.96	2.98	2.14	2.92	4.68	7.86	4.78	3.16	-	1.12
9	3.72	2.35	3.06	3.03	2.11	2.92	4.74	7.86	4.73	3.08	-	1.10
10	3.66	2.32	3.23	2.83	2.08	2.96	4.78	7.78	4.65	3.00	-	1.10
11	3.56	2.32	3.76	2.98	2.04	2.98	4.88	7.74	4.50	2.94	-	1.10
12	3.56	2.26	3.62	2.98	2.02	2.98	4.88	7.72	4.50	-	-	1.08
13	3.46	2.16	3.84	2.98	2.08	3.04	4.94	7.54	4.48	2.81	-	1.05
14	3.41	2.10	3.75	3.03	2.07	3.06	4.94	7.50	4.44	2.76	-	.96
15	3.39	2.10	3.75	-	2.00	3.04	5.04	7.27	4.38	2.70	-	.94
16	3.30	2.15	-	-	2.10	3.04	5.20	7.08	4.32	2.52	1.60	.94
17	3.26	2.05	-	-	2.04	2.99	5.22	6.85	4.33	2.52	-	.94
18	3.23	2.03	3.84	-	2.13	2.96	5.32	6.88	4.29	2.54	-	.93
19	3.11	2.04	3.62	2.65	2.06	2.93	5.64	8.66	4.18	2.52	1.70	.89
20	3.08	2.18	3.80	2.65	2.22	2.93	5.94	6.54	4.32	-	1.69	.83
21	3.08	2.20	3.64	2.60	2.16	2.90	6.33	6.44	4.22	2.44	1.67	.82
22	3.02	2.14	3.59	2.56	2.42	2.90	6.68	6.28	4.00	2.34	-	.80
23	2.93	2.16	3.55	2.49	2.32	2.86	7.16	6.20	3.98	-	-	.78
24	2.86	2.20	3.51	2.40	2.35	2.86	7.38	6.18	3.84	-	-	.76
25	2.93	2.25	3.50	2.39	2.40	2.87	7.68	8.18	3.77	-	1.64	.70
26	2.84	2.22	3.48	2.41	2.41	2.88	7.78	8.10	3.75	-	1.62	.72
27	2.84	2.15	3.40	2.38	2.48	3.03	8.00	6.05	3.61	-	1.55	.74
28	2.85	2.02	3.33	2.33	2.45	3.34	8.13	5.93	3.54	-	1.63	.80
29	2.85	2.03	3.29	-	-	3.54	8.23	5.87	3.57	2.12	1.54	.72
30	2.82	2.08	3.29	2.26	-	3.64	8.28	5.65	3.48	2.12	-	.73
31	2.86	-	3.20	2.20	-	3.80	-	5.66	-	2.12	1.43	-

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 1939.

Average discharge.- 11 years, 277 second-feet.

Extremes.- Maximum discharge during year, 3,270 second-feet Apr. 20 (gage height, 7.36 feet); minimum, 22 second-feet (regulated) July 18 (gage height, 1.85 feet); minimum daily discharge, 47 second-feet (regulated) July 18, Aug. 28.
1928-39: Maximum discharge, 6,000 second-feet Apr. 7, 1937 (gage height, 9.74 feet); maximum gage height, 11.2 feet Mar. 15, 1929; minimum discharge, about 0.8 second-foot (regulated) Sept. 18, 1932 (gage height, 1.33 feet); minimum daily discharge, 10 second-feet (regulated) Sept. 18, 1932.

Remarks.- Records good except those for periods of ice effect, Nov. 23 to Dec. 5, Dec. 14 to Apr. 17, which were computed on basis of five discharge measurements during winter period, gage heights, weather records, observer's notes, and unpublished record of discharge from Chazy Lake and are fair. Diurnal fluctuation at low and medium stages caused by operation of sawmill nearby. Partial regulation by storage in Chazy Lake. Clinton Prison at Dannemora obtains its water supply from Chazy Lake.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.0	39	2.9	218	4.5	910
2.1	52	3.2	316	5.0	1,210
2.2	66	3.4	388	6.0	1,960
2.4	97	3.6	466	7.2	3,110
2.6	135	4.0	640		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	97	90	110	110	240	550	649	323	204	91	84
2	104	96	90	110	110	220	1,200	554	246	165	88	83
3	102	86	85	110	110	200	1,100	466	204	143	72	84
4	97	84	120	110	110	190	900	411	199	108	105	87
5	92	89	204	120	110	190	750	382	185	99	97	89
6	97	101	294	220	100	180	700	349	216	147	77	87
7	88	97	447	260	100	190	700	327	162	294	68	85
8	99	92	344	240	100	140	750	321	151	176	123	78
9	95	83	274	200	100	120	800	356	157	126	160	74
10	90	92	407	200	110	120	850	496	134	109	136	63
11	96	96	422	300	120	140	850	397	132	101	109	94
12	90	98	344	240	110	170	750	298	320	91	84	92
13	90	99	239	220	110	160	700	257	371	75	85	90
14	86	107	190	190	120	140	650	228	465	78	79	89
15	87	116	150	170	120	120	750	202	673	80	87	87
16	84	110	140	160	170	120	1,200	149	430	82	84	86
17	78	104	130	150	190	120	1,000	141	332	73	83	84
18	86	110	170	140	190	120	1,880	133	316	47	84	85
19	87	116	160	130	190	120	2,570	130	242	57	83	86
20	80	120	150	130	240	110	3,050	141	191	58	81	85
21	81	120	140	120	380	110	2,340	137	165	78	64	87
22	92	109	140	120	300	100	2,360	204	153	72	70	84
23	89	100	120	130	260	100	2,120	570	158	74	80	86
24	97	95	120	120	240	100	1,800	1,250	185	71	66	90
25	95	90	110	120	220	110	1,620	787	217	101	96	89
26	98	85	110	120	200	120	1,370	425	189	103	79	96
27	107	85	110	120	220	340	1,510	298	154	66	71	107
28	97	85	100	120	220	750	1,250	245	132	54	47	152
29	94	85	100	120	-	600	993	788	124	68	70	135
30	94	95	100	110	-	600	794	946	162	113	87	117
31	89	-	100	110	-	550	-	489	-	95	85	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,871	110	78	92.6	0.375	0.43
November	2,942	120	83	98.1	.397	.44
December	5,700	447	85	184	.745	.86
Calendar year 1938	93,427	4,400	23	256	1.04	14.07
January	4,820	300	110	155	.628	.72
February	4,660	380	100	166	.672	.70
March	6,590	750	100	213	.862	.99
April	38,057	3,050	550	1,269	5.14	5.74
May	12,526	1,250	130	404	1.64	1.89
June	7,088	673	124	236	.955	1.07
July	3,258	294	47	105	.425	.49
August	2,711	160	47	87.5	.354	.41
September	2,755	152	74	91.8	.372	.42
Water year 1938-39	93,978	3,060	47	257	1.04	14.16

Saranac River at Saranac, N. Y.

Location.- Water-stage recorder, lat. 44°38'45", long. 73°44'40", 500 feet upstream from highway bridge at Saranac, Clinton County.
Drainage area.- 521 square miles.
Records available.- September 1930 to September 1939.
Extremes.- Maximum discharge during year, 3,960 second-feet Apr. 27; maximum gage height, over 11.0 feet during February (ice jam); minimum, 91 second-feet (regulated) Sept. 3 (gage height, 1.72 feet); minimum daily discharge, 132 second-feet July 23, Aug. 28.
1930-39: Maximum discharge, 5,780 second-feet Apr. 17, 1933, from rating curve extended by logarithmic plotting above 3,700 second-feet; maximum gage height, 12.74 feet Dec. 2, 1936 (ice jam); minimum discharge, 67 second-feet (regulated) Aug. 27, 1934 (gage height, 1.63 feet); minimum daily discharge, 96 second-feet (regulated) Sept. 22, Nov. 10, 12, 1934.
Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 12-17, 20-23, Dec. 27 to Apr. 3 (computed on basis of four discharge measurements during winter period, gage heights except Jan. 20 to Mar. 1, Mar. 20-24, Apr. 1-3, weather records and record of Kents Falls power-plant at Cadyville), and those for periods of missing gage heights, Oct. 18-30, Nov. 1-6, (computed on basis of recorded range in stage, record of Kents Falls power-plant at Cadyville and record of power plant at Union Falls), which are fair. Considerable diurnal fluctuation at all stages caused by operation of power plants. Flow partly regulated by storage in Lower Saranac Lake and elsewhere.
Revisions.- Revised figures of discharge for period Sept. 21-30, 1938, are given below. They supersede those published in Water-Supply Papers 854 and 867. Figures of discharge for October 1938, given below, supersede those published in Water-Supply Paper 867.

Sept. 21	1,350	Sept. 23	2,060	Sept. 25	1,780	Sept. 27	1,520	Sept. 29	1,370
22	2,210	24	2,100	26	1,640	28	1,440	30	1,240

Month	Second foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
September	25,399	2,210	282	847	1.63	1.82
Water year 1937-38	269,863	4,650	166	739	1.42	19.26

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,150	550	550	600	480	600	1,100	2,690	955	612	362	249
2	936	550	480	600	500	500	1,300	2,400	911	560	272	147
3	922	460	600	480	500	440	1,200	2,180	824	538	183	196
4	876	440	548	650	550	440	1,050	2,080	650	566	294	274
5	746	480	670	550	360	380	964	1,900	618	556	359	364
6	728	600	922	750	420	600	941	1,700	754	576	244	394
7	649	531	845	600	480	550	980	1,560	635	578	198	322
8	640	504	644	500	500	460	973	1,640	600	486	358	380
9	597	516	582	550	340	600	962	1,650	537	554	364	244
10	636	476	996	550	280	750	930	1,690	451	527	402	200
11	652	464	860	800	300	700	967	1,640	519	610	258	199
12	623	472	850	500	400	800	934	1,550	1,020	590	271	194
13	624	476	850	460	420	600	906	1,460	734	628	248	210
14	502	579	900	550	380	750	1,030	1,290	842	660	144	216
15	599	558	650	480	400	650	1,080	1,310	886	607	358	210
16	518	506	760	480	360	650	936	1,200	846	598	320	288
17	618	547	750	460	550	600	1,080	1,140	906	625	210	280
18	650	703	720	400	600	500	1,610	889	781	630	223	250
19	700	703	776	440	460	600	2,260	602	756	624	374	230
20	700	564	650	420	340	500	2,750	522	740	627	244	306
21	550	501	600	460	550	650	2,500	479	682	576	198	245
22	400	514	600	550	550	600	2,910	688	635	418	298	246
23	400	524	600	440	460	650	3,040	957	682	132	201	270
24	500	478	638	500	650	650	2,870	1,300	677	239	399	190
25	700	451	647	500	440	600	2,760	1,100	629	356	294	274
26	650	380	506	480	500	600	3,240	1,030	666	414	378	238
27	600	440	600	500	460	1,100	3,650	1,010	650	310	226	245
28	480	480	500	440	460	1,300	3,530	898	618	347	132	243
29	460	600	480	480	-	1,200	3,290	1,150	610	609	348	164
30	500	600	600	440	-	1,200	2,980	1,110	686	380	288	272
31	569	-	500	440	-	1,100	-	1,030	-	338	395	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	19,875	1,150	400	641	1.23	1.42
November	15,647	703	380	522	1.00	1.12
December	20,864	996	480	673	1.29	1.49
Calendar year 1938	280,889	4,650	176	770	1.48	20.05
January	16,050	800	400	518	.994	1.15
February	12,690	650	280	453	.869	.90
March	21,320	1,300	380	688	1.32	1.62
April	54,723	3,660	906	1,824	3.50	3.90
May	41,845	2,690	479	1,350	2.59	2.99
June	21,530	1,020	451	718	1.38	1.54
July	15,871	660	132	512	.983	1.13
August	8,843	402	132	285	.647	.63
September	7,540	394	147	251	.482	.54
Water year 1938-39	256,798	3,650	132	704	1.35	18.33

Peak discharge.- Apr. 21 (11 p.m.) 2,900 sec.-ft.; Apr. 27 (9 p.m.) 3,960 sec.-ft.

244522 O—40—11

West Branch of 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 1939.

Average discharge.- 20 years (1919-39), 221 second-feet.

Extremes.- Maximum discharge during year, 2,390 second-feet Dec. 6 (gage height, 6.62 feet); minimum, 28 second-feet (regulated) Sept. 4 (gage height, 2.25 feet); minimum daily, 39 second-feet (regulated) Sept. 4.
1916-17, 1919-39: Maximum discharge, 10,800 second-feet Sept. 22, 1938 (gage height, 12.20 feet), from rating curve extended by logarithmic plotting above 3,200 second-feet; practically no flow Sept. 13, 1920, caused by closing gates in logging dam (gage height, 1.60 feet); minimum daily, 7.2 second-feet (regulated) July 29, 1920.

Remarks.- Records excellent except those for periods of ice effect, Nov. 27, 28, Dec. 14, 15, 24, 25, Dec. 30 to Jan. 5, Jan. 22 to Apr. 19 (computed on basis of six discharge measurements during winter period, gage heights, observer's notes, weather records, and records for stations at and near Ausable Forks), and those for period of missing gage heights, July 27-29 (computed on basis of records for station on East Branch of Ausable River at Ausable Forks), which are fair. Diurnal fluctuation at low and medium stages caused by operation of power plants.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.4	39	3.0	132	4.8	905
2.5	49	3.2	184	5.2	1,180
2.6	61	3.6	316	5.6	1,480
2.7	75	4.0	484	6.2	1,990
2.8	91	4.4	680		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	236	97	100	85	75	220	220	632	180	230	53	46
2	209	93	80	80	70	200	260	522	156	152	50	43
3	178	90	88	80	70	170	230	443	137	117	46	42
4	166	88	202	75	70	150	200	486	135	100	64	39
5	152	93	266	85	70	140	170	512	134	96	67	40
6	142	163	1,090	189	70	160	180	618	143	78	52	46
7	129	152	650	249	75	180	170	1,180	124	88	50	47
8	123	130	384	184	90	160	160	1,080	113	83	46	65
9	120	130	279	146	85	140	150	1,080	103	81	54	45
10	101	112	414	156	85	130	140	1,390	95	68	58	51
11	106	111	351	267	85	120	150	777	101	68	54	66
12	97	97	295	228	80	110	180	513	413	64	53	78
13	98	105	236	157	80	110	150	388	213	55	101	60
14	90	241	190	147	75	100	140	315	243	60	198	53
15	86	170	160	125	110	100	140	280	274	54	90	51
16	86	136	169	125	170	110	130	270	198	57	74	46
17	82	124	172	125	180	100	120	262	199	60	69	51
18	78	124	164	101	160	100	220	308	204	59	62	39
19	80	315	150	105	150	90	700	252	156	58	60	43
20	117	282	137	109	220	95	874	234	135	53	87	46
21	116	206	130	99	440	90	579	267	125	52	83	43
22	104	168	115	95	280	85	1,110	427	106	51	70	43
23	85	157	109	90	220	85	887	552	126	52	56	44
24	147	127	100	85	180	100	609	564	173	49	53	40
25	404	103	100	85	160	110	911	383	180	45	62	41
26	207	97	98	80	140	240	1,700	310	176	45	57	44
27	165	95	108	75	170	950	1,940	260	147	50	50	44
28	138	100	100	75	180	650	1,740	324	126	70	47	57
29	122	105	98	75	-	400	1,180	317	105	62	46	59
30	118	108	95	75	-	280	850	260	200	60	45	60
31	118	-	90	75	-	240	-	214	-	54	46	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,200	404	78	135	1.16	1.34
November	4,119	315	88	137	1.18	1.32
December	6,720	1,090	80	217	1.87	2.16
Calendar year 1938	90,036	5,660	46	247	2.13	28.88
January	3,727	267	75	120	1.03	1.19
February	3,840	440	70	137	1.18	1.23
March	5,915	950	85	191	1.65	1.90
April	16,220	1,940	120	541	4.66	5.20
May	15,420	1,390	214	497	4.28	4.93
June	4,920	413	95	164	1.41	1.57
July	2,271	230	45	73.3	.632	.73
August	2,003	198	45	64.6	.557	.64
September	1,472	78	39	49.1	.423	.47
Water year 1938-39	70,827	1,940	39	194	1.67	22.68

Peak discharge.- Apr. 27 (12:15 a.m.) 2,210 sec.-ft.; Apr. 28 (12:45 a.m.) 2,050 sec.-ft.

Ausable River near Ausable Forks, N. Y.

Location.- Water-stage recorder, lat. 44°27'05", long. 73°38'35", 1¼ miles downstream from confluence of East and West Branches of Ausable River at Ausable Forks, Clinton County.
Drainage area.- 448 square miles.
Records available.- September 1924 to September 1939. August 1910 to September 1925, at Ausable Forks 1¼ miles upstream.
Average discharge.- 15 years (1924-39), 691 second-feet.
Extremes.- Maximum discharge during year, 6,440 second-feet Apr. 27 (gage height, 6.32 feet), minimum, 133 second-feet (regulated) Aug. 30 to Sept. 5 (gage height, 1.25 feet, affected by backwater from trash).
1910-39: Maximum discharge, 24,200 second-feet Sept. 22, 1938 (gage height, 11.65 feet), from rating curve extended by logarithmic plotting above 9,100 second-feet; maximum gage height, about 14.0 feet Mar. 27, 1934, caused by ice jam; practically no flow July 21, 1912.
Remarks.- Records good except those for periods of ice effect, Nov. 26-28, Dec. 14 to Jan. 10, Jan. 13 to Mar. 26, Mar. 30 to Apr. 7, Apr. 9-18 (computed on basis of six discharge measurements during winter period, gage heights, weather records, observer's and engineers' notes, and hydrographic comparison with records for stations on East and West Branches of Ausable River and Black Brook at Black Brook), and those for period of backwater from trash, Aug. 20 to Sept. 30 (computed on basis of two discharge measurements, gage heights, weather records, and hydrographic comparison with sum of discharge of East and West Branches of Ausable River and Black Brook at Black Brook), which are fair. Flow partly regulated by storage, principally in Taylor Pond and Fern Lake. Diurnal fluctuations at low and medium stages caused by power operations upstream.

Rating tables, water year 1938-39 except periods of ice effect and period of trash on control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 19				Nov. 20 to Sept. 30			
1.5	215	2.2	545	1.2	122	2.9	1,085
1.6	252	2.4	670	1.4	181	3.5	1,690
1.8	335	2.6	815	1.6	253	4.2	2,610
2.0	433	2.8	980	1.9	391	5.0	3,850
				2.3	630	6.1	5,950

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	533	331	376	360	280	650	1,000	1,920	614	686	184	150
2	476	318	312	360	280	600	1,200	1,570	514	499	176	150
3	444	309	391	340	260	500	950	1,330	456	358	179	145
4	408	292	575	380	260	480	750	1,450	399	300	198	145
5	378	296	852	480	260	500	700	1,600	394	257	229	145
6	363	362	2,900	700	260	550	700	1,810	434	220	201	150
7	335	402	2,340	900	280	600	750	3,270	372	233	180	160
8	318	358	1,330	750	320	550	695	3,330	332	214	175	165
9	308	349	978	650	300	480	650	3,190	318	220	197	180
10	293	331	1,580	700	300	440	600	3,910	279	201	210	165
11	284	314	1,550	1,110	300	420	600	2,480	280	182	217	180
12	273	308	1,160	878	280	400	700	1,620	1,130	190	189	200
13	266	301	894	650	280	380	600	1,180	848	195	184	210
14	262	501	650	550	280	380	650	962	801	199	405	165
15	262	487	480	460	360	380	750	806	885	198	290	170
16	248	402	440	440	500	420	650	819	640	192	235	155
17	245	363	480	400	500	400	650	758	676	200	241	145
18	241	363	500	360	480	400	1,300	852	688	195	216	155
19	230	589	460	340	460	380	2,790	766	517	200	200	145
20	258	792	400	320	650	380	3,820	739	408	190	230	180
21	301	606	360	300	1,200	360	2,490	773	356	194	270	160
22	322	499	340	300	900	360	3,970	1,100	314	184	240	145
23	280	472	320	280	700	360	3,480	1,870	332	176	200	140
24	328	380	340	280	550	400	2,510	2,050	450	171	185	140
25	947	280	340	260	500	550	3,000	1,480	443	175	190	140
26	659	280	320	260	480	1,300	5,030	1,060	456	172	185	150
27	480	300	360	260	500	4,120	5,850	862	394	184	170	160
28	423	360	340	260	550	2,910	5,000	883	338	232	155	175
29	382	430	320	280	-	1,890	3,560	1,140	293	218	155	185
30	360	420	300	280	-	1,400	2,610	964	387	198	150	190
31	354	-	320	280	-	1,200	-	732	-	192	150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	11,261	947	230	363	0.810	0.93
November	11,795	792	280	393	.877	.98
December	22,308	2,900	300	720	1.61	1.86
Calendar year 1938	260,231	14,300	142	713	1.59	21.59
January	14,168	1,110	260	457	1.02	1.18
February	12,270	1,200	260	438	.978	1.02
March	24,140	4,120	360	779	1.74	2.01
April	58,005	5,850	600	1,934	4.32	4.82
May	47,256	3,910	732	1,524	3.40	3.92
June	14,748	1,130	279	492	1.10	1.23
July	7,225	686	171	233	.520	.60
August	6,386	405	150	206	.460	.53
September	4,845	210	140	162	.362	.40
Water year 1938-39	234,407	5,850	140	642	1.43	19.48

Peak discharge.- Apr. 27 (1:30 a.m.) 6,440 sec.-ft.; Apr. 28 (1 a.m.) 6,060 sec.-ft.

Black Brook at Black Brook, N. Y.

Location.- Water-stage recorder, lat. 44°26'50", long. 73°44'45", 100 feet downstream from hydroelectric plant of Associated Gas & Electric System and three-quarters of a mile south of Black Brook, Clinton County.

Drainage area.- 49.4 square miles.

Records available.- September 1924 to September 1939.

Average discharge.- 15 years, 51.6 second-feet.

Extremes (regulated).- Maximum discharge during year, 373 second-feet Apr. 20 (gage height, 4.29 feet); minimum, 8.1 second-feet July 8 (gage height, 1.465 feet).
1924-39: Maximum discharge, 1,050 second-feet Apr. 6, 1937 (gage height, 6.95 feet), from rating curve extended by logarithmic plotting above 450 second-feet; minimum, 0.8 second-foot July 2 and Aug. 29, 1931 (plant shut down).

Remarks.- Records good except those for periods of ice effect, Nov. 25-27, Dec. 1-3, 15-18, Dec. 22 to Jan. 7, Jan. 12-14, Jan. 17 to Feb. 19, Feb. 23 to Mar. 3, Mar. 7-15, 19-24 (computed on basis of five discharge measurements during winter period, gage heights, weather records, observer's notes, engineers' inspections, records of gate operations at Fern Lake and Taylor Pond, and hydrographic comparison with records for other stations in Ausable River Basin), and those for period recorder graph had multiple trace and dates were in doubt, Feb. 27 to Mar. 17 (computed on basis of records for station on East Branch of Ausable River at Ausable Forks and Ausable River near Ausable Forks); which are fair. Flow regulated by storage in Fern Lake and Taylor Pond. Power plant above station not operated during year.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 20				Apr. 20 to Sept. 30			
1.6	12.8	2.6	96	1.4	6.0	2.3	61
1.7	18	3.0	147	1.5	9.2	2.6	91
1.8	24	3.5	229	1.6	13.0	3.0	144
2.0	37	4.0	325	1.8	23	3.6	240
2.2	54	4.2	367	2.0	36	4.3	375

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	54	60	60	50	80	76	86	35	21	52	53
2	26	54	60	55	55	70	92	73	28	16	54	51
3	23	52	55	55	55	65	80	65	24	13	64	50
4	21	53	67	50	55	72	71	59	22	11	64	49
5	20	53	72	65	50	72	65	56	22	10	61	49
6	19	60	108	90	60	70	61	53	28	10	59	55
7	17	60	130	75	65	75	60	51	24	9	57	60
8	16	58	87	63	70	70	61	50	20	11	56	62
9	16	57	53	62	70	70	69	50	18	20	59	61
10	17	53	84	66	75	65	71	57	16	19	56	60
11	17	52	108	86	75	65	72	53	16	16	51	63
12	16	51	84	75	75	65	70	43	43	46	48	61
13	16	53	61	70	70	65	65	36	35	53	49	59
14	16	59	47	65	70	65	75	33	36	54	53	58
15	15	56	36	60	75	75	95	31	42	55	48	57
16	15	54	28	54	75	92	93	29	30	53	55	56
17	15	52	34	50	70	87	94	27	29	53	63	56
18	17	54	30	50	70	85	141	27	30	52	59	56
19	14	60	28	50	80	80	273	27	22	51	57	63
20	15	59	27	70	86	75	360	30	18	56	57	95
21	21	57	25	65	89	75	265	29	16	61	56	86
22	59	53	22	60	63	75	306	39	14	58	55	85
23	54	52	22	55	80	75	301	65	17	55	53	54
24	55	50	20	55	75	80	251	109	24	52	53	53
25	61	48	19	55	75	89	200	102	25	58	54	52
26	34	46	19	55	70	105	213	57	22	57	53	56
27	22	50	18	50	75	153	221	41	17	55	51	56
28	43	61	26	55	65	146	204	35	14	56	50	58
29	57	60	24	60	-	106	144	68	12	59	49	53
30	55	61	22	55	-	96	108	70	17	54	48	58
31	54	-	70	55	-	81	-	48	-	53	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	878	61	14	28.3		
November	1,642	61	46	54.7		
December	1,546	130	18	49.9		
Calendar year 1938	17,243.6	494	5.8	47.2	0.955	12.98
January	1,891	90	50	61.0		
February	1,983	89	50	70.8		
March	2,544	153	65	82.1		
April	4,257	360	60	142		
May	1,599	109	27	51.6		
June	716	43	12	23.9		
July	1,247	61	9	40.2		
August	1,693	64	48	54.6		
September	1,735	95	49	57.8		
Water year 1938-39	21,731	360	9	59.5	1.20	16.34

East Branch of 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 of Ausable River. Zero of gage is 545.32 feet above mean sea level (general adjustment of 1912). Prior to Oct. 8, hook gage at same site and datum.

Drainage area.- 198 square miles.

Records available.- September 1924 to September 1939.

Average discharge.- 15 years, (1924-39), 312 second-feet.

Extremes.- Maximum discharge during year, 10,600 second-feet Mar. 27 (gage height, 9.24 feet), from rating curve extended above 5,800 second-feet by logarithmic plotting and velocity-area studies; minimum, 31 second-feet Sept. 26 (gage height, 0.99 foot).

1924-39: Maximum discharge, 20,100 second-feet Sept. 22, 1938 (gage height, 12.91 feet, present site and datum, or 11.2 feet, former site and datum, from floodmarks); minimum discharge observed, 20 second-feet Aug. 11, 14, 28, 1934.

Remarks.- Records excellent except those for periods of ice effect, Nov. 24-28, Dec. 6, 16, 17, Dec. 20 to Jan. 4, Jan. 13 to Mar. 30, which were computed on basis of five discharge measurements during winter, gage heights, observer's notes, and weather records and are fair. Hook gage read twice daily Oct. 1-7.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 27

1.4	88	2.4	363	4.0	1,410
1.6	122	2.6	450	4.5	1,860
1.8	166	2.8	548	5.0	2,470
2.0	219	3.0	655		
2.2	285	3.5	990		

Mar. 28 to Sept. 30

1.0	32	1.4	84
1.1	42	1.6	122
1.2	54		

Note.- Same as preceding table above 1.6 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	199	128	159	160	95	260	498	837	247	300	52	43
2	184	124	109	180	110	240	622	673	208	216	46	42
3	166	118	151	170	110	200	432	579	181	161	42	41
4	154	117	361	200	100	190	331	667	166	128	58	40
5	150	115	538	260	100	190	319	777	152	108	65	40
6	139	126	1,700	414	100	200	335	951	164	97	54	42
7	128	132	1,090	528	100	220	355	1,810	141	104	46	43
8	128	128	622	414	110	190	338	1,730	126	91	44	41
9	124	126	478	355	100	180	312	1,630	120	89	53	42
10	120	118	856	407	100	170	268	2,020	108	78	73	42
11	115	111	771	667	110	160	271	1,210	106	71	36	49
12	113	109	569	476	110	170	300	768	631	65	71	60
13	109	109	423	320	100	160	278	543	411	62	61	49
14	108	195	339	240	100	160	320	428	443	60	143	43
15	104	184	218	190	130	160	376	367	424	57	106	40
16	102	157	180	200	180	160	304	339	274	57	86	36
17	99	141	220	160	190	160	304	327	328	58	78	34
18	101	141	278	140	180	160	688	367	295	58	67	33
19	96	264	238	130	170	150	1,430	331	208	57	60	33
20	106	335	200	120	240	150	1,950	315	166	53	105	32
21	115	257	170	110	550	150	1,210	347	150	52	134	33
22	111	211	150	100	400	150	2,150	579	128	49	112	33
23	104	191	140	100	300	150	1,630	897	135	48	82	32
24	122	160	190	95	240	170	1,150	1,040	174	47	68	32
25	505	120	170	95	200	260	1,630	697	166	44	68	32
26	324	110	150	90	180	650	2,650	508	168	43	61	33
27	236	120	190	90	190	2,400	3,030	397	148	48	53	40
28	188	150	170	95	220	1,600	2,380	423	128	73	49	49
29	166	184	150	100	-	1,100	1,610	498	116	61	47	54
30	150	188	140	100	-	800	1,170	397	197	52	44	52
31	137	-	130	95	-	611	-	300	-	49	43	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,703	505	96	152	0.768	0.89
November	4,669	335	109	156	.788	.88
December	11,250	1,700	109	363	1.83	2.11
Calendar year 1938	118,229	7,830	47	324	1.64	22.21
January	6,801	667	90	219	1.11	1.28
February	4,815	550	95	172	.869	.90
March	11,871	2,400	150	383	1.93	2.22
April	28,641	3,030	268	955	4.82	5.38
May	22,752	2,020	300	734	3.71	4.28
June	6,411	631	106	214	1.08	1.20
July	2,536	300	43	81.8	.413	.48
August	2,157	143	42	69.6	.352	.41
September	1,215	60	32	40.5	.205	.23
Water year 1938-39	107,821	3,030	32	295	1.49	20.26

Peak discharge.- Mar. 27 (3 p.m.) 10,600 sec.-ft.; Apr. 20 (2 a.m.) 2,730 sec.-ft.; Apr. 22 (7 p.m.) 2,470 sec.-ft.; Apr. 26 (10:30 p.m.) 3,560 sec.-ft.; May 10 (2 a.m.) 2,730 sec.-ft.

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 1939.
Average discharge.- 16 years (1923-39), 308 second-feet.
Extremes.- Maximum discharge during year, 3,760 second-feet Apr. 23 (gage height, 6.40 feet); maximum gage height, 8.97 feet (ice jam) Apr. 2; minimum discharge, 48 second-feet Sept. 8 and 19 (gage height, 2.27 feet).
1923-39: Maximum discharge, about 11,800 second-feet Oct. 1, 1924 (gage height, 10.85 feet) from rating curve extended by logarithmic plotting above 4,600 second-feet; minimum, 27 second-feet Sept. 11, 1932 (gage height, 2.10 feet).
Remarks.- Records good except those for periods of ice effect Nov. 26 to Dec. 6, Dec. 13 to Apr. 18 (computed on basis of five discharge measurements during winter, gage heights, weather records, observer's and engineers' notes, and records for East Branch of Ausable River at Ausable Forks), and those for periods of faulty or missing gage heights, Nov. 19-21, May 23-31, June 15, 16, July 9-27 (computed on basis of recorded range in stage, fragmentary gage heights, observer's inspections, weather records, and records for East Branch of Ausable River at Ausable Forks), all of which are fair. Occasional slight diurnal fluctuation at low stages caused by operation of power plants upstream.

Rating tables, water year 1938-39, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 22						Apr. 23 to Sept. 30			
2.5	92	3.2	385	4.5	1,390	2.2	37	2.6	125
2.6	121	3.4	505	5.0	1,910	2.3	53	2.7	157
2.8	193	3.6	640	5.5	2,530	2.4	73	2.9	235
3.0	281	4.0	940	6.0	3,200	2.5	97		

Note.- Same as preceding table above 2.9 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	235	159	140	130	100	260	500	1,010	276	244	78	59
2	218	148	120	160	110	260	700	668	253	214	71	57
3	201	148	190	150	120	220	550	762	223	161	67	57
4	193	146	340	150	110	220	400	740	210	141	83	53
5	189	148	600	180	100	220	400	732	194	122	100	53
6	178	152	1,700	500	95	240	420	725	194	117	87	55
7	166	148	1,380	700	100	300	440	884	179	164	71	53
8	159	148	657	550	120	260	420	908	172	154	67	53
9	155	152	533	460	120	220	380	800	164	135	71	55
10	155	141	1,610	600	110	200	340	1,050	151	122	78	65
11	155	141	1,510	900	120	190	360	762	168	112	73	73
12	152	138	800	600	120	180	400	591	537	104	65	69
13	148	135	500	360	110	180	380	499	350	98	69	67
14	145	155	360	300	110	180	400	443	397	94	117	63
15	141	186	260	240	140	180	460	402	450	92	105	59
16	138	170	220	200	200	190	400	374	306	94	90	57
17	135	155	280	180	220	180	400	353	292	98	111	55
18	135	163	320	160	200	170	850	336	319	96	87	50
19	131	300	240	150	180	170	1,710	326	244	90	80	50
20	138	260	200	140	240	180	3,050	321	202	86	87	51
21	141	240	180	130	500	180	1,930	316	187	84	100	53
22	141	214	160	120	420	170	3,120	427	168	82	114	55
23	135	193	150	110	320	160	3,030	700	168	82	95	57
24	154	175	160	100	260	170	2,090	760	206	80	83	55
25	337	133	160	100	220	280	1,740	560	194	80	83	53
26	296	120	150	95	190	900	2,390	430	179	78	78	51
27	231	120	170	95	220	2,600	2,660	380	164	82	71	55
28	201	130	150	100	260	1,600	2,540	420	147	90	65	67
29	185	160	140	110	-	1,100	1,790	560	141	90	63	73
30	178	170	130	110	-	800	1,320	420	170	83	59	73
31	163	-	120	100	-	600	-	330	-	80	59	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,429	337	131	175	0.636	0.73
November	4,949	300	120	165	.600	.67
December	13,630	1,700	120	440	1.60	1.84
Calendar year 1938	113,875	5,800	63	312	1.13	15.39
January	7,980	900	95	257	.935	1.08
February	5,115	500	95	183	.665	.69
March	12,780	2,600	160	412	1.50	1.73
April	35,570	3,120	340	1,186	4.31	4.81
May	18,189	1,050	316	587	2.13	2.46
June	7,005	537	141	234	.851	.95
July	3,449	244	78	111	.404	.47
August	2,527	117	59	81.5	.296	.34
September	1,746	73	50	58.2	.212	.24
Water year 1938-39	118,369	3,120	50	324	1.18	16.01

Peak discharge.- Apr. 20 (10 a.m.) 3,410 sec.-ft.; Apr. 23 (2 a.m.) 3,760 sec.-ft.; Apr. 26 (9 a.m.) 2,760 sec.-ft.; Apr. 28 (7 a.m.) 2,890 sec.-ft.

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. Zero of gage is 315.93 feet above mean sea level (general adjustment of 1912).

Records available.- July 1913 to September 1939.

Extremes.- Maximum gage height during year, 4.36 feet Dec. 12; minimum, 1.80 feet Sept. 26. 1913-39: Maximum gage height observed, 5.09 feet Apr. 9, 1936; minimum, 1.06 feet Dec. 29, 1922.

Remarks.- Records excellent. Record estimated for periods of faulty or missing gage heights, Oct. 29-31, Sept. 22-30. Elevation of lake surface regulated by operation of power plants and flood gates at Ticonderoga.

Mean daily gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.01	3.50	3.34	3.54	3.47	3.25	2.83	4.03	3.84	3.89	3.25	2.82
2	3.96	3.47	3.30	3.57	3.48	3.20	3.02	3.99	3.85	3.83	3.21	2.77
3	3.94	3.50	3.38	3.48	3.47	3.17	3.12	3.94	3.87	3.80	3.25	2.74
4	3.92	3.46	3.41	3.49	3.44	3.13	3.13	3.90	3.89	3.78	3.23	2.77
5	3.88	3.46	3.44	3.51	3.41	3.11	3.13	3.86	3.88	3.76	3.22	2.75
6	3.78	3.42	3.77	3.54	3.38	3.14	3.16	3.84	3.80	3.74	3.20	2.69
7	3.78	3.44	3.89	3.57	3.37	3.15	3.22	3.81	3.85	3.73	3.18	2.65
8	3.77	3.46	3.88	3.59	3.37	3.12	3.24	3.80	3.86	3.73	3.17	2.61
9	3.73	3.46	3.91	3.58	3.34	3.08	3.25	3.80	3.83	3.70	3.22	2.59
10	3.71	3.45	4.04	3.62	3.32	3.06	3.24	3.82	3.82	3.70	3.12	2.59
11	3.72	3.41	4.17	3.59	3.32	3.04	3.26	3.81	3.86	3.65	3.08	2.58
12	3.70	3.37	4.21	3.55	3.32	3.01	3.30	3.77	3.97	3.60	3.10	2.53
13	3.70	3.44	4.19	3.53	3.27	3.03	3.30	3.81	3.95	3.61	3.13	2.51
14	3.69	3.45	4.18	3.50	3.28	3.01	3.30	3.81	4.01	3.59	3.13	2.51
15	3.69	3.39	4.09	3.51	3.29	2.99	3.28	3.81	4.06	3.53	3.11	2.46
16	3.69	3.36	4.04	3.53	3.32	2.99	3.27	3.81	4.04	3.51	3.09	2.44
17	3.65	3.35	4.01	3.52	3.29	2.95	3.28	3.79	4.04	3.49	3.05	2.35
18	3.64	3.37	3.97	3.48	3.28	2.90	3.35	3.72	4.08	3.45	3.02	2.32
19	3.66	3.33	3.93	3.45	3.23	2.87	3.44	3.73	4.09	3.41	3.02	2.34
20	3.63	3.42	3.91	3.44	3.28	2.83	3.61	3.70	4.05	3.37	3.00	2.30
21	3.62	3.43	3.88	3.45	3.26	2.80	3.67	3.72	3.98	3.35	3.04	2.22
22	3.57	3.45	3.84	3.48	3.33	2.77	3.85	3.76	3.96	3.36	3.04	2.25
23	3.60	3.37	3.81	3.47	3.32	2.74	3.99	3.81	3.97	3.33	3.01	2.23
24	3.61	3.36	3.79	3.46	3.29	2.70	4.01	3.82	3.93	3.32	2.99	2.14
25	3.65	3.39	3.75	3.45	3.24	2.69	4.02	3.82	3.89	3.29	2.97	2.21
26	3.65	3.39	3.70	3.42	3.23	2.72	4.08	3.81	3.83	3.29	2.90	2.04
27	3.58	3.38	3.76	3.40	3.27	2.73	4.06	3.84	3.83	3.28	2.89	2.16
28	3.52	3.43	3.73	3.38	3.24	2.76	4.08	3.88	3.83	3.26	2.88	2.14
29	3.53	3.42	3,68	3.36	-	2.78	4.07	3.86	3.85	3.24	2.87	2.14
30	3.52	3.37	3.60	3.36	-	2.79	4.06	3.94	3.88	3.22	2.81	2.13
31	3.51	-	3.56	3.44	-	2.82	-	3.85	-	3.28	2.80	-

Monthly gage height, water year October 1938 to September 1939

Month	Gage height in feet		
	Maximum	Minimum	Mean
October	4.01	3.51	3.70
November	3.50	3.33	3.42
December	4.21	3.30	3.81
Calendar year 1938	4.21	2.53	3.51
January	3.62	3.36	3.49
February	3.48	3.23	3.33
March	3.25	2.69	2.95
April	4.08	2.83	3.49
May	4.03	3.70	3.83
June	4.09	3.80	3.92
July	3.89	3.22	3.52
August	3.25	2.80	3.06
September	2.82	2.04	2.43
Water year 1938-39	4.21	2.04	3.41

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 mouth of Hubbardton River, and 3¼ miles northwest of Fair Haven, Rutland County.
Drainage area.- 187 square miles.
Records available.- October 1928 to September 1939.
Average discharge.- 11 years, 248 second-feet.
Extremes.- Maximum discharge during year, 5,760 second-feet Apr. 20 (gage height, 15.82 feet), from rating curve extended above 1,190 second-feet on basis of computation of flow over dam at gage heights 16.10 feet and 21.40 feet; minimum, 6.2 second-feet (regulated) Sept. 22-24.
1928-39: Maximum discharge, 10,300 second-feet Sept. 22, 1938 by computation of flow over dam; maximum gage height, 22.90 feet Mar. 12, 1936 (ice jam); minimum discharge, 2.3 second-feet (regulated) July 18, 1937.
Remarks.- Records good except those for periods of ice effect, Dec. 28-31, Jan. 2-7, Jan. 9 to Mar. 19 (computed on basis of four discharge measurements, gage heights, power-plant records, weather records, and records for Otter Creek at Center Rutland), and those for periods of missing gage heights, Oct. 2, 3, 30 (computed on basis of records for nearby stations), which are fair. Lake Bomoseen may produce seasonal storage. Considerable diurnal regulation at low stages.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 20				Apr. 21 to Sept. 30					
2.5	48	5.0	610	1.8	5.3	2.4	50	5.0	610
2.6	58	6.0	850	1.9	9.7	2.6	75	6.0	850
2.8	85	7.0	1,120	2.0	15	2.8	107	7.0	1,120
3.0	117	8.0	1,450	2.1	22	3.0	145	8.0	1,450
3.5	222	10.0	2,300	2.2	30	3.5	252	9.0	1,850
4.0	340	12.0	3,300	2.3	39	4.0	367	11.0	2,800
4.5	472	14.0	4,500						

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	411	168	319	137	150	390	843	560	121	422	53	61
2	370	148	255	180	120	360	1,730	535	109	178	33	32
3	350	132	220	200	130	290	925	487	100	145	38	11
4	349	144	360	220	110	290	758	439	52	97	62	26
5	332	128	732	220	100	320	710	391	102	92	67	66
6	314	102	2,540	210	90	480	881	296	78	77	51	71
7	293	154	2,580	200	150	630	1,730	250	68	61	41	102
8	251	196	1,370	182	120	440	1,060	266	60	68	51	146
9	188	185	1,010	200	120	340	875	257	73	52	62	44
10	224	172	1,280	220	110	290	735	243	76	65	65	11
11	202	166	2,010	320	120	250	952	223	34	63	64	100
12	189	125	1,280	210	75	250	979	232	84	72	49	138
13	207	119	979	180	120	240	781	140	79	60	14	143
14	170	146	735	170	120	220	875	124	119	73	81	144
15	164	196	564	95	120	230	1,180	196	132	39	64	53
16	52	177	400	200	550	240	1,060	170	107	35	78	7.1
17	148	142	346	160	390	250	925	169	266	44	68	16
18	158	168	334	150	370	240	1,380	150	206	38	37	93
19	110	247	344	150	320	210	2,210	155	132	42	53	133
20	180	538	355	130	480	192	4,310	103	78	38	12	90
21	168	443	320	120	640	186	2,300	80	112	45	62	123
22	156	361	268	110	400	199	2,600	194	105	34	78	54
23	95	350	252	140	300	188	2,190	230	85	15	105	6.2
24	173	290	199	190	300	241	1,450	217	100	41	80	8.4
25	279	253	189	180	290	327	1,240	220	42	54	79	102
26	253	273	191	150	270	800	1,150	155	79	45	77	124
27	244	268	244	100	290	2,080	1,010	127	68	48	11	134
28	226	300	210	140	350	1,260	900	101	72	48	62	99
29	206	298	230	130	-	758	685	200	79	24	68	131
30	165	323	200	150	-	735	572	195	114	23	80	37
31	154	-	170	140	-	850	-	130	-	70	65	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,781	411	52	219	1.17	1.35
November	6,737	533	102	225	1.20	1.34
December	20,486	2,580	170	661	3.53	4.07
Calendar year 1938	104,112.2	6,880	9.2	285	1.52	20.70
January	5,284	320	95	170	.909	1.05
February	6,705	550	75	239	1.28	1.33
March	15,776	2,080	186	444	2.37	2.73
April	38,996	4,310	572	1,300	6.95	7.75
May	7,235	560	80	233	1.25	1.44
June	2,932	266	34	97.7	.522	.58
July	2,198	422	15	70.9	.379	.44
August	1,810	105	11	58.4	.312	.36
September	2,305.7	146	6.2	76.9	.411	.46
Water year 1938-39	115,245.7	4,310	6.2	316	1.69	22.90

Peak discharge.- Dec. 7 (1 a.m.) 3,540 sec.-ft.; Dec. 11 (5 a.m.) 2,900 sec.-ft.; Mar. 27 (10 a.m.) 3,300 sec.-ft.; Apr. 2 (10:30 a.m.) 2,080 sec.-ft.; Apr. 20 (5:30 a.m.) 5,760 sec.-ft.; Apr. 22 (5 p.m.) 3,100 sec.-ft.

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, 100 feet downstream from dam and 1 mile downstream from East Creek.

Drainage area.- 307 square miles.

Records available.- May 1928 to September 1939.

Average discharge.- 11 years, 563 second-feet.

Extremes.- Maximum discharge during year, 6,250 second-feet Apr. 20 (gage height, 8.51 feet), from rating curve extended above 3,500 second-feet on basis of computation of flow over dam; minimum daily, 66 second-feet Sept. 24.
1928-39: Maximum discharge, 13,700 second-feet Sept. 22, 1938 (gage height, 12.45 feet), by computation of flow over dam; minimum daily, 61 second-feet Sept. 16, 1934.

Remarks.- Records good except those for periods of missing gage heights, Jan. 3, 5, 19, 20, 27-29, which were computed from graph based on shape of graph for preceding and following days and are fair. Flow affected by diurnal regulation and seasonal storage on East Creek at Pittsford and Chittenden.

Rating table, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

0.6	64	2.0	346	5.0	2,160
.8	85	2.5	536	6.0	3,100
1.0	112	3.0	770	7.0	4,200
1.3	164	3.5	1,050	8.2	5,800
1.6	230	4.0	1,390		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	576	385	574	372	252	1,060	878	1,720	409	661	286	144
2	540	391	418	388	226	1,020	1,460	1,420	360	329	222	120
3	494	331	381	395	225	728	1,180	1,280	299	218	177	74
4	494	343	902	345	255	664	914	1,230	269	170	269	96
5	436	333	1,360	330	186	642	803	1,220	270	199	204	177
6	416	302	3,030	435	237	964	925	1,180	263	195	126	178
7	396	402	3,520	566	259	1,320	1,240	1,240	228	195	175	154
8	388	363	2,000	478	261	724	1,090	1,290	256	180	171	159
9	346	424	1,390	483	254	647	870	1,060	249	140	172	133
10	334	427	1,800	551	254	575	770	1,020	204	174	158	97
11	362	353	2,000	1,020	191	447	908	859	160	175	161	195
12	376	346	1,640	659	229	476	1,250	672	393	156	123	139
13	374	290	1,180	387	260	438	1,040	573	226	162	102	152
14	342	424	960	398	262	473	1,010	468	299	179	448	139
15	324	384	826	249	675	449	1,280	480	315	132	319	136
16	330	356	620	312	1,420	500	1,250	415	264	100	237	121
17	297	373	628	281	1,050	455	1,190	405	575	164	201	75
18	315	416	608	302	732	356	1,770	376	444	166	175	146
19	324	935	632	265	621	313	2,940	323	302	154	132	153
20	316	1,390	600	255	1,190	376	5,650	363	233	161	102	150
21	430	990	552	191	1,800	398	4,080	295	229	151	208	129
22	445	746	519	212	1,280	372	4,440	461	201	140	409	147
23	404	673	436	279	711	392	4,200	746	200	130	253	114
24	467	562	522	220	648	426	2,900	760	226	145	205	66
25	1,090	471	439	293	604	544	2,610	707	216	138	192	136
26	693	467	377	241	443	1,050	3,740	486	281	140	143	138
27	519	532	439	235	690	1,840	3,960	370	256	122	104	153
28	476	552	418	240	802	1,720	3,300	526	205	245	154	211
29	388	565	352	200	-	1,130	2,520	934	164	275	157	190
30	346	603	422	252	-	966	2,080	656	249	152	159	143
31	337	-	387	242	-	922	-	511	-	250	157	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,375	1,090	297	431	1.40	1.61
November	15,129	1,390	290	504	1.64	1.83
December	29,932	3,520	352	966	3.15	3.63
Calendar year 1938	240,469	10,100	99	659	2.15	29.12
January	11,056	1,020	191	357	1.16	1.34
February	16,067	1,800	186	574	1.87	1.95
March	22,377	1,840	313	722	2.35	2.71
April	62,328	5,650	770	2,078	6.77	7.55
May	24,046	1,720	295	776	2.53	2.92
June	8,245	575	160	275	.896	1.00
July	5,958	661	100	192	.625	.72
August	6,101	448	102	197	.642	.74
September	4,215	211	66	140	.456	.51
Water year 1938-39	218,829	5,650	66	600	1.95	26.51

Peak discharge.- Dec. 6 (12 p.m.) 4,320 sec.-ft.; Apr. 20 (6 a.m.) 6,250 sec.-ft.; Apr. 26 (12 p.m.) 4,440 sec.-ft.

Otter Creek at Middlebury, Vt.

Location.- Water-stage recorder, lat. 44°00'45", long. 73°10'05", 150 feet upstream from highway bridge at 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 1939.
Average discharge.- 23 years (1903-6, 1910-19, 1928-39), 984 second-feet.
Extremes.- Maximum discharge during year, 5,860 second-feet Apr. 26 (gage height, 6.98 feet); minimum, 173 second-feet Sept. 18 (gage height, 1.20 feet).
1903-7, 1910-20, 1928-39: 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 by logarithmic method above 9,000 second-feet.
Remarks.- Records good except those for periods of ice effect, which are fair. Discharge July 7-14 computed on basis of one float-gage reading daily. Small seasonal storage in Chittenden Reservoir, on East Creek.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-31		Nov. 1 to May 31				June 1 to Sept. 30			
2.1	660	1.7	385	4.0	2,410	1.2	173	1.7	346
2.2	715	1.8	450	5.0	3,510	1.3	197	1.8	410
2.5	930	2.0	580	6.0	4,610	1.4	225	2.0	550
3.0	1,400	2.5	930	7.0	5,860	1.5	258	2.5	930
4.0	2,550	3.0	1,370			1.6	297	3.0	1,370
5.0	3,490								
6.0	4,610								

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,550	675	*1,100	690	*500	1,520	2,960	5,090	978	1,000	445	266
2	3,210	690	*980	*660	*470	1,670	2,960	4,730	834	1,170	438	266
3	2,940	690	*760	*670	*450	1,670	2,650	4,280	722	786	359	228
4	2,670	658	1,020	*680	*450	1,570	2,850	3,950	627	571	417	205
5	2,310	632	1,670	*660	*500	1,520	2,740	3,620	571	487	480	192
6	1,850	600	2,740	*670	*420	1,670	2,630	3,400	564	438	378	289
7	1,460	612	2,850	815	*470	1,920	2,740	3,180	557	438	258	302
8	1,160	690	2,740	914	*500	1,870	2,630	2,850	494	438	266	289
9	1,010	724	2,850	874	*510	1,820	2,630	2,740	473	445	281	278
10	874	780	3,070	922	*520	1,720	2,520	2,580	391	359	285	235
11	815	745	3,290	1,240	*470	1,520	2,410	2,360	410	384	274	258
12	787	645	3,290	1,420	*430	1,240	2,410	2,080	770	365	251	322
13	774	619	3,290	*1,090	*400	1,030	2,360	1,720	754	359	211	336
14	774	664	3,290	801	*480	946	2,360	1,280	762	359	242	336
15	734	752	3,180	*680	580	930	2,360	978	826	302	500	302
16	†700	731	3,070	*560	*1,350	922	2,360	890	754	289	522	322
17	†710	697	2,740	*600	1,870	946	2,410	801	655	245	494	217
18	†660	731	2,520	*620	1,820	906	2,520	773	930	297	359	185
19	†680	962	2,190	*560	1,620	*780	2,740	752	810	307	289	238
20	671	1,670	1,670	*520	1,420	710	3,180	658	627	289	255	281
21	741	1,820	1,520	*440	1,820	766	3,180	638	543	281	242	281
22	882	1,720	1,240	392	1,970	773	3,640	858	480	266	331	285
23	836	1,520	986	*430	1,970	759	4,730	1,420	438	228	529	258
24	767	1,320	898	482	1,770	780	5,340	1,870	459	228	459	208
25	1,190	1,030	*960	*470	1,570	970	5,600	1,620	466	278	359	180
26	1,460	759	*870	*540	1,370	1,540	5,860	1,280	494	251	302	225
27	1,230	843	759	*500	1,240	2,240	5,600	994	543	251	262	281
28	984	*970	*820	*430	1,320	2,300	5,470	882	529	281	219	317
29	866	1,020	*750	398	-	2,460	5,340	1,190	459	346	255	317
30	748	1,070	*720	*450	-	2,740	5,210	1,370	474	372	262	302
31	688	-	*720	*490	-	2,960	-	1,140	-	341	270	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	38,731	3,550	660	1,249	1.99	2.29
November	27,042	1,820	600	901	1.43	1.60
December	58,753	3,290	720	1,895	3.02	3.48
Calendar year 1938	458,102	6,540	261	1,255	2.00	27.13
January	20,668	1,420	392	667	1.06	1.22
February	28,260	1,970	400	1,009	1.61	1.68
March	45,168	2,960	710	1,457	2.32	2.68
April	102,790	5,860	2,360	3,426	5.46	6.09
May	61,974	5,090	638	1,999	3.18	3.67
June	18,394	978	391	613	.976	1.09
July	12,451	1,170	228	402	.640	.74
August	10,494	529	211	339	.540	.62
September	8,001	336	180	267	.425	.47
Water year 1938-39	432,726	5,860	180	1,186	1.89	25.63

*Stage-discharge relation affected by ice; discharge computed on basis of gage heights, one discharge measurement, weather records, and records for station at Center Rutland.
†Gage height missing; discharge computed on basis of weather records and records for station at Center 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. Zero of gage is 499.97 feet above mean sea level.
Drainage area.- 433 square miles.
Records available.- May 1909 to September 1923, August 1928 to September 1939.
Average discharge.- 20 years (1914-23, 1928-39), 594 second-feet, adjusted for change in reservoir contents since October 1938.
Extremes.- Maximum discharge during year, 7,340 second-feet Apr. 22 (gage height, 10.61 feet); minimum daily discharge, 27 second-feet Sept. 17.
1909-23, 1928-39: 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 Sept. 30, 1921 (gage height, 2.58 feet); minimum daily discharge, 17 second-feet Sept. 3, 1933.
Maximum discharge known, 57,000 second-feet Nov. 3, 1927 (gage height, 27.1 feet), by slope-area determination.
Remarks.- Records good. Discharge for periods of ice effect, Dec. 2-4, 6, Dec. 22 to Apr. 1, computed on basis of two discharge measurements, gage heights, power-plant records, and weather records; those for period of missing gage heights, Nov. 4-21, computed on basis of power-plant records. Considerable diurnal fluctuation caused by operation of several small power plants above station. Flow affected, since 1926, by storage in Peacham Pond and Mollys Falls Reservoir on Mollys Brook (combined usable capacity, 530,000,000 cubic feet), which regulate run-off from 24 square miles; and, since 1935, by detention in East Barre and Wrightsville Detention Reservoirs (combined capacity, 1,379,500,000 cubic feet).

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	557	276	502	410	280	630	780	2,800	579	1,150	239	141
2	462	272	400	400	310	600	1,320	2,600	495	643	188	65
3	388	260	290	300	300	550	1,030	2,500	426	407	155	32
4	402	250	600	380	310	580	831	2,450	352	285	204	54
5	376	230	985	410	190	450	754	2,350	369	231	171	89
6	338	190	3,650	450	200	650	775	2,200	561	241	111	111
7	314	250	2,400	530	280	1,150	1,030	2,250	436	237	128	140
8	259	290	1,760	430	300	650	915	2,200	372	203	182	130
9	273	460	1,760	460	290	580	831	2,100	373	164	187	105
10	272	410	3,140	510	250	530	701	2,150	301	168	183	38
11	309	330	2,600	800	210	470	740	1,860	234	228	181	176
12	300	280	2,000	650	250	420	859	1,720	777	194	179	206
13	253	250	1,760	500	200	400	775	1,540	540	201	46	171
14	260	480	1,580	400	250	450	775	1,360	642	200	125	182
15	228	410	1,150	350	400	480	1,400	1,120	671	171	188	132
16	172	360	950	340	900	500	1,320	880	434	97	180	96
17	222	320	880	370	740	440	1,320	754	414	120	170	27
18	258	400	810	350	640	380	2,250	639	418	163	165	100
19	334	500	758	330	500	320	3,530	549	306	186	115	109
20	248	1,100	719	310	600	380	5,450	633	322	166	56	97
21	350	900	663	250	1,200	410	4,600	549	289	175	108	95
22	342	715	570	170	900	410	6,210	893	270	157	142	109
23	208	567	470	230	700	370	5,450	1,450	279	87	177	84
24	344	622	570	330	600	400	4,090	1,680	431	85	138	32
25	858	531	460	320	560	430	4,200	1,230	418	136	141	91
26	576	328	400	280	450	700	4,310	824	447	159	135	96
27	430	403	480	210	500	1,700	4,090	662	368	162	59	117
28	360	441	400	260	580	1,400	3,870	633	310	161	100	168
29	310	449	430	200	-	1,200	3,540	714	264	154	114	177
30	244	402	480	210	-	950	5,100	761	346	71	140	161
31	250	-	430	230	-	820	-	591	-	137	112	-

Month	Observed				Change in contents (equivalent mean second-feet)	Adjusted for change in contents*		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	10,487	858	172	338	-12.5	326	0.753	0.87
November	12,676	1,100	190	423	-9.3	414	.956	1.07
December	34,047	3,650	290	1,098	+18.7	1,117	2.58	2.97
Calendar year 1938	234,233	6,040	55	642	-	-	†1.48	†20.12
January	11,370	800	170	367	-39.2	328	.758	.87
February	12,890	1,200	190	460	-20.1	440	1.02	1.06
March	19,400	1,700	320	626	-29.0	597	1.38	1.59
April	70,606	6,210	701	2,360	+378.1	2,738	6.32	7.05
May	44,662	2,600	549	1,441	-216.5	1,224	2.83	3.26
June	12,423	777	234	414	-13.8	400	.924	1.03
July	6,949	1,150	71	224	-31.9	192	.443	.51
August	4,519	239	46	146	-36.8	109	.252	.29
September	3,331	206	27	111	-47.3	63.7	.147	.16
Water year 1938-39	243,560	6,210	27	667	-5.7	661	1.53	20.73

*Adjusted for change in contents in Peacham Pond, Mollys Falls Reservoir, and East Barre and Wrightsville Detention Reservoirs (combined usable capacity, 1,909,500,000 cubic feet).
†Not adjusted for change in contents.

Winooski River near Essex Junction, Vt.

Location.- Water-stage recorder, lat. 44°28'40", long. 73°08'20", half a mile downstream from mouth of Muddy Brook and 2 miles southwest of Essex Junction, Chittenden County.
Drainage area.- 1,079 square miles.
Records available.- October 1928 to September 1939.
Average discharge.- 11 years, 1,651 second-feet, adjusted for change in reservoir contents since October 1938.
Extremes.- Maximum discharge during year, 18,200 second-feet Apr. 20 (gage height, 11.07 feet); minimum daily discharge, 84 second-feet Sept. 4.

1928-39: 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 computation of flow over dam at gage heights 18.72 feet, 23.54 feet, and 50.4 feet; minimum daily discharge, 70 second-feet 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 excellent except those above 12,000 second-feet, which are good, and those for periods of ice effect, Dec. 2-6, Dec. 27 to Apr. 1 (computed on basis of a discharge measurement, power-plant records, gage heights, weather records, and records for station at Montpelier), those for periods of missing gage heights, Nov. 26 to Dec. 1, Sept. 12-14 (computed on basis of weather records and power-plant records), which are fair. Considerable diurnal regulation at low stages. Since 1926, flow affected by storage in reservoirs on Mollys Brook and, since 1937, in Waterbury Reservoir (combined usable capacity, 3,342,300,000 cubic feet), which regulate run-off from 24 square miles and 109 square miles, respectively; and, since 1935, by detention in East Barre and Wrightsville Detention Reservoirs (combined usable capacity, 1,379,500,000 cubic feet).

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	800	1,050	860	950	1,900	2,770	7,380	1,480	1,480	645	422
2	1,160	836	970	620	850	2,000	4,000	6,680	1,330	2,200	796	314
3	1,150	793	900	850	750	1,800	3,220	5,780	1,030	1,140	686	144
4	890	760	700	670	800	1,700	2,610	4,970	880	752	810	84
5	964	618	1,600	720	700	1,600	2,240	5,180	941	886	491	358
6	911	406	8,500	700	750	2,200	2,210	5,980	1,270	861	99	398
7	1,040	838	10,700	900	720	2,800	2,910	6,380	1,310	896	657	392
8	759	831	4,760	970	710	2,500	2,960	6,180	800	804	646	282
9	506	688	3,300	1,300	780	2,100	2,830	5,780	863	534	684	201
10	760	766	6,980	1,250	730	1,800	2,180	6,180	807	686	693	213
11	766	758	8,780	1,600	700	1,600	2,200	5,080	700	870	686	456
12	816	742	5,080	1,850	600	1,400	2,440	3,700	1,490	664	476	380
13	810	764	4,220	1,400	760	1,300	2,200	2,860	1,620	600	277	380
14	689	1,190	3,310	980	740	1,100	2,510	2,530	1,540	572	600	360
15	619	1,040	2,450	1,250	720	1,200	3,760	2,300	1,710	368	510	236
16	408	892	1,740	1,200	1,700	950	3,400	2,010	1,440	216	695	174
17	562	1,100	1,740	1,250	1,800	1,100	3,220	1,800	1,240	584	562	140
18	563	1,170	1,800	1,200	1,500	1,080	5,380	1,640	990	608	525	278
19	611	2,260	1,800	1,050	1,300	1,050	7,980	1,540	1,150	620	518	268
20	737	3,500	1,710	900	1,400	1,040	15,600	1,570	888	602	316	264
21	730	2,610	1,690	860	2,600	980	9,780	1,520	755	576	584	272
22	794	2,180	1,470	700	2,400	1,020	16,200	1,660	757	469	472	192
23	698	1,860	1,220	700	2,000	1,000	15,400	3,830	736	338	496	250
24	964	1,720	1,170	940	2,100	850	9,780	4,320	617	564	500	147
25	1,680	1,340	1,310	940	1,800	920	9,980	3,500	929	599	470	278
26	1,930	900	920	980	1,700	2,200	12,300	2,700	1,130	557	436	335
27	1,420	700	940	700	1,600	5,000	12,500	1,940	1,130	640	344	333
28	1,260	1,200	970	750	1,700	4,500	11,600	1,750	894	786	428	452
29	857	1,100	800	700	-	3,900	9,980	2,160	846	734	369	484
30	488	1,150	700	1,050	-	3,400	8,580	2,280	871	284	390	517
31	822	-	880	1,100	-	2,800	-	1,650	-	640	444	-

Month	Observed				Change in reservoir contents (equivalent mean sec.-ft.)	Adjusted for change in contents*		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	27,734	1,930	408	895	-5.6	889	0.824	0.95
November	35,512	3,500	406	1,184	-10.5	1,174	1.09	1.22
December	84,260	10,700	600	2,718	+338.3	3,056	2.83	3.26
Calendar year 1938	619,075	29,800	130	1,696	-	-	†1.57	†21.34
January	31,130	1,850	670	1,004	-206.9	797	.739	.85
February	35,060	2,800	600	1,252	-96.2	1,156	1.07	1.11
March	58,790	5,000	850	1,896	-16.9	1,879	1.74	2.01
April	192,720	16,200	2,180	6,424	+923.4	7,347	6.81	7.60
May	112,730	7,380	1,520	3,636	-283.7	3,372	3.13	3.61
June	32,144	1,710	617	1,071	-2.7	1,068	.990	1.10
July	22,132	2,200	216	714	-226.0	488	.452	.52
August	16,305	810	99	526	-266.9	259	.240	.28
September	9,004	517	84	300	-65.7	234	.217	.24
Water year 1938-39	657,521	16,200	84	1,801	+7.0	1,808	1.67	22.75

*Adjusted for change in contents in Peacham Pond and Mollye Falls Reservoir, East Barre and Wrightsville Detention Reservoirs, and Waterbury Reservoir (combined usable capacity, 4,721,800,000 cubic feet).
†Not adjusted for change in contents.

East Barre Detention Reservoir at East Barre, Vt.

Location.- Staff gage, lat. 44°10', long. 72°27', on reservoir on Jail Branch at East Barre, Washington County, 3½ miles upstream from confluence with Stevens Branch. Zero of gage is 1,127.9 feet above mean sea level.
Drainage area.- 32.2 square miles.
Records available.- March and April 1936, September 1938 to September 1939.
Extremes.- Maximum gage height observed during year, 26.3 feet Apr. 29; minimum, 0.1 foot on several days in August and September.
1936, 1938-39: Maximum gage height, 36.0 feet Mar. 22, 1936; minimum, that of several days in August and September 1939.
Remarks.- Reservoir is formed by earth-fill dam completed by Corps of Engineers, U. S. Army, in 1935 for flood control. Capacity, 506,000,000 cubic feet between gage heights 0.0 feet (bottom of outlet opening) and 37.1 feet (crest of spillway). Dead storage 6,100,000 cubic feet. Dam has no gates; outflow from reservoir is dependent on capacity of fixed outlet opening, 4 feet square, near base of dam. Gage not read June 21, 22. Gage-height record furnished by State of Vermont Board of Public Works. Figures given herein represent usable contents; those published in Water-Supply Papers 798 and 867 include dead storage of 6,100,000 cubic feet below gage height 0.0 foot.

Capacity table (gage height, in feet, and contents, in millions of cubic feet)
(Prepared by Geological Survey from contour areas as furnished by Corps of Engineers, U. S. Army)

0.0	0	5.0	3.80	10.0	13.8	16.0	60.6	35.0	446.5
1.0	.50	6.0	5.06	11.0	17.7	19.0	101.4	*37.1	506
2.0	1.11	7.0	6.62	12.0	22.9	22.0	150.0	40.0	592.5
3.0	1.86	8.0	8.5	13.0	29.8	25.0	206	45.0	751.5
4.0	2.74	9.0	10.85	14.0	38.6	30.0	316.5	47.0	818.5

*Crest of spillway

Gage height, in feet, 4 p.m., water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	1.3	2.0	1.8	1.1	2.35	3.2	25.6	2.0	5.6	2.0	0.1
2	2.6	1.4	1.7	2.0	1.3	2.2	4.3	24.9	1.9	3.1	1.8	.1
3	2.0	1.35	1.6	2.0	1.3	2.0	3.3	24.0	1.8	1.8	2.0	.1
4	1.9	1.35	6.7	1.8	1.25	1.95	2.8	23.2	1.8	1.15	3.5	.1
5	1.8	1.35	8.9	1.7	1.25	2.0	2.65	22.4	1.9	1.0	3.0	.2
6	1.5	1.35	15.5	2.1	1.25	3.9	2.7	21.5	3.0	.9	2.7	.3
7	1.45	1.5	15.85	2.7	1.25	3.2	3.6	20.6	2.0	.9	2.0	.2
8	1.4	1.3	14.5	2.3	1.25	3.0	3.3	20.3	1.9	.9	1.1	.2
9	1.6	3.0	13.0	2.2	1.25	2.35	3.0	18.9	1.9	.9	1.3	.2
10	1.55	1.75	14.2	2.4	1.25	2.35	2.8	17.9	1.7	.9	1.4	.2
11	1.5	1.5	14.25	3.5	1.25	1.95	3.6	16.3	1.5	.9	.7	.3
12	1.8	1.65	13.2	2.4	1.25	1.85	3.2	15.3	3.9	.9	.7	.3
13	1.4	1.7	12.2	2.1	1.2	1.8	2.85	10.5	3.5	.8	1.0	.2
14	1.4	2.2	6.8	1.9	1.2	1.7	3.3	8.0	4.6	.8	.8	.2
15	1.4	1.6	3.4	1.6	2.0	1.7	4.1	3.2	2.6	.8	.7	.1
16	1.4	1.5	3.0	1.5	5.0	1.7	3.8	2.8	1.9	1.0	.8	.1
17	1.3	1.5	3.2	1.5	4.15	1.7	4.0	2.5	3.1	.9	.8	.2
18	1.25	1.9	3.4	1.4	3.2	1.7	7.4	2.9	2.8	.9	.7	.1
19	1.25	5.1	3.2	1.35	2.9	1.7	11.4	2.5	1.8	.7	.7	.1
20	1.3	3.2	3.0	1.2	2.75	1.65	17.6	2.6	1.8	.7	.8	.1
21	2.65	2.5	2.8	1.2	4.7	1.6	18.8	3.4	-	.5	.6	.1
22	1.7	2.5	2.63	1.1	3.7	1.6	21.45	3.8	-	.5	.7	.1
23	1.5	2.8	2.65	1.05	2.55	1.8	22.85	7.2	1.2	.5	.7	.1
24	4.5	2.9	2.6	1.1	2.3	1.8	23.2	9.8	1.5	.5	.7	.1
25	4.0	2.0	2.5	1.1	2.25	2.5	23.7	4.0	3.0	.5	.6	.1
26	2.3	2.0	2.4	1.05	1.95	3.75	24.9	3.0	1.8	.4	.6	.2
27	2.0	2.0	3.0	1.0	3.2	7.2	25.7	2.6	1.8	.4	.6	2.1
28	1.85	2.0	2.8	1.0	2.6	6.7	26.2	2.8	1.6	.9	.3	2.0
29	1.8	1.95	2.0	1.0	-	4.0	26.3	2.6	.9	.7	.1	2.0
30	1.65	2.05	2.0	1.0	-	3.4	26.0	2.8	1.8	.7	.1	2.0
31	1.45	-	1.8	1.1	-	3.2	-	2.2	-	2.2	.1	-

Gage height and contents, water year October 1938 to September 1939

Date	Gage Height* (feet)	Contents (millions of cubic feet)	Change in contents during month (millions of cubic feet)	Change in contents during month (equivalent mean second-feet)
Sept. 30	2.7	1.64	-	-
Oct. 31	1.4	.74	-0.90	-0.34
Nov. 30	2.1	1.18	+.44	+.17
Dec. 31	1.8	.99	-.19	-.07
Jan. 31	1.1	.56	-.43	-.16
Feb. 28	2.5	1.48	+.92	+.38
Mar. 31	3.2	2.04	+.56	+.21
Apr. 30	25.9	224	+222	+85.6
May 31	2.1	1.18	-223	-83.3
June 30	3.4	2.20	+1.02	+.39
July 31	2.4	1.41	-.79	-.29
Aug. 31	.1	.05	-1.36	-.51
Sept. 30	2.0	1.11	+1.06	+.41
Water year 1938-39	-	-	-0.53	-.02

*Gage height at midnight determined from graph based on observer's readings and on graph for station on Jail Branch at East Barre.

Jail Branch at East Barre, Vt.

Location.- Water-stage recorder, lat. 44°10', long. 72°27', in East Barre, Washington County, just downstream from highway bridge, three-quarters of a mile downstream from East Barre Detention Reservoir, and 2¾ miles upstream from Stevens Branch. Zero of gage is 1,071.59 feet above mean sea level.

Drainage area.- 33.0 square miles.

Records available.- August 1920 to September 1923, November 1933 to September 1939.

Extremes.- Maximum discharge during year, 417 second-feet Apr. 28; maximum gage height, 4.35 feet Feb. 17 (ice jam); minimum discharge, 2.3 second-feet Sept. 18-20.
1920-23, 1933-39: Maximum discharge observed, 1,350 second-feet Apr. 10, 1922 (gage height, 8.38 feet, former site and datum), from rating curve extended above 500 second-feet; minimum observed, 0.5 second-foot Sept. 11, 1921.

Remarks.- Records good except those for periods of ice effect and of missing gage heights, which are fair. Probable backwater from ice during periods of missing gage heights. Run-off affected since November 1935 by storage in East Barre Detention Reservoir (usable capacity, 506,000,000 cubic feet). Diversions from reservoir on Orange Brook, a tributary upstream for municipal use of city of Barre.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 22-27, Aug. 14-24)

Oct. 1-31				Nov. 1 to Sept. 30					
0.6	18	1.0	65	0.09	2.3	0.6	18	1.2	112
.7	24	1.1	86	.1	2.5	.7	25	1.3	140
.8	34	1.2	112	.2	4.9	.8	34	1.4	176
.9	48	1.3	140	.3	7.6	.9	48	1.6	272
				.4	11	1.0	65	1.9	455
				.5	14	1.1	86		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	24	*35	*35	*10	†47	†68	391	31	133	29	2.5
2	50	24	*30	*36	*10	†43	†95	391	27	37	9.7	3.0
3	40	25	*28	*31	*10	†38	†80	379	26	27	6.0	3.5
4	32	22	*70	*30	*10	†37	†58	372	29	22	12	2.8
5	30	21	*180	*26	*9	†38	†54	366	31	13	13	3.8
6	25	22	*290	*30	*9	*90	†56	366	64	12	6.1	6.2
7	23	22	300	*43	*10	*68	78	360	31	11	4.4	3.9
8	23	21	278	*38	*9	*63	69	348	27	11	4.7	3.2
9	26	50	267	*33	*9	48	62	335	26	9.7	5.7	3.5
10	26	32	283	*38	*9	45	51	318	21	7.6	5.7	3.9
11	24	26	278	*55	*9	*37	53	295	18	6.5	4.7	11
12	26	26	267	*45	*9	†35	71	267	104	8.6	3.9	6.0
13	23	26	241	*35	*9	†34	55	246	31	7.9	7.1	6.2
14	23	41	174	*29	*9	†32	66	198	87	6.2	24	4.4
15	23	29	*73	*26	*15	†32	109	68	49	6.0	8.0	3.5
16	23	27	*63	*23	*80	†32	94	50	30	6.2	4.7	2.8
17	22	25	58	*23	†60	†31	90	45	42	7.8	4.4	3.0
18	20	35	†55	*20	†55	†30	160	51	33	7.1	3.9	2.3
19	19	108	†51	†17	†50	†29	230	47	23	5.7	4.8	2.3
20	22	86	†48	†14	†50	†28	318	57	18	4.7	5.0	2.3
21	52	50	†45	†14	†110	†28	341	55	18	4.4	4.9	2.5
22	34	49	†41	†11	†80	†28	386	111	14	4.4	5.6	2.8
23	26	62	†42	†10	†52	†27	366	176	18	3.5	5.2	2.5
24	71	46	†41	†11	†46	†27	372	202	27	3.5	5.1	2.8
25	124	32	†40	†11	†44	†35	372	113	50	3.2	4.2	2.8
26	50	*30	†39	†10	†37	†80	385	56	33	3.0	3.9	3.9
27	38	*35	†41	†10	†40	†175	391	47	23	3.0	3.5	6.6
28	33	*35	*41	†10	†45	†160	404	62	15	8.9	3.0	15
29	31	*37	*36	†10	-	†90	404	51	13	7.8	2.8	7.1
30	29	*37	*37	†10	-	†73	397	42	44	4.8	2.5	6.4
31	25	-	*36	†10	-	†68	-	33	-	32	2.3	-

Month	Observed				Change in reservoir contents‡ (equivalent second-feet)	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	1,066	124	19	34.4	-0.34	34.1	1.03	1.19
November	1,105	108	21	36.8	+.17	37.0	1.12	1.25
December	3,508	300	28	113	-.07	113	3.42	3.94
Calendar year 1938	21,069.5	382	1.9	57.7	-	-	**1.75	**23.72
January	744	55	10	24.0	-.16	23.8	.721	.83
February	895	110	9	32.0	+.38	32.4	.982	1.02
March	1,628	175	27	52.5	+.21	52.7	1.60	1.84
April	5,715	404	51	190	+86.6	276	8.36	9.33
May	5,898	391	33	190	-83.3	107	3.24	3.74
June	1,003	104	13	33.4	+.39	33.8	1.02	1.14
July	428.5	133	3.0	13.8	-.29	13.5	.409	.47
August	209.8	29	2.3	6.77	-.51	6.26	.190	.22
September	132.5	15	2.3	4.42	+.41	4.83	.146	.16
Water year 1938-39	22,332.8	404	2.3	61.2	-.02	61.2	1.85	25.13

*Stage-discharge relation affected by ice; discharge computed on basis of three discharge measurements, weather records, and records for other stations in Winooski River Basin.
†Gage height missing; discharge computed on basis of records for other stations in Winooski River Basin.
‡Change in contents in East Barre Detention Reservoir (usable capacity, 506,000,000 cubic feet).
**Not adjusted for change in reservoir contents.

Wrightsville Detention Reservoir at Wrightsville, Vt.

Location.- Staff gage, lat. 44°18'35", long. 72°34'30", on reservoir on North Branch of Winooski River, at Wrightsville, Washington County, a third of a mile downstream from Long Meadow Brook and 4¼ miles upstream from confluence of North Branch with Winooski River. Zero of gage is 612.75 feet above mean sea level.
Drainage area.- 66.5 square miles.
Records available.- March and April 1936, October 1938 to September 1939.
Extremes.- Maximum gage height observed during year, 52.4 feet Apr. 29; minimum observed, 0.4 foot Sept. 4, 22, 23.
1936, 1938-39: Maximum gage height observed, 63.7 feet Mar. 22, 1936, from graph based on gage readings; minimum observed, that of September 4, 22, 23, 1939.
Remarks.- Reservoir is formed by earth-fill dam completed by Corps of Engineers, U. S. Army, in 1935 for flood control. Capacity, 873,500,000 cubic feet between gage heights 0.0 feet (bottom of outlet opening) and 72.25 feet (crest of spillway). Dead storage, 8,600,000 cubic feet. Dam has no gates; outflow from reservoir is dependent on capacity of fixed outlet opening, 5½ feet square, near base of dam. Gage-height record furnished by State of Vermont Board of Public Works. Figures given herein represent usable contents; those published in Water-Supply Papers 798 and 867 include dead storage of 8,600,000 cubic feet below gage height 0.0 foot.

Capacity table (gage height, in feet, and contents, in millions of cubic feet)
(Prepared by Geological Survey from contour areas as furnished by Corps of Engineers, U. S. Army)

0.0	0	5.0	13.85	20.0	91.9	40.0	293.0	*72.25	873.5
1.0	2.25	8.0	25.0	25.0	132.8	50.0	431.2	80.00	1,084
2.0	4.8	12.0	42.6	30.0	179.4	60.0	600.5	82.25	1,150
3.0	7.55	16.0	64.2	35.0	232.2	70.0	818		

*Crest of spillway

Gage height, at 7:30 a.m., in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	2.1	3.1	2.4	1.2	3.2	5.1	51.7	4.2	3.8	2.0	0.6
2	3.4	2.2	2.8	2.4	1.0	3.5	6.1	49.9	3.5	4.8	1.6	.6
3	2.6	2.1	2.2	2.4	1.8	3.6	7.1	48.1	2.4	4.8	1.1	.5
4	2.5	1.9	3.0	2.3	1.7	3.7	5.9	46.2	2.3	3.4	1.7	.4
5	2.0	2.0	3.5	2¼	1.8	3.8	4.8	44.9	2.0	3.1	2.3	.8
6	2.5	2.0	12.2	2.4	1.8	4.2	4.6	43.0	4.1	2.8	2.0	.8
7	2.1	1.9	24.6	2.6	1.8	4.9	4.8	41.9	3.7	2.4	1.7	.7
8	2.0	2.2	23.4	2.4	1.8	4.8	4.8	41.0	2.4	2.1	1.3	.7
9	2.0	2.3	20.8	2.6	1.7	4.3	4.6	37.9	2.0	1.7	1.6	.6
10	1.8	3.0	20.4	5.6	1.8	4.1	4.8	37.0	1.7	1.6	1.4	1.0
11	2.0	2.9	27.0	3.3	1.8	4.0	5.1	35.1	1.8	1.7	1.1	1.3
12	1.7	2.8	25.9	3.2	1.7	3.2	5.0	31.0	2.7	2.0	.9	1.4
13	1.8	2.4	22.8	3.6	1.8	3.0	4.9	28.9	3.5	2.0	1.8	1.4
14	1.7	4.0	19.4	3.2	1.8	2.9	4.7	22.6	3.2	1.0	1.7	1.3
15	1.5	4.0	15.6	2.3	2.0	2.9	6.5	18.4	3.6	1.7	1.7	1.0
16	1.7	3.4	10.9	2.2	2.7	2.8	7.0	16.3	3.0	1.5	1.6	.9
17	1.5	3.2	6.4	2.2	3.7	2.9	6.8	7.6	2.9	2.5	1.8	.9
18	1.4	3.0	5.0	2.0	3.6	2.6	5.6	5.1	2.7	2.7	1.5	.8
19	1.4	4.0	4.1	1.9	3.1	2.1	14.6	4.2	2.5	2.0	1.4	.6
20	1.5	9.0	3.9	1.6	3.8	2.0	25.0	3.9	2.1	1.3	1.0	.5
21	1.7	7.0	3.6	1.0	4.0	2.0	29.2	3.6	2.3	1.4	.9	.5
22	2.4	6.9	3.2	2.0	4.1	2.1	35.8	3.5	2.1	1.6	.9	.4
23	2.2	5.0	2.9	1.9	4.0	2.3	42.8	6.5	2.0	1.0	.8	.4
24	2.0	5.4	2.5	1.9	3.3	2.5	44.9	7.3	2.7	.9	.8	.5
25	4.7	4.2	2.3	1.9	3.1	2.6	45.1	7.1	2.9	.8	.9	.8
26	5.0	3.2	2.3	1.8	2.8	3.6	47.0	5.7	3.3	.7	.9	1.1
27	4.7	3.3	2.0	1.7	3.0	5.4	49.1	4.8	2.9	.7	1.0	1.2
28	3.5	3.2	1.9	1.7	3.2	8.7	50.6	4.5	2.5	1.0	.9	1.3
29	3.0	3.5	2.4	1.7	-	8.8	52.4	4.6	2.1	1.1	.8	1.5
30	2.7	3.4	2.0	1.8	-	6.9	52.2	5.7	2.5	1.7	.7	1.6
31	2.3	-	1.8	1.3	-	6.0	-	4.8	-	1.8	.7	-

Gage height and contents, water year October 1938 to September 1939

Date	Gage Height* (feet)	Contents (millions of cubic feet)	Change in contents during month (millions of cubic feet)	change in contents during month (equivalent mean second-feet)
Sept. 30	4.6	12.54	-	-
Oct. 31	2.1	5.06	-7.48	-2.79
Nov. 30	3.2	8.15	+3.09	+1.19
Dec. 31	2.1	5.05	-3.1	-1.16
Jan. 31	1.2	2.75	-2.3	-.86
Feb. 28	3.2	8.15	+5.4	+2.23
Mar. 31	5.4	15.25	+7.1	+2.65
Apr. 30	51.9	460.4	+445.2	+172
May 31	4.4	11.9	-448.5	-167
June 30	3.4	8.75	-3.15	-1.22
July 31	2.0	4.8	-3.95	-1.47
Aug. 31	.6	1.35	-3.45	-1.29
Sept. 30	2.0	4.8	+3.45	+1.33
Water year 1938-39	-	-	-7.74	-.25

*Gage height at midnight determined from graph based on observer's readings and on graph for station on North Branch of Winooski River at Wrightsville.

North Branch of Winooski River at Wrightsville, Vt.

Location.- Water-stage recorder, lat. 44°18'00", long. 72°34'45", in Wrightsville, Washington County, three-quarters of a mile downstream from Wrightsville Detention Dam and 3½ miles upstream from Winooski River. Zero of gage is 550.53 feet above mean sea level.

Drainage area.- 69.2 square miles.

Records available.- October 1933 to September 1939.

Extremes.- Maximum discharge during year, 890 second-feet Apr. 28-30; maximum gage height, 3.91 feet Feb. 17 (ice jam); minimum daily discharge, 1.6 second-feet Aug. 13. 1933-39: Maximum discharge, 2,170 second-feet Apr. 12, 1934 (gage height, 6.53 feet), from rating curve extended above 1,050 second-feet; minimum daily, 0.5 second-foot Aug. 2, 1935; practically no flow at times on Jan. 2 and 3, 1936, when water was held back by mill dam.

Remarks.- Records good except those for periods of ice effect and of missing gage heights, which are fair. Probable backwater from ice during periods of missing gage heights in winter. Run-off affected since November 1935 by storage in Wrightsville Detention Reservoir (usable capacity, 873,500,000 cubic feet). Diurnal regulation at low stages caused by operation of small mill.

Ratings tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-31				Nov. 1 to Sept. 30					
0.6	26	1.1	71	0	0.2	0.6	26	1.5	140
.7	30	1.2	87	.1	2.1	.7	30	2.0	248
.8	37	1.4	122	.2	5.0	.8	37	2.5	379
.9	46	1.6	159	.3	8.6	.9	46	3.0	540
1.0	58			.4	13.5	1.0	58	3.5	725
				.5	21	1.2	86	4.0	935

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	46	†63	*55	†32	100	170	868	101	214	20	4.7
2	68	45	†55	*54	*32	101	203	868	78	164	18	4.9
3	54	40	†50	*50	*31	*87	194	845	61	96	13	3.5
4	48	36	†67	*50	*30	*80	160	845	54	61	20	3.5
5	44	36	†230	*45	*29	*78	142	825	53	42	32	4.1
6	40	39	†500	*60	*30	*95	134	825	64	34	28	5.4
7	37	42	645	*75	*29	*150	144	805	56	31	21	5.8
8	35	41	†600	*65	*29	*200	152	805	49	27	18	6.4
9	34	52	†570	57	*29	*170	156	785	47	26	15	7.4
10	34	61	†610	55	*29	*130	†125	765	41	23	16	6.4
11	33	56	†670	81	*30	*110	†130	745	35	23	13	25
12	31	47	†650	†80	*29	*95	†150	705	62	19	9.6	31
13	31	47	†610	†72	*29	*85	†130	665	61	14	1.6	27
14	29	96	†540	†68	*29	*75	†140	610	71	11	1.7	21
15	31	100	†460	†62	*32	*80	†210	540	76	16	19	5.8
16	29	84	†350	†56	*180	*68	†180	424	57	20	15	10
17	27	71	†220	†55	*160	*67	†170	290	53	19	10	6.4
18	27	66	146	†50	*140	*60	†350	144	53	15	8.4	7.0
19	26	210	117	†45	*120	*59	†500	96	42	16	8.6	7.2
20	26	342	98	†40	*110	*57	†650	94	35	16	5.4	3.1
21	34	284	84	†35	218	*55	†700	88	34	†14	7.5	4.7
22	43	185	*75	†37	212	*56	†750	125	35	†11	11	6.0
23	40	144	*67	†35	*150	*53	†800	241	45	†9	5.0	3.8
24	44	123	62	†34	*110	50	†840	313	61	†8	7.0	4.1
25	152	96	*59	†33	*93	*57	†850	272	76	†7	6.2	5.3
26	150	†67	*56	†32	86	*100	†860	177	74	†6.5	6.2	5.4
27	109	†71	*55	†32	89	*220	868	129	57	6.5	5.8	8.7
28	81	†71	*57	†32	94	*360	868	114	44	9.8	6.9	15
29	63	†75	*60	†30	-	*320	890	151	35	13	5.2	21
30	53	†75	*60	†33	-	*230	890	173	78	16	4.2	23
31	47	-	*57	†33	-	196	-	134	-	17	4.4	-

Month	Observed				Change in reservoir contents‡ (equivalent second-feet)	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	1,602	152	26	51.7	-2.79	48.9	0.707	0.82
November	2,746	342	36	91.5	+1.19	92.7	1.34	1.50
December	7,943	670	50	256	-1.16	255	3.68	4.24
Calendar year 1938	49,181.9	770	4.2	135	-	-	**1.95	**26.39
January	1,541	81	30	49.7	-.86	48.8	.705	.81
February	2,211	218	29	79.0	+2.23	81.2	1.17	1.22
March	3,644	360	50	118	+2.65	121	1.75	2.02
April	12,506	890	125	417	+172	589	8.51	9.60
May	14,466	868	88	467	-167	300	4.34	5.00
June	1,688	101	34	56.3	-1.22	55.1	.796	.89
July	1,004.8	214	6.5	32.4	-1.47	30.9	.447	.52
August	362.7	32	1.6	11.7	-1.29	10.4	.150	.17
September	292.6	31	3.1	9.75	+1.33	11.1	.160	.18
Water year 1938-39	50,007.1	890	1.6	137	-.25	137	1.98	26.87

*Stage-discharge relation affected by ice; discharge computed on basis of two discharge measurements, gage heights, weather records, and records for other stations in Winooski River Basin.

†Gage height missing; discharge computed on basis of weather records and records for other stations in Winooski River Basin.

‡Change in contents in Wrightsville Detention Reservoir (usable capacity, 873,500,000 cubic feet).

**Not adjusted for change in reservoir contents.

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. Zero of gage is 603.00 feet above mean sea level.
Drainage area.- 76.1 square miles.
Records available.- November 1934 to September 1939.
Extremes.- Maximum discharge during year, 2,740 second-feet Apr. 22 (gage height, 5.86 feet), from rating curve extended above 1,000 second-feet on basis of determinations by computation of flow over dam and by slope-area method at gage heights 8.49 feet and 11.53 feet; minimum, 4.8 second-feet (regulated) several times during August and September.
1934-39: Maximum discharge, 9,750 second-feet Sept. 21, 1938 (gage height, 11.53 feet), by slope-area method; minimum, that of August and September 1939.
Remarks.- Records good except those for periods of missing gage heights, Jan. 4-10, July 19-27, Aug. 3-23, Aug. 25 to Sept. 21, which were computed on basis of recorded range in stage, weather records, and records for Mad River at Moretown and are fair. Some diurnal regulation at low stages from power plant upstream from gage.

Rating tables, water year 1938-39 (gage height, in feet, and discharge, in second-feet)

Oct. 1-31				Nov. 1 to Sept. 30					
1.1	37	0.5	4.5	1.1	39	1.8	165	4.0	1,170
1.2	47	.6	7.6	1.2	50	2.0	222	4.5	1,520
1.3	59	.7	12	1.3	63	2.2	286	5.0	1,920
1.4	74	.8	17	1.4	78	2.5	394	5.5	2,360
1.6	110	.9	23	1.5	96	3.0	608		
1.8	157	1.0	30	1.6	117	3.5	860		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	114	49	85	63	50	142	247	705	92	102	30	5.5
2	106	48	72	76	48	142	327	632	80	51	20	6.5
3	93	46	69	66	46	128	296	544	75	40	14	5.5
4	89	46	143	71	46	124	256	505	74	35	9	6.5
5	82	49	230	77	47	122	225	479	75	40	21	10
6	76	46	1,440	95	48	175	219	437	91	46	14	14
7	71	47	620	90	43	253	231	417	68	34	15	13
8	66	46	356	84	43	193	225	375	62	24	16	11
9	64	63	368	77	43	168	222	306	58	23	13	10
10	60	58	1,050	92	38	152	196	244	49	28	12	12
11	58	51	632	126	46	131	185	185	48	24	11	27
12	57	50	414	94	41	135	193	158	86	24	9	25
13	48	51	324	91	44	131	193	140	54	24	8	15
14	49	68	266	83	41	124	210	124	92	17	19	13
15	49	59	196	80	70	115	283	113	68	21	18	11
16	48	54	182	79	231	115	266	102	50	21	16	11
17	46	53	168	73	187	106	286	96	63	28	19	6
18	43	55	158	73	152	102	479	96	56	22	17	9
19	41	157	145	63	115	102	968	91	46	20	10	9
20	43	182	133	58	162	98	1,590	100	41	16	8	8
21	60	151	124	57	338	94	1,420	98	39	13	18	7
22	53	115	111	62	222	92	2,000	200	34	14	18	7
23	47	122	109	47	162	92	1,430	278	38	9	17	7.3
24	76	111	104	52	148	91	1,010	472	43	23	15	5.1
25	105	98	98	47	140	98	1,240	228	53	16	12	8.5
26	72	92	89	47	133	172	1,330	168	45	13	10	12
27	64	100	91	50	138	390	1,260	142	38	11	6	12
28	59	91	80	47	145	458	1,310	173	35	26	9	19
29	57	89	89	46	-	306	1,010	142	30	17	8	17
30	54	89	91	47	-	275	832	122	61	12	8	12
31	52	-	87	50	-	250	-	102	-	27	7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,002	114	41	64.6	0.849	0.98
November	2,318	182	46	77.3	1.02	1.14
December	8,124	1,440	69	262	3.44	3.97
Calendar year 1938	48,161.0	2,660	7.4	132	1.73	23.54
January	2,187	128	46	70.5	.926	1.07
February	2,987	338	38	107	1.41	1.47
March	5,074	458	91	164	2.16	2.49
April	19,979	2,000	185	666	8.75	9.76
May	7,974	705	91	257	3.38	3.90
June	1,744	92	30	58.1	.763	.85
July	821	102	9	26.5	.348	.40
August	427	30	6	13.8	.181	.21
September	334.9	27	5.1	11.2	.147	.16
Water year 1938-39	53,971.9	2,000	5.1	148	1.94	26.40

Peak discharge.- Dec. 6 (8:30 a.m.) 2,040 sec.-ft.; Apr. 22 (7 a.m.) 2,740 sec.-ft.; Apr. 25 (9 p.m.) 2,040 sec.-ft.

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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.- November 1928 to September 1939.
Average discharge.- 11 years, 252 second-feet.
Extremes.- Maximum discharge during year, 4,520 second-feet Dec. 6, from rating curve extended above 2,700 second-feet on basis of computation of flow over dams at gage heights 9.98 feet, 16.34 feet, and 19.4 feet; maximum gage height, 9.80 feet Mar. 27 (ice jam); minimum discharge, 4.6 second-feet Aug. 16.
1928-39: Maximum discharge, 18,400 second-feet Sept. 22, 1938 (gage height, 16.34 feet, from floodmarks), by computation of flow over dam; minimum, 1.4 second-feet 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 below 50 second-feet and above 2,000 second-feet, which are good, and those for periods of ice effect, Nov. 26-30, Jan. 3 to Apr. 7, which were computed on basis of gage heights, three discharge measurements, weather records, and records for Dog River at Northfield Falls and are fair. Considerable diurnal regulation.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.0	7.2	3.5	75	4.5	590
3.1	15.3	3.6	100	5.0	1,010
3.2	26	3.8	165	5.5	1,530
3.3	39	4.0	255	6.0	2,130
3.4	55	4.2	375	7.0	3,430

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	106	174	148	82	290	600	1,030	192	308	36	12
2	190	100	109	157	75	300	750	893	165	156	32	14
3	164	94	124	120	85	240	580	822	148	113	21	12
4	152	88	439	135	100	220	349	920	140	90	19	21
5	140	85	564	160	77	210	336	920	151	74	50	21
6	135	111	3,200	185	75	400	330	911	202	66	30	29
7	125	101	1,260	175	90	640	408	1,250	134	60	30	27
8	120	93	662	165	100	300	360	992	114	55	31	22
9	116	131	646	155	80	240	336	857	102	55	26	20
10	110	119	1,760	220	78	210	278	814	87	53	25	23
11	108	103	1,030	350	85	170	333	526	81	47	24	72
12	100	98	702	240	78	190	414	401	296	44	22	66
13	93	117	526	180	80	190	331	323	130	43	14	36
14	89	196	420	190	78	160	420	282	247	49	40	28
15	90	143	312	160	130	160	562	250	192	40	40	23
16	82	131	315	170	640	180	478	228	130	29	22	23
17	89	120	336	170	330	160	483	206	178	55	43	13
18	77	135	288	130	280	145	1,010	206	164	47	37	20
19	78	722	253	130	250	140	1,530	196	117	44	23	19
20	80	527	217	120	450	150	2,320	228	95	39	15	19
21	173	342	197	105	900	152	1,850	219	91	28	39	18
22	132	277	177	95	500	150	2,840	487	76	32	41	17
23	100	282	199	85	350	152	2,010	592	101	19	28	19
24	165	242	187	90	300	152	1,370	1,180	120	39	20	14
25	349	197	165	80	260	170	1,580	518	137	25	19	18
26	202	160	142	78	230	400	1,950	375	127	27	19	19
27	160	140	144	78	300	1,200	2,070	294	100	19	13	38
28	139	200	121	80	295	950	2,200	450	80	29	20	51
29	126	195	103	100	-	700	1,530	349	67	22	14	53
30	117	185	166	80	-	500	1,250	277	194	26	16	35
31	112	-	136	81	-	400	-	224	-	38	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,113	349	77	133	0.957	1.10
November	5,540	722	85	185	1.33	1.48
December	15,074	3,200	103	486	3.50	4.04
Calendar year 1938	101,959	5,540	14	279	2.01	27.28
January	4,412	350	78	142	1.02	1.18
February	6,378	900	75	228	1.64	1.71
March	9,641	1,200	140	311	2.24	2.58
April	30,658	2,840	278	1,022	7.35	8.20
May	17,220	1,250	196	555	3.99	4.80
June	4,158	296	67	139	1.00	1.12
July	1,771	308	19	57.1	.411	.47
August	823	50	13	26.5	.191	.22
September	800	72	12	26.7	.192	.21
Water year 1938-39	100,588	3,200	12	276	1.99	26.91

Peak discharge.— Dec. 6 (2 p.m.) 4,520 sec.-ft.; Apr. 22 (5 p.m.) 3,560 sec.-ft.

Waterbury Reservoir near Waterbury, Vt.

Location.- Water-stage recorder, lat. 44°22'55", long. 72°46'15", at reservoir dam on Waterbury River, 2-2/3 miles upstream from mouth and 3½ miles north of Waterbury, Washington County. Prior to Dec. 10, 1938, staff gage at same site and datum. Zero of gage is at mean sea level.
Drainage area.- 109 square miles.
Records available.- October 1938 to September 1939.
Extremes.- Maximum elevation during year, 596.01 feet Apr. 29; minimum elevation observed, 501.30 feet Oct. 16.
Remarks.- Reservoir is formed by earth-fill dam, completed by Corps of Engineers, U. S. Army, during summer of 1937 for conservation and flood control. 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 feet and 5,92.0 feet (sill of taintor gate) above mean sea level. Elevations for periods Oct. 1 to Dec. 9, Dec. 23-26, Jan. 4-7, Mar. 12-14, 18-26, Sept. 29, 30 determined from graph based on one or more daily readings of staff gage, time of valve operations, and records for Waterbury River near Waterbury. Figures given herein represent usable contents; those published in Water-Supply Paper 867 include dead storage of 21,800,000 cubic feet below elevation 500.0 feet.

Capacity table (elevation, in feet, and contents, in millions of cubic feet)
(Prepared by Geological Survey from contour areas as furnished by Corps of Engineers, U. S. Army)

500.0	0	515.0	60.2	540.0	302.7	590.0	1,505.0	620.0	2,956.6
501.0	3.0	520.0	92.6	550.0	461.7	592.0	1,582.7	625.0	3,263.2
503.0	9.1	525.0	132.6	560.0	658.8	600.0	1,913.4		
505.0	15.2	530.0	180.8	570.0	891.9	610.0	2,398.0		
510.0	34.8	535.0	237.3	580.0	1,168.5	617.5	2,812.3		

Elevation, at 12 p.m., in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	508.0	508.5	512.4	570.35	547.78	535.27	541.06	593.87	591.74	592.16	576.09	549.33
2	509.5	507.5	514.1	570.66	546.92	533.77	543.58	592.40	591.63	591.88	574.90	549.10
3	504.4	509.5	515.7	570.99	546.06	532.03	545.15	592.91	591.65	591.93	574.10	549.20
4	504.5	508.1	518.6	571.28	545.19	530.70	546.37	594.91	591.71	591.92	574.17	548.99
5	507.0	506.7	524.0	571.57	544.31	529.70	547.46	594.70	591.82	591.84	574.45	548.35
6	504.5	503.0	540.1	571.87	543.41	529.43	548.69	593.42	591.61	591.29	574.20	547.72
7	504.7	501.4	544.6	572.17	542.53	528.68	550.20	593.98	591.66	590.42	573.00	546.97
8	506.8	503.3	546.9	571.56	541.61	526.98	551.54	593.50	591.76	590.61	571.79	546.50
9	506.8	506.1	548.9	570.96	540.64	525.60	552.77	593.17	591.80	590.12	570.58	546.63
10	506.2	508.1	554.81	570.61	539.60	523.84	553.79	592.85	591.77	588.76	569.40	546.96
11	505.5	509.8	557.95	571.15	538.61	521.75	554.89	591.80	591.87	588.01	568.49	548.59
12	504.9	504.5	559.87	571.63	537.60	519.4	556.00	592.01	591.87	587.63	567.52	549.12
13	506.5	503.3	561.26	571.40	536.54	518.3	557.06	592.12	591.72	587.24	566.60	549.43
14	507.9	507.1	562.30	570.82	535.45	519.9	558.57	592.23	592.07	587.05	565.70	549.67
15	504.0	510.7	562.98	569.22	535.50	521.70	560.50	592.28	592.10	587.16	564.72	549.87
16	504.0	508.3	563.52	567.52	537.17	523.04	562.03	592.26	591.95	587.10	563.71	550.03
17	506.0	507.4	564.18	565.72	538.32	521.73	563.57	592.26	591.77	586.72	562.79	550.01
18	507.2	511.4	564.88	564.22	539.33	518.5	567.32	592.29	591.65	586.32	561.96	549.70
19	504.8	518.4	565.39	563.51	540.23	515.6	571.47	592.29	591.56	585.89	561.08	549.37
20	505.0	520.3	565.91	562.78	541.29	513.1	577.00	592.33	591.54	585.46	560.21	549.04
21	509.5	510.5	566.40	562.04	542.86	512.9	581.11	592.32	591.50	585.00	559.37	548.72
22	509.7	505.6	566.80	561.27	544.00	512.4	587.23	592.39	591.16	584.53	558.52	548.41
23	508.8	507.0	567.20	560.27	543.83	512.1	590.98	592.10	591.47	584.00	557.61	548.08
24	511.0	507.3	567.60	558.84	542.48	513.7	592.69	592.86	591.82	583.30	556.69	547.76
25	509.3	509.5	567.97	557.58	541.02	516.3	593.36	592.28	592.10	582.62	555.76	547.45
26	509.5	508.4	568.34	556.20	539.46	521.68	594.33	591.97	592.23	581.69	555.03	547.32
27	510.6	508.8	568.73	555.14	538.06	532.33	595.30	591.90	592.15	580.72	554.35	547.24
28	507.8	511.7	569.03	554.40	536.58	537.06	595.88	592.02	592.01	579.75	553.60	547.81
29	509.9	509.0	569.33	553.60	-	537.81	595.57	592.20	591.83	578.94	552.66	547.8
30	510.6	510.1	569.66	550.63	-	537.32	595.10	591.91	592.61	578.23	551.56	547.7
31	510.7	-	569.97	548.84	-	539.06	-	591.87	-	577.18	550.47	-

Elevation and contents, water year October 1938 to September 1939

Date	Elevation* (feet)	Contents (millions of cubic feet)	Change in contents during month (millions of cubic feet)	Change in contents during month (equivalent mean second-feet)
Sept. 30	506.2	19.9	-	-
Oct. 31	510.7	38.2	+18.3	+6.83
Nov. 30	510.1	35.3	-2.9	-1.12
Dec. 31	569.97	891.2	+855.9	+320
Calendar year 1938	-	-	+881.1	+27.9
Jan. 31	548.84	442.1	-449.1	-168
Feb. 28	536.58	257.9	-184.2	-76.1
Mar. 31	539.06	290.4	+32.5	+12.1
Apr. 30	595.10	1,703.9	+1,413.5	+545
May 31	591.87	1,577.6	-126.3	-47.2
June 30	592.61	1,606.5	+28.9	+11.1
July 31	577.18	1,086.7	-519.8	-194
Aug. 31	550.47	470.5	-616.2	-230
Sept. 30	547.7	422.8	-47.7	-18.4
Water year 1938-39	-	-	+402.9	+12.8

*Elevation at midnight.

Waterbury River near Waterbury, Vt.

Location.- Water-stage recorder and concrete control, lat. 44°22'10", long. 72°46'10", 1 2/3 miles upstream from mouth and 2 1/2 miles north of Waterbury, Washington County. Zero of gage is 428.00 feet above mean sea level.

Drainage area.- 111 square miles.

Records available.- December 1935 to September 1939.

Extremes.- Maximum discharge during year, 2,010 second-feet (regulated) May 5 (gage height, 10.56 feet); minimum daily discharge, 0.6 second-foot (regulated) Sept. 16.
1935-39: Maximum discharge, 6,520 second-feet Mar. 18, 1936 (gage height, 19.38 feet); minimum daily discharge, 0.6 second-foot (regulated) July 10, 16, 17, 1938, Sept. 16, 1939.

Remarks.- Records excellent except those below 50 second-feet and those for periods Nov. 9-14, 16, 17, Aug. 6-16, Sept. 27-30 (computed on basis of graph constructed from observer's twice-daily readings and records of valve operations at Waterbury Reservoir), which are good. Stage-discharge relation affected by ice Mar. 5, 10, 11, 19, 22, 23. Flow completely regulated by storage in Waterbury Reservoir (total usable capacity, 2,812,300,000 cubic feet).

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

4.7	0.6	5.1	7.5	5.8	52	6.9	240	8.5	935
4.8	1.3	5.2	11	6.0	74	7.2	330	9.0	1,230
4.9	2.7	5.4	21	6.3	116	7.6	480	9.6	1,550
5.0	4.7	5.6	34	6.6	172	8.0	670		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	160	3.3	4.2	277	344	8.1	1,400	218	578	432	246
2	2.0	139	2.3	4.7	230	344	12	1,400	179	335	436	78
3	303	7.5	1.9	4.8	230	340	7.5	521	106	101	299	1.4
4	65	135	5.6	5.7	228	280	5.8	10	106	101	119	61
5	1.7	116	8.2	2.6	228	254	5.8	980	155	161	1.6	182
6	183	177	43	5.9	228	311	6.7	1,550	297	333	158	180
7	81	108	16	6.0	225	389	7.8	1,500	106	462	416	180
8	1.6	43	9.2	260	225	347	7.5	1,500	106	2.1	412	117
9	81	13	9.2	269	222	289	6.9	1,450	106	252	412	1.1
10	101	14	26	240	222	286	5.8	1,450	106	640	368	39
11	103	14	14	143	220	280	6.9	1,080	121	415	289	3.0
12	96	192	10	4.6	220	277	6.7	315	374	208	289	1.4
13	1.6	274	8.6	174	220	181	6.1	257	585	208	289	.8
14	1.4	96	7.5	258	218	3.1	9.2	225	225	145	283	.7
15	232	8.6	6.4	545	139	2.7	13	228	225	1.2	301	.7
16	59	180	6.6	566	5.5	2.7	11	230	225	82	295	.6
17	1.4	164	5.0	570	4.3	165	11	228	225	215	271	30
18	1.3	14	4.3	414	3.5	277	22	230	222	215	243	87
19	151	259	33	235	2.6	271	25	230	145	213	240	88
20	81	378	6.8	235	4.9	210	28	232	107	211	240	88
21	2.9	730	6.5	238	4.7	110	34	230	106	211	240	88
22	132	451	7.2	235	4.1	110	40	474	212	211	238	87
23	169	144	6.7	285	155	108	31	614	110	232	238	88
24	177	144	6.5	368	354	41	265	274	73	280	235	88
25	400	57	5.9	368	354	2.9	852	603	54	280	232	88
26	236	125	5.2	368	350	7.7	990	384	168	357	180	91
27	100	127	6.1	273	347	15	1,140	220	166	424	168	90
28	267	2.7	5.2	230	347	9.6	1,140	220	164	428	185	91
29	2.6	213	5.2	232	-	293	1,250	410	164	348	215	91
30	66	113	4.8	735	-	401	1,350	413	187	296	248	90
31	103	-	4.9	413	-	6.7	-	218	-	436	246	-

Month	Observed				Change in reservoir contents* (equivalent second-feet)	Adjusted for change in reservoir contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	3,205.1	400	1.3	103	+6.83	110	0.991	1.14
November	4,598.8	730	2.7	153	-1.12	152	1.37	1.53
December	291.1	43	1.9	9.39	+320	329	2.96	3.41
Calendar year 1938	72,079.7	1,960	.6	197	+27.9	225	2.03	27.55
January	7,692.5	735	2.6	248	-168	80	.721	.83
February	5,268.6	354	2.6	188	-76.1	112	1.01	1.05
March	5,958.4	401	2.7	192	+12.1	204	1.84	2.12
April	7,284.8	1,350	5.8	243	+545	788	7.10	7.92
May	19,076	1,550	10	615	-47.2	568	5.12	5.90
June	5,343	585	54	178	+11.1	189	1.70	1.90
July	8,381.3	640	1.2	270	-194	76	.685	.79
August	8,218.6	436	1.6	265	-230	35	.315	.36
September	2,277.7	246	.6	75.9	-18.4	57.5	.518	.58
Water year 1938-39	77,595.9	1,550	.6	213	+12.8	226	2.04	27.53

*Change in contents in Waterbury Reservoir (total usable capacity 2,812,300,000 cubic feet).

Lamoille River at Johnson, Vt.

Location.- Water-stage recorder, lat. 44°37'20", long. 72°40'50", at falls 0.9 mile upstream from original site at bridge in Johnson, Lamoille County, and 1 1/8 miles upstream from Gihon River.

Drainage area.- 335 square miles.

Records available.- July 1910 to December 1913, September 1928 to September 1939.

Average discharge.- 11 years (1928-39), 522 second-feet.

Extremes.- Maximum discharge during year, 7,490 second-feet Apr. 22 (gage height, 12.32 feet), from rating curve extended above 4,500 second-feet on basis of computation of flood flow by critical-depth method at control and over dam; minimum, 25 second-feet Oct. 16; minimum daily, 42 second-feet Sept. 3.
1910-13, 1928-39: Maximum discharge, 13,000 second-feet Mar. 18, 1936 (gage height, 16.48 feet), by computation of flow over dam; minimum, 11 second-feet Sept. 2, 1935; minimum daily, 27 second-feet Sept. 8, 1935.

Remarks.- Records good except those for periods of ice effect, which are fair. Diurnal fluctuation at low stages caused by power plant above station.

Rating tables, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 23						Apr. 24 to Sept. 30					
1.8	53	3.0	555	7.0	2,600	1.5	29	1.8	89	2.2	220
1.9	82	4.0	1,020	9.0	4,050	1.6	45	1.9	116	2.6	382
2.0	115	5.0	1,520	11.0	5,980	1.7	65	2.0	147	3.0	555
2.2	195	6.0	2,020								

Note.- Same as preceding table above 3.0 feet.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	350	236	*370	*270	*240	*500	*900	2,540	384	758	189	99
2	79	211	*300	*280	*250	*510	*1,000	2,180	352	496	146	83
3	103	203	*240	*320	*220	*440	*830	2,020	243	265	135	42
4	127	208	*400	*340	*120	*320	*550	2,180	260	222	250	66
5	167	146	*700	*350	*120	*360	362	2,180	392	253	269	100
6	190	174	4,250	*330	*220	*500	394	1,920	357	213	178	92
7	190	273	3,220	*300	*200	*940	*450	2,360	330	234	229	87
8	171	235	1,390	*320	*200	*800	*570	2,240	301	185	203	89
9	130	260	926	*350	*190	*550	*840	1,920	299	82	240	85
10	200	350	2,440	*340	*200	*380	*620	1,970	202	191	177	57
11	173	240	2,610	*690	*160	*340	*570	1,280	228	213	162	316
12	161	267	1,470	*540	*180	*330	*560	722	841	201	140	267
13	196	229	965	*460	*200	*370	*560	735	632	184	96	204
14	178	460	804	*350	*170	*330	*640	645	661	175	153	161
15	119	428	*500	*320	*170	*310	*920	592	729	92	146	113
16	53	313	*430	*300	*400	*320	*830	528	445	72	195	129
17	185	285	*470	*260	*700	*350	*800	453	291	194	177	94
18	170	274	519	*250	*550	*300	*1,790	456	337	189	139	121
19	175	909	529	*230	*430	*260	2,890	354	347	164	131	136
20	218	1,100	441	*220	*600	*360	5,440	334	260	160	77	107
21	260	675	*390	*180	*700	*300	4,130	428	222	166	156	109
22	224	466	*370	*90	*600	*330	6,890	632	198	150	167	112
23	174	422	*310	*240	*550	*340	6,200	1,320	290	78	155	111
24	299	330	*290	*200	*450	*320	4,560	1,050	713	170	140	82
25	787	*340	*310	*180	*350	*290	4,050	753	712	148	132	120
26	595	*240	*340	*210	*400	*400	4,380	543	606	156	86	133
27	399	*270	*320	*210	*490	*1,200	5,140	399	382	142	57	154
28	339	*340	*310	*150	*510	*1,300	4,130	437	280	79	108	300
29	218	319	*340	*160	-	*1,010	3,970	830	237	122	143	233
30	231	*330	*300	*250	-	781	3,280	762	405	138	102	221
31	287	-	*260	*220	-	*600	-	555	-	188	98	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,148	787	53	231	0.690	0.80
November	10,523	1,100	146	351	1.05	1.17
December	26,514	4,250	240	855	2.55	2.94
Calendar year 1938	201,131	6,890	28	551	1.64	22.35
January	8,930	690	90	288	.860	.99
February	9,770	800	120	349	1.04	1.08
March	15,441	1,300	260	498	1.49	1.72
April	68,066	6,890	362	2,269	6.77	7.55
May	35,318	2,540	334	1,139	3.40	3.92
June	11,936	841	198	398	1.19	1.33
July	6,080	758	72	196	.585	.67
August	4,776	269	57	154	.460	.53
September	4,023	316	42	134	.400	.45
Water year 1938-39	208,525	6,890	42	571	1.70	23.15

Peak discharge.- Dec. 6 (6:30 p.m.) 5,980 sec.-ft.; Apr. 20 (2 p.m.) 6,090 sec.-ft.; Apr. 22 (12 p.m.) 7,490 sec.-ft.; Apr. 27 (4 a.m.) 5,870 sec.-ft.
*Stage-discharge relation affected by ice; discharge computed on basis of gage heights, four discharge measurements, weather records, and records for stations on nearby streams.

Lamoille River at East Georgia, Vt.

Location.- Water-stage recorder, lat. 44°40'45", long. 73°04'20", 0.5 mile upstream from railroad bridge at East Georgia, Franklin County.
Drainage area.- 711 square miles.
Records available.- October 1937 to September 1939. August 1929 to November 1937, near Milton, 3½ miles downstream; records equivalent.
Average discharge.- 10 years (1929-39), 1,232 second-feet, adjusted to present drainage area.
Extremes.- Maximum discharge recorded during water year 1937-38, 20,200 second-feet Sept. 22 (gage height, 11.76 feet), from rating curve extended above 8,380 second-feet on basis of computations of flow over dams at gage height 11.76 feet (discharge on Mar. 24 or 25 possibly higher); minimum daily discharge, 174 second-feet (regulated) Oct. 3.
Maximum discharge during water year 1938-39, 14,800 second-feet Apr. 23 (gage height, 10.50 feet), from rating curve extended above 8,380 second-feet on basis of computations of flow over dams at gage height 11.76 feet; minimum, 128 second-feet (regulated) Sept. 24; minimum daily discharge, 229 second-feet Sept. 24.
1929-39: Maximum discharge, 23,200 second-feet Mar. 19, 1936 (gage height, 12.52 feet, former site and datum), by computation of flow over dam; minimum, 49 second-feet (regulated) July 30, 1933; minimum daily discharge, 91 second-feet (regulated) July 30, 1933.
Remarks.- Records good except those for period Oct. 1 to Nov. 30, 1937 (computed from records for station near Milton on basis of ratios of drainage areas), those for periods of ice effect, Nov. 27 to Dec. 6, 15-31, 1938, Jan. 1 to Apr. 2, 1939, and period of missing gage heights, Apr. 3-10, 1939 (computed on basis of available gage heights, two discharge measurements, weather records, and records for station at Johnson and for Missisquoi River near Richford), all of which are fair, and those for period Dec. 1, 1937, to May 8, 1938 (estimated on basis of records for station at Johnson and for stations on Missisquoi River near North Troy and near Richford), which are poor. Discharge for period May 9 to June 25, 1938, determined from gage height graph based on twice-daily staff-gage readings. Diurnal regulation at low stages by operation of power plants above station.

Rating table, Oct. 1, 1937 to Sept. 30, 1939, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.0	175	3.0	427	7.0	5,050
2.1	190	3.2	520	8.0	7,150
2.2	206	3.5	700	9.0	9,700
2.3	223	4.0	1,070	10.0	12,900
2.4	244	4.5	1,520	11.1	17,200
2.6	294	5.0	2,050		
2.8	354	6.0	3,350		

Discharge, in second-feet, 1937-39

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	302	907	1,600	740	1,400	840	3,800	1,900	742	429	400	568
2	192	686	1,300	740	1,400	780	3,300	2,000	431	389	520	889
3	174	617	1,100	790	1,300	760	2,800	1,400	431	330	491	675
4	200	596	1,000	640	1,200	740	2,500	880	364	358	436	460
5	207	555	400	620	1,100	680	2,200	700	338	386	382	460
6	203	525	280	580	1,600	840	1,800	640	341	396	348	443
7	219	541	700	560	6,000	1,300	1,600	640	408	378	300	406
8	247	555	2,000	720	3,800	1,200	1,500	680	504	343	281	718
9	230	589	1,400	900	2,700	1,100	1,400	700	456	318	276	604
10	187	726	1,000	1,100	2,300	1,050	1,600	728	431	237	294	489
11	212	686	840	800	1,900	1,000	1,700	749	423	334	335	348
12	226	568	800	600	1,700	860	1,900	861	412	315	369	398
13	233	505	760	540	1,400	900	2,300	854	386	468	380	1,760
14	302	3,060	720	520	1,800	1,100	3,200	982	448	497	287	1,960
15	275	4,640	700	470	1,900	1,050	6,000	1,330	431	396	367	844
16	230	2,390	680	470	1,500	980	9,000	2,170	368	346	315	1,880
17	200	1,680	660	470	1,200	940	6,000	1,670	351	274	331	1,330
18	261	1,520	700	460	1,100	920	4,500	1,280	319	334	625	968
19	261	1,320	1,600	450	1,000	880	4,000	1,040	291	296	2,250	928
20	799	1,040	1,400	440	1,300	1,400	3,600	1,240	316	334	1,130	1,340
21	6,290	889	1,200	430	1,500	2,500	3,100	3,510	378	400	784	6,880
22	3,530	773	1,000	450	1,300	4,500	2,900	2,410	408	382	449	17,000
23	1,500	679	820	500	1,200	8,000	2,700	1,620	435	449	730	6,920
24	1,340	679	680	1,100	1,100	18,000	2,500	1,280	393	918	1,510	2,750
25	1,030	710	580	2,500	980	10,000	2,100	1,380	278	684	1,930	1,980
26	781	610	600	5,200	860	6,000	1,800	1,150	872	532	1,030	1,520
27	694	702	660	4,000	720	4,000	1,600	1,010	961	1,930	733	1,380
28	611	885	760	2,500	900	3,200	1,500	903	649	1,130	484	1,550
29	1,060	3,440	900	1,800	-	2,900	1,500	721	489	706	468	1,170
30	1,990	1,970	760	1,400	-	3,200	1,700	628	410	538	484	982
31	1,330	-	740	1,300	-	3,100	-	700	-	451	467	-

Discharge, in second-feet, of Lamoille River at East Georgia, Vt., 1937-39--Continued

1938-39

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	896	670	870	630	450	1,400	1,900	5,450	1,030	1,620	864	278
2	878	610	820	610	420	1,350	2,300	4,690	882	1,380	618	272
3	628	574	780	600	360	1,100	2,000	3,990	763	910	478	231
4	544	556	1,100	670	360	1,050	1,600	4,330	682	728	1,730	327
5	504	550	2,060	670	300	1,040	1,200	4,420	749	562	1,990	317
6	634	526	5,600	670	370	1,600	1,150	3,990	896	562	930	396
7	640	634	8,890	650	450	2,000	1,500	5,050	670	568	661	335
8	568	628	4,100	640	400	1,600	1,650	5,450	721	538	663	310
9	562	658	2,600	650	380	1,200	1,800	4,870	777	473	620	252
10	520	749	4,100	800	360	1,000	1,580	5,050	676	408	654	233
11	556	728	6,490	1,600	330	840	1,620	3,830	580	446	516	626
12	526	610	3,990	1,300	320	750	1,620	2,110	2,620	422	425	994
13	510	592	2,800	1,050	370	720	1,520	1,830	1,830	389	356	628
14	489	911	2,050	860	440	720	1,830	1,570	1,830	395	414	468
15	489	982	1,560	730	420	660	3,000	1,420	2,230	443	418	392
16	431	861	1,270	660	580	660	2,600	1,240	1,380	333	434	333
17	439	770	1,240	580	1,500	660	2,480	1,150	1,070	418	1,100	273
18	446	840	1,400	530	1,750	620	5,080	1,110	998	518	604	344
19	474	2,130	1,460	480	1,410	580	8,350	1,060	826	470	438	312
20	551	2,930	1,050	450	1,380	580	10,900	1,030	749	434	386	322
21	819	1,880	900	420	1,800	670	9,430	1,010	658	348	432	284
22	868	1,380	800	380	2,000	610	12,200	1,110	580	357	402	280
23	670	1,150	730	270	1,800	560	13,700	2,110	556	296	406	266
24	640	1,050	700	430	1,600	600	9,700	2,540	1,370	294	374	229
25	1,950	758	670	400	1,300	620	7,870	2,000	1,720	360	358	360
26	1,670	728	650	380	1,100	830	7,630	1,380	1,570	300	310	332
27	1,200	770	660	420	1,150	2,400	8,890	1,110	1,150	488	240	480
28	918	840	660	450	1,250	2,700	8,350	1,050	840	1,180	330	1,070
29	805	870	630	360	-	3,000	7,390	1,620	694	1,240	290	913
30	694	850	650	430	-	2,400	6,710	1,830	813	678	304	665
31	646	-	660	480	-	1,700	-	1,330	-	556	280	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 1937	25,306	6,290	174	816	1.15	1.33
November	35,041	4,640	505	1,168	1.64	1.83
December	28,340	2,000	280	914	1.29	1.49
Calendar year *1937	480,135	12,100	177	1,315	1.82	24.75
January	33,700	5,200	430	1,087	1.53	1.76
February	46,140	6,000	720	1,648	2.32	2.42
March	84,720	18,000	680	2,733	3.84	4.43
April	86,100	9,000	1,400	2,870	4.04	4.51
May	37,756	3,510	628	1,218	1.71	1.97
June	13,454	961	278	448	.630	.70
July	15,258	1,930	237	492	.692	.80
August	19,186	2,250	276	619	.871	1.00
September	59,598	17,000	348	1,987	2.79	3.11
Water year 1937-38	484,599	18,000	174	1,328	1.87	25.35
October 1938	22,165	1,950	431	715	1.01	1.16
November	27,785	2,930	526	926	1.30	1.45
December	61,940	8,890	630	1,998	2.81	3.24
Calendar year 1938	507,802	18,000	237	1,391	1.96	26.55
January 1939	19,250	1,600	270	621	.873	1.01
February	24,350	2,000	300	870	1.22	1.27
March	36,220	3,000	560	1,168	1.64	1.89
April	147,550	13,700	1,150	4,918	6.92	7.72
May	80,730	5,450	1,010	2,604	3.66	4.22
June	31,910	2,620	556	1,064	1.50	1.67
July	18,114	1,620	294	584	.821	.95
August	18,025	1,990	240	581	.817	.94
September	12,522	1,070	229	417	.586	.65
Water year 1938-39	500,561	13,700	229	1,371	1.93	26.17

*Calendar year figures are for station near Milton (year made complete on basis of estimated daily discharge for December).

Missisquoi River near North Troy, Vt.

Location.- Water-stage recorder, lat. 44°58'20", long. 72°23'15", just upstream from Big Falls, 1⅛ miles downstream from Jay Branch, and 2¾ miles upstream from North Troy, Troy County.

Drainage area.- 131 square miles.

Records available.- August 1931 to September 1939.

Extremes.- Maximum discharge during year, 3,360 second-feet Apr. 22 (gage height, 9.17 feet), from rating curve extended above 1,650 second-feet on basis of computation of flow over dam at gage heights 7.72 feet and 11.40 feet; minimum, 20 second-feet during July or August (gage height, 1.05 feet).

1931-39: Maximum discharge, 5,140 second-feet Oct. 7, 1932 (gage height, 12.26 feet), from rating curve extended above 1,650 second-feet on basis of computation of flow over dam at gage heights 7.72 feet and 11.40 feet; minimum, 10 second-feet Aug. 22, 1934 (gage height, 0.81 foot).

Remarks.- Records good except those for periods of ice effect, Nov. 26-28, Dec. 16 to Apr. 9, Apr. 14 (computed on basis of three discharge measurements, gage heights, weather records, and records for Otter Creek at Center Rutland), and those for periods of missing gage heights, July 28 to Aug. 10, Aug. 16 to Sept. 30 (computed on basis of records for station at Richford, power-plant records, and weather records), all of which are fair. Some diurnal regulation from small power plant upstream from station.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.1	22	1.5	46	2.0	106	3.0	350	6.0	1,640
1.2	27	1.6	54	2.2	143	3.5	526	7.0	2,140
1.3	33	1.7	64	2.4	187	4.0	720	8.0	2,700
1.4	39	1.8	76	2.6	237	5.0	1,140	9.0	3,240

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	96	132	83	65	250	230	1,140	180	147	145	30
2	106	89	106	88	61	235	280	1,030	141	104	122	32
3	104	82	103	79	70	180	255	1,030	124	92	100	28
4	98	81	223	77	69	165	220	1,260	128	64	1,600	33
5	90	74	459	70	74	170	205	1,260	134	72	900	32
6	108	101	1,860	100	80	280	190	1,120	139	52	400	43
7	104	117	1,390	108	69	540	245	1,740	119	55	200	53
8	92	96	508	112	70	390	250	1,590	99	54	145	37
9	74	128	389	107	64	240	245	1,590	96	44	120	32
10	90	130	1,080	165	61	200	222	1,540	77	50	125	40
11	74	103	980	415	52	165	232	780	176	45	102	150
12	76	95	526	250	56	142	247	508	1,440	40	72	110
13	67	106	382	160	60	123	230	360	350	38	55	70
14	72	232	290	130	58	120	284	302	724	108	76	50
15	62	158	180	100	70	112	452	266	487	103	66	42
16	55	126	160	91	220	110	389	230	260	75	60	37
17	76	108	185	77	382	103	376	204	207	104	71	40
18	62	124	185	73	378	99	920	224	162	119	63	35
19	67	441	165	75	240	94	1,680	192	124	86	58	26
20	132	356	150	68	195	99	2,360	194	103	62	50	32
21	184	232	130	70	520	99	2,200	171	98	51	66	25
22	151	176	110	60	430	95	3,020	244	83	40	58	29
23	104	160	90	78	280	93	2,920	379	109	43	59	35
24	148	135	114	73	200	95	1,890	253	222	41	43	35
25	478	95	108	78	155	93	1,390	192	282	41	50	41
26	242	94	95	68	133	145	1,590	158	212	29	50	50
27	169	110	102	69	195	670	2,040	137	137	48	40	120
28	134	114	90	60	260	860	1,640	166	103	85	31	270
29	117	119	89	56	-	580	1,640	490	90	145	31	200
30	104	130	90	74	-	360	1,440	338	113	95	28	160
31	101	-	85	64	-	265	-	245	-	73	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,656	478	55	118	0.901	1.04
November	4,208	441	74	140	1.07	1.19
December	10,556	1,860	85	341	2.60	3.00
Calendar year 1938	87,716	3,300	26	240	1.83	24.89
January	3,178	415	56	103	.786	.91
February	4,567	520	52	163	1.24	1.29
March	7,152	660	93	231	1.76	2.03
April	29,282	3,020	190	976	7.45	8.31
May	19,333	1,740	137	624	4.76	5.49
June	6,719	1,440	77	224	1.71	1.91
July	2,205	147	29	71.1	.543	.63
August	5,018	1,600	28	162	1.24	1.43
September	1,917	270	25	63.9	.488	.54
Water year 1938-39	97,791	3,020	25	268	2.05	27.77

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 3 3/4 miles downstream from North Branch.

Drainage area.- 479 square miles.

Records available.- May 1909 to November 1910, July 1911 to September 1923, October 1928 to September 1939.

Average discharge.- 19 years (1911-19, 1928-39), 934 second-feet.

Extremes.- Maximum discharge during year, 14,100 second-feet Apr. 22 (gage height, 13.77 feet), from rating curve extended above 8,000 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; minimum, 87 second-feet Sept. 22 (gage height, 2.47 feet).

1909-10, 1911-23, 1928-39: Maximum discharge, 16,000 second-feet (revised) Mar. 19, 20, 1936 (gage height, 14.70 feet), from rating curve extended above 8,000 second-feet on basis of computation of flow over dam, slope-area determination at gage height 12.90 feet, and study of discharge per foot of width at measuring section; maximum gage height, 17.64 feet Apr. 1, 1918 (ice jam); minimum discharge, 8 second-feet July 14, 1911.

Maximum discharge known, 45,000 second-feet, sometime during November 1927 (gage height, 23.1 feet, from floodmarks), from rating curve extended above 14,000 second-feet.

Remarks.- Records good except those for periods of ice effect and of missing gage heights, which are fair. Slight diurnal regulation at low stages.

Rating table, water year 1938-39 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.5	94	3.3	343	4.5	990	7.0	3,260	12.0	10,500
2.7	144	3.6	475	5.0	1,370	8.0	4,420	14.0	14,500
3.0	234	4.0	670	6.0	2,240	10.0	7,150		

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	540	356	*490	*320	*205	*900	*800	4,540	742	772	615	113
2	493	339	*410	*300	*200	*920	*900	3,940	590	615	520	116
3	448	308	*400	*290	*200	*670	*820	3,370	498	484	447	106
4	403	300	*800	*280	*210	*650	*760	3,700	484	398	3,520	101
5	381	300	*2,000	*270	*195	*630	*710	3,700	498	331	3,590	128
6	434	356	4,790	*330	*200	*900	*670	3,480	484	300	1,890	184
7	416	390	5,570	*410	*200	*1,600	*820	3,940	430	282	990	196
8	360	368	3,260	*410	*210	*1,500	*820	4,300	372	241	645	152
9	336	457	2,020	*390	*200	*1,000	*820	3,940	331	237	555	136
10	312	457	3,150	*500	*190	*820	*760	4,420	304	231	560	131
11	308	398	3,940	*1,200	*200	*730	*790	3,260	280	215	498	368
12	282	343	2,540	*900	*200	*650	*790	1,920	2,520	196	398	520
13	272	412	1,660	*600	*190	*600	*740	1,370	2,450	193	327	304
14	251	550	1,250	*480	*200	*570	*1,000	1,060	1,840	320	320	218
15	†230	676	*800	*360	*220	*540	*1,430	906	2,290	470	304	175
16	†220	516	*560	*320	*600	*520	*1,400	778	1,370	394	265	161
17	†230	444	*670	*290	*1,100	*480	*1,380	682	1,020	390	241	134
18	†250	444	*670	*270	*1,200	*440	*3,000	665	820	452	244	116
19	†260	1,030	*600	*250	*920	*410	*6,000	635	635	421	228	134
20	†450	1,250	*550	*230	*820	*400	9,430	600	511	335	212	108
21	†660	664	*480	*220	*1,400	*400	10,700	560	448	272	215	104
22	†540	676	*400	*215	*1,600	*400	13,700	608	385	224	231	101
23	†400	575	*340	*205	*1,300	*390	12,600	1,020	412	202	215	104
24	†500	520	*390	*230	*900	*390	9,780	850	694	175	181	164
25	†1,100	*430	*410	*220	*630	*390	†6,800	660	1,130	172	205	139
26	†850	*380	*360	*225	*560	*500	†6,200	550	1,100	158	202	252
27	†650	*400	*390	*215	*750	*1,900	†7,000	475	736	152	169	423
28	†500	*410	*350	*205	*840	*2,400	†6,400	475	555	291	155	1,170
29	†450	*430	*330	*210	-	*2,300	†6,400	1,020	448	635	141	826
30	430	*460	*340	*205	-	*1,400	†5,000	1,370	703	439	128	648
31	368	-	*330	*200	-	*950	-	955	-	339	128	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,343	1,100	220	430	0.898	1.04
November	15,139	1,250	300	505	1.05	1.17
December	40,270	5,570	330	1,299	2.71	3.12
Calendar year 1938	335,763	10,500	90	920	1.92	26.05
January	10,770	1,200	200	347	.724	.83
February	15,640	1,600	190	559	1.17	1.22
March	26,350	2,400	390	850	1.77	2.04
April	118,420	13,700	670	3,947	8.24	9.19
May	59,749	4,540	475	1,927	4.02	4.64
June	25,060	2,520	280	835	1.74	1.94
July	10,336	772	152	333	.695	.80
August	18,359	3,590	128	592	1.24	1.43
September	7,532	1,170	101	251	.524	.58
Water year 1938-39	360,968	13,700	101	989	2.06	28.00

*Stage-discharge relation affected by ice; discharge computed on basis of two discharge measurements, available gage heights, weather records, and records for station at North Troy.

†Gage height missing; discharge computed on basis of weather records and records for station at 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. Zero of gage is 673.00 feet above mean sea level (general adjustment of 1929).

Records available.- May 1931 to September 1939.

Extremes.- Maximum gage height observed during year, 12.06 feet May 9; minimum observed, 7.89 feet Apr. 15.
1931-39: Maximum gage height observed, 12.92 feet Apr. 20, 1933; minimum observed, 6.69 feet Nov. 4, 1934.

Remarks.- Gage read once daily on days for which gage heights are shown; not read on other days. Most readings Nov. 29 to Mar. 31 taken from top of ice.

Gage height, in feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.35	8.77	8.51			9.75	8.71	11.40	10.96	9.93	9.14	-
2	9.37	8.75	8.51			-	-	11.50	10.88	9.91	9.13	-
3	9.39	8.73	8.51			9.73	8.59	11.69	10.80	9.89	9.13	-
4	9.37	8.71	8.51			9.66	8.55	11.80	-	9.89	9.37	-
5	9.37	8.69	8.57			-	8.47	11.92	10.76	9.87	9.61	-
6	9.33	8.66	8.65			9.63	8.40	12.00	10.67	9.81	9.77	-
7	9.30	8.64	8.95		9.37	-	8.21	-	10.58	9.80	9.77	-
8	9.27	8.59	9.39			9.63	8.20	12.04	10.50	9.77	9.75	-
9	9.23	8.62	9.60			9.63	8.14	12.06	10.45	9.73	9.74	-
10	9.20	8.60	9.81			-	8.07	12.00	10.50	9.69	9.72	8.61
11	9.17	8.59	9.89			9.63	8.03	11.98	-	9.63	9.72	8.63
12	9.15	8.59	9.95			-	7.97	11.96	-	9.56	9.70	8.65
13	9.11	-	10.06			-	7.95	11.89	-	9.49	9.71	-
14	9.07	8.61	10.12			-	7.91	11.84	-	9.43	9.69	-
15	9.04	8.61	10.15			-	7.89	11.80	-	9.37	9.67	8.47
16	9.01	8.63	10.18			9.22	7.95	11.69	-	-	9.61	-
17	8.99	8.64	10.22			-	8.01	11.60	-	9.30	9.54	-
18	8.97	8.65	10.20			-	8.05	11.56	10.46	9.27	9.50	-
19	8.95	8.65	10.18			-	8.23	11.50	10.40	9.24	9.44	-
20	8.94	8.65	10.16			-	8.59	11.46	10.36	9.21	9.41	-
21	8.91	8.66	10.16			-	8.77	11.35	10.33	9.20	9.37	-
22	8.88	8.66	10.16			-	8.91	11.32	10.28	9.18	9.33	-
23	-	8.65	-			-	-	11.26	10.25	-	9.31	-
24	8.85	8.65	10.16			9.07	9.29	11.32	10.20	9.17	9.30	-
25	8.85	8.63	10.16			-	9.67	11.27	10.18	9.16	9.29	-
26	8.83	8.60	10.16			-	9.97	11.19	10.13	9.16	9.27	8.37
27	8.81	8.56	10.16			9.09	10.40	11.15	10.08	9.15	9.23	-
28	8.81	8.54	10.16			-	10.78	11.11	10.04	9.15	-	-
29	8.80	8.51	10.16			9.09	11.16	11.07	10.00	9.14	-	-
30	8.79	8.51	10.18			8.99	11.28	11.02	9.98	-	-	-
31	8.79	-	10.16			8.47	-	11.00	-	9.14	-	-

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, 0.65 mile downstream from original site and 1 mile upstream from mouth.
Drainage area.- 142 square miles.
Records available.- September 1938 to September 1939. May 1909 to September 1924 and November 1928 to May 1936 at site 0.65 mile upstream; records equivalent.
Average discharge.- 17 years (1909-19, 1929-35, 1939), 245 second-feet.
Extremes.- Maximum discharge during year, 2,110 second-feet Apr. 23 (gage height, 7.31 feet); minimum daily, 67 second-feet July 16.
1909-24, 1928-36, 1938-39: Maximum discharge, 3,900 second-feet Mar. 20, 1936 (gage height, 5.76 feet, former site and datum), by computation of flow over dam; minimum daily, 3.0 second-feet Oct. 27, 1930. Practically no flow at various times because of regulation.
Remarks.- Records excellent except those above 300 second-feet, which are good, those for days of ice effect, Jan. 26, 27, Feb. 17 (computed on basis of gage heights, weather records, and records for nearby stations), and those for July 23 to Aug. 9 (computed on basis of one-float gage reading daily and records for nearby stations), all of which are fair. Some diurnal regulation from power plant upstream from station.

Discharge, in second-feet, 1938

Sept. 17	108	Sept. 20	140	Sept. 23	489	Sept. 26	491	Sept. 29	400
18	73	21	397	24	507	27	459	30	230
19	103	22	517	25	502	28	417		

Note.- Mean discharge, Sept. 17-30, 345 second-feet (run-off, 1.27 inches).

Rating table, water year 1938-39 except days of ice effect (gage height, in feet, and discharge, in second-feet)

2.9	55	3.4	139	4.5	447	6.0	1,150
3.0	68	3.6	184	5.0	644	6.5	1,470
3.2	100	4.0	288	5.5	880	7.4	2,200

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	128	132	123	222	133	167	379	1,650	144	236	130	121
2	148	116	126	212	129	166	179	1,540	162	216	130	116
3	186	111	149	208	104	164	195	1,440	229	214	130	93
4	194	107	196	174	113	160	220	1,330	218	213	130	86
5	187	110	230	191	100	168	201	1,270	207	201	240	113
6	136	100	259	162	111	164	195	1,270	183	194	350	91
7	148	115	495	155	107	164	193	1,270	176	179	350	91
8	139	107	592	146	104	211	199	1,300	170	162	320	102
9	139	105	674	151	102	174	203	1,360	132	133	300	100
10	136	97	721	156	135	181	196	1,400	152	148	240	88
11	115	92	714	158	94	195	223	1,330	154	154	220	112
12	112	98	697	184	102	168	236	1,210	265	144	197	127
13	116	100	678	178	107	166	175	1,030	238	137	173	127
14	110	118	630	168	113	169	222	880	287	132	153	124
15	119	112	561	172	115	180	238	765	333	116	145	129
16	111	130	524	172	125	154	229	672	321	67	141	134
17	118	144	492	182	140	160	232	586	319	112	131	111
18	111	139	329	184	107	148	307	495	294	135	115	122
19	114	155	299	146	111	154	454	438	282	122	123	118
20	114	172	339	138	116	135	763	389	259	112	135	120
21	113	177	334	148	145	117	980	351	229	115	137	115
22	111	203	295	109	103	130	1,440	339	203	128	129	116
23	86	204	273	135	126	144	1,890	346	217	120	129	118
24	121	200	256	131	124	130	2,060	359	217	130	128	110
25	116	183	241	127	141	119	1,850	356	226	150	126	122
26	128	171	235	140	170	124	1,650	375	234	140	117	119
27	168	154	231	150	162	131	1,610	331	253	130	107	126
28	186	138	219	125	174	148	1,650	311	260	140	131	116
29	183	136	238	90	-	166	1,690	296	257	120	119	127
30	164	159	208	127	-	196	1,690	274	251	70	110	116
31	174	-	221	119	-	271	-	197	-	140	116	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,231	194	86	136	0.958	1.10
November	4,085	204	92	136	.958	1.07
December	11,579	721	123	374	2.63	3.03
Calendar year	-	-	-	-	-	-
January	4,840	222	90	156	1.10	1.27
February	3,413	174	94	122	.859	.89
March	5,024	271	117	162	1.14	1.31
April	21,749	2,060	175	725	5.11	5.70
May	25,160	1,650	197	812	5.72	6.60
June	6,872	333	132	229	1.61	1.80
July	4,510	236	67	145	1.02	1.18
August	5,202	350	107	168	1.18	1.36
September	3,410	134	86	114	.803	.90
Water year 1938-39	100,075	2,060	67	274	1.93	26.21

In addition to the records of stream flow obtained at gaging stations in the St. Lawrence River Basin and reported in the preceding pages, measurements of flow were made at other points, as shown in the following table.

Miscellaneous discharge measurements in the St. Lawrence River Basin during the water year October 1938 to September 1939

Date	Stream	Tributary to or diverting from-	Locality	Discharge (sec.-ft.)
*Nov. 3	St. Louis River.	Lake Superior....	Floodwood, Minn.....	647
Aug. 3	Boardman River..	Lake Michigan....	Traverse City, Mich.....	245
4	....do.....	....do.....	....do.....	190
23	....do.....	....do.....	....do.....	294
17	Thunder Bay River.	Lake Huron.....	Near Alpena, Mich.....	296
18	....do.....	....do.....	....do.....	318
Mar. 14	Maumee River....	Lake Erie.....	Waterville, Ohio.....	58,400
15	....do.....	....do.....	....do.....	58,200
16	....do.....	....do.....	....do.....	40,500
Apr. 11	....do.....	....do.....	....do.....	12,400
June 7	....do.....	....do.....	....do.....	1,370
July 25	....do.....	....do.....	....do.....	596
Sept.21	....do.....	....do.....	....do.....	112
Dec. 23	Little Clear Pond outlet.	Upper Saranac Lake.	At Saranac Inn railroad station, N. Y..	4.04
Jan. 26	....do.....	....do.....	....do.....	4.78
Feb. 2	....do.....	....do.....	....do.....	6.41
Apr. 4	....do.....	....do.....	....do.....	6.70
June 6	....do.....	....do.....	....do.....	7.56
July 19	....do.....	....do.....	....do.....	4.20
Sept.17	....do.....	....do.....	....do.....	2.54

*Erroneously published as Nov. 3, 1937 in Water-Supply Paper 854.

YEARLY-DISCHARGE SUMMARY

Part 4. St. Lawrence River Basin

The following tables summarize in convenient form for general reference and for use in preliminary investigations the figures of yearly discharge and run-off for certain gaging stations in the St. Lawrence River Basin, previously published in the annual series of water-supply papers. All gaging stations, both active and discontinued, at which 10 or more complete years of record have been collected and published are represented, also some special stations, as noted below. The summaries present figures of maximum and minimum daily discharge and yearly mean discharge and run-off, for both the water years ending September 30 and the calendar years. The figures for the water years prior to 1914 and figures for the calendar years 1914 to 1933 have not been previously published in the annual water-supply papers but are included in these summaries.

The number of the water-supply paper in which the figures of daily and monthly discharge as well as yearly discharge are published is shown in the column head W.S.P. (no. and page). The descriptions contained in the water-supply papers indicated give detailed information relative to the gaging stations, including location, diversions, regulation by storage, effect of irrigation, and other pertinent information. Records for stations which were operated prior to 1901 are generally contained in the annual reports of the Geological Survey. Reference is made to these reports if records have not been published in water-supply papers.

Figures of drainage area are given for each station when known. These figures have been revised from time to time as more accurate maps have become available. The discharge per square mile and run-off in inches in the following tables, in general, have been revised according to the latest figure for the drainage area.

Summaries for incomplete years are given for those stations in irrigated regions for which seasonal records were collected in order to show the flow available for irrigation. They have been compiled from the records of daily and monthly discharge contained in the water-supply paper indicated. For summaries after 1914 if the period extends beyond Sept. 30, records of daily and monthly discharge after that day are contained in the water-supply paper indicated for the following year. An incomplete year is included for other stations if the maximum daily discharge or minimum daily discharge for all the years of record occurred in that year.

Former names under which records for some of the stations have been published in the annual water-supply papers are indicated in these yearly summaries as follows:

1. If the name of the stream or town or other feature to which the station is referred has been changed, the former name is given in parentheses, indicating that records for some of the earlier years are published under the obsolete name.

2. If the entire name of a station has been changed, the superseded name and years when it was used are given in parentheses beneath the present name.

Summary of yearly discharge, in second-feet, at stations in STREAMS TRIBUTARY TO LAKE SUPERIOR

Pigeon River at International Bridge, Minn.
(Drainage area, 590 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1924	(*)	3,180	35	336	0.569	7.76	3,180	35	418	0.695	9.46
1925	(*)	4,690	40	393	.666	9.04	4,690	40	339	.575	7.79
1926	(*)	3,180	30	371	.629	8.53	3,180	30	450	.763	10.36
1927	744-12	7,050	-	746	1.26	17.18	7,050	-	670	1.14	15.42
1928	744-12	5,840	-	589	.998	13.62	5,840	-	645	1.09	14.93
1929	744-12	-	-	325	.551	7.49	-	-	268	.454	6.17
1930	744-12	2,290	40	347	.588	7.98	7,050	40	464	.786	10.69
1931	744-12	7,050	40	407	.690	9.37	1,550	40	344	.583	7.91
1932	744-12	3,300	78	476	.807	10.99	3,710	62	475	.805	10.96
1933	744-12	4,350	62	477	.808	10.96	4,350	78	463	.785	10.64
1934	759-11	10,700	96	578	.980	13.29	10,700	96	604	1.02	13.89
1935	784-11	5,340	131	614	1.04	14.12	5,340	125	548	.929	12.59
1936	804-17	7,390	75	468	.793	10.81	7,390	63	445	.754	10.27
1937	824-12	5,750	63	507	.859	11.66	5,750	80	531	.900	12.22
1938	854-13	4,430	80	514	.871	11.84	4,430	80	509	.863	11.71
1939	874-13	4,800	80	482	.819	11.10	-	-	-	-	-

*From H. Doc. 92, 72d Cong., 1st sess., p. 14.

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Superior--Continued

Poplar River at Lutsen, Minn.
(Drainage area, 138 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1913	354-16	-	-	-	-	-	430	-	76.0	0.551	7.48
1914	384-13	675	20	127	0.920	12.53	675	20	125	.891	12.10
1915	404-14	395	19	78.2	.567	7.70	395	19	85.9	.622	8.46
1916	434-13	1,250	25	150	1.09	14.78	1,250	24	136	.986	13.41
1917	454-11	695	19	94.2	.683	9.26	-	-	-	-	-
1931	759-12	939	7	88.6	.642	8.72	363	7	71.4	.517	7.03
1932	759-12	612	30	113	.819	11.15	-	-	-	-	-
1934	759-12	1,280	8.3	118	.855	11.58	1,280	8.3	125	.906	12.31
1935	784-12	1,000	25	131	.949	12.87	1,000	25	116	.841	11.38
1936	804-18	790	7	84.8	.614	8.38	790	7	76.7	.556	7.58
1937	824-13	1,250	10	108	.783	10.65	1,250	10	115	.833	11.28
1938	854-14	885	22	112	.812	10.99	885	20	110	.797	10.80
1939	874-14	1,040	20	145	.105	14.30	-	-	-	-	-

STREAMS TRIBUTARY TO LAKE MICHIGAN

Menominee River at Twin Falls, near Iron Mountain, Mich.
(Drainage area, 1,790 square miles)

1914	504-20	-	-	-	-	-	14,300	373	1,690	0.944	12.78
1915	504-20	4,290	532	1,700	0.950	12.90	5,740	532	2,110	1.18	16.04
1916	504-20	16,700	707	3,080	1.72	23.36	16,700	707	3,010	1.68	22.88
1917	504-20	8,740	747	2,220	1.24	16.77	8,740	711	1,930	1.08	14.61
1918	504-20	5,230	660	1,540	.860	11.66	5,230	660	1,630	.911	12.40
1919	504-21	7,080	274	1,710	.955	12.96	7,080	274	1,690	.944	12.76
1920	504-21	7,920	640	1,750	.978	13.31	7,920	617	1,600	.894	12.14
1921	524-17	13,100	617	1,590	.888	12.09	13,100	669	1,590	.888	12.02
1922	544-17	9,560	606	1,770	.989	13.39	9,560	606	1,790	1.00	13.57
1923	564-10	10,000	618	1,370	.765	10.42	10,000	548	1,310	.732	9.97
1924	584-14	5,050	471	1,310	.732	9.92	5,050	471	1,330	.743	10.07
1925	604-26	3,500	154	922	.515	7.00	3,500	154	937	.523	7.11
1926	624-16	7,280	546	1,550	.866	11.75	7,280	551	1,830	1.02	13.89
1927	644-15	7,400	624	2,240	1.25	17.01	7,400	624	2,060	1.15	15.62
1928	664-12	10,600	694	2,020	1.13	15.36	10,600	710	2,260	1.26	17.17
1929	684-11	13,500	802	2,160	1.21	16.37	13,500	802	1,940	1.08	14.71
1930	699-11	7,290	604	1,700	.950	12.84	7,290	604	1,580	.883	11.97
1931	714-12	2,270	514	1,060	.592	8.02	4,510	514	1,290	.721	9.79
1932	729-13	5,380	685	1,790	1.00	13.57	5,380	630	1,580	.883	11.98
1933	744-17	11,200	508	1,530	.855	11.63	11,200	508	1,510	.844	11.49
1934	759-27	10,000	442	1,448	.809	10.98	10,000	442	1,670	.933	12.68
1935	784-16	5,600	777	1,867	1.04	14.18	5,600	870	1,688	.943	12.82
1936	804-21	7,770	467	1,582	.884	12.03	7,770	467	1,545	.863	11.75
1937	824-17	8,530	446	1,490	.832	11.30	8,530	446	1,685	.874	11.87
1938	854-29	11,900	679	2,149	1.20	16.29	11,900	679	2,279	1.27	17.27
1939	874-43	10,600	714	2,465	1.38	18.69	-	-	-	-	-

Menominee River below Koss, Mich.
(Drainage area, 3,790 square miles)

1914	384-31	20,800	1,000	3,550	0.937	12.73	20,800	1,000	3,370	0.889	12.09
1915	404-35	8,650	1,170	3,230	.852	11.56	9,190	1,240	3,720	.982	13.32
1916	434-25	23,200	1,390	5,260	1.39	18.88	23,200	1,390	5,340	1.41	19.15
1917	454-22	13,800	1,550	4,320	1.14	15.49	13,800	1,550	3,840	1.01	13.74
1918	474-16	15,000	1,160	3,170	.836	11.34	15,000	1,160	3,500	.923	12.53
1919	504-24	14,100	1,170	3,760	.992	13.45	14,100	1,170	3,570	.942	12.77
1920	504-24	21,800	1,200	3,710	.979	13.32	21,800	1,030	3,410	.900	12.26
1921	524-18	20,300	960	3,180	.839	11.38	20,300	926	3,120	.823	11.15
1922	544-19	20,500	926	3,600	.950	12.86	20,500	960	3,640	.960	12.99
1923	564-11	18,700	938	2,800	.739	10.02	18,700	914	2,700	.712	9.68
1924	584-16	11,800	764	2,530	.668	9.07	11,800	764	2,560	.675	9.19
1925	604-28	4,310	752	1,670	.441	5.01	4,310	752	1,700	.449	6.10
1926	624-18	10,900	706	2,510	.663	8.99	10,900	706	2,900	.765	10.37
1927	644-17	13,500	995	3,450	.910	12.36	13,900	995	3,180	.839	11.38
1928	664-13	16,900	1,080	3,690	.974	13.26	16,900	1,080	4,240	1.12	15.22
1929	684-12	19,700	775	3,860	1.02	13.82	19,700	775	3,510	.873	11.86
1930	699-12	9,380	324	2,610	.689	9.35	9,380	324	2,420	.639	8.66
1931	714-13	4,060	162	1,640	.433	5.89	6,980	162	2,030	.536	7.29
1932	729-14	11,100	220	2,860	.755	10.30	11,100	220	2,560	.675	9.23
1933	744-18	14,700	289	2,470	.652	8.87	14,700	289	2,390	.631	8.57
1934	759-28	13,400	336	2,110	.557	7.56	13,400	336	2,538	.670	9.09
1935	784-17	13,600	720	3,241	.855	11.60	13,600	720	2,923	.771	10.47
1936	804-22	13,000	575	2,554	.674	9.15	13,000	575	2,493	.658	8.93
1937	824-18	13,800	400	2,423	.639	8.68	13,800	400	2,488	.656	8.90
1938	854-30	20,700	795	3,729	.984	13.33	20,700	1,010	4,039	1.07	14.44
1939	874-44	16,900	1,010	4,294	1.13	15.36	-	-	-	-	-

Pine River at Pine River power plant, near Florence, Wis.
(Drainage area, 543 square miles)

1924	584-17	1,870	0	412	0.759	10.33	1,870	0	416	0.766	10.43
1925	604-29	1,320	49	280	.516	7.00	1,320	49	301	.554	7.52
1926	624-20	1,840	0	429	.790	10.72	1,840	0	480	.884	12.00
1927	644-18	1,740	0	504	.928	12.60	1,740	0	471	.867	11.77
1928	664-14	2,730	87	567	1.04	14.21	2,730	168	637	1.17	15.97
1929	684-13	4,380	59	638	1.17	15.95	4,380	59	552	1.02	13.80
1930	699-13	1,220	0	324	.597	8.10	1,220	0	293	.540	7.33
1931	714-14	819	0	210	.387	5.25	1,160	0	275	.506	6.87

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Michigan--Continued

Pine River at Pine River power plant, near Florence, Wis.--Continued
(Drainage area, 543 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1932	729-15	1,380	56	385	0.709	9.65	1,380	56	328	0.604	8.22
1933	744-19	2,070	0	330	.608	8.25	2,070	0	327	.602	8.17
1934	759-29	1,600	10	294	.541	7.34	1,600	10	358	.659	8.95
1935	784-18	1,490	84	494	.910	12.35	1,490	104	457	.842	11.42
1936	804-23	1,960	2	379	.698	9.48	1,960	2	371	.683	9.30
1937	824-19	2,110	38	344	.634	8.62	2,110	38	333	.613	8.34
1938	854-31	2,590	27	586	1.08	14.65	2,590	27	658	1.21	16.44
1939	874-45	2,380	163	654	1.20	16.32	-	-	-	-	-

Pike River at Amberg, Wis.
(Drainage area, 250 square miles)

1915	404-41	778	-	238	0.952	12.92	778	109	262	1.05	14.23
1916	434-30	1,160	128	344	1.38	18.73	1,160	128	358	1.43	19.49
1917	454-26	1,120	120	306	1.22	16.62	1,120	70	264	1.06	14.33
1918	474-20	820	70	232	.928	12.60	820	80	253	1.01	13.74
1919	504-30	990	100	261	1.04	14.17	990	100	268	1.07	14.55
1920	504-31	1,450	118	272	1.09	14.81	1,450	118	246	.984	13.39
1921	524-22	1,650	100	253	1.01	13.74	1,650	90	249	.996	13.52
1922	544-23	2,620	65	272	1.09	14.77	2,620	65	276	1.10	14.99
1923	564-15	1,850	90	218	.872	11.84	1,850	74	208	.832	11.29
1924	584-19	1,160	74	229	.916	12.47	1,160	60	231	.924	12.58
1925	604-31	582	60	155	.620	8.42	582	26	154	.616	8.36
1926	624-21	738	26	203	.812	11.02	738	65	234	.936	12.71
1927	699-15	990	84	236	.944	12.81	990	84	215	.860	11.67
1928	664-15	904	40	238	.952	12.96	904	40	274	1.10	14.92
1929	684-14	1,200	56	301	1.20	16.34	1,200	56	260	1.04	14.12
1930	699-15	546	79	178	.712	9.67	546	79	172	.688	9.34
1931	714-15	331	75	137	.548	7.44	488	75	154	.616	8.36
1932	729-16	1,340	80	209	.836	11.38	1,340	80	194	.776	10.56
1933	744-20	1,340	88	202	.808	10.97	1,340	88	201	.804	10.91
1934	759-30	1,160	70	159	.636	8.63	1,160	70	177	.708	9.61
1935	784-19	875	61	223	.892	12.11	875	61	210	.840	11.37
1936	804-24	741	80	183	.732	9.97	741	80	177	.708	9.67
1937	824-20	920	80	185	.740	10.04	920	80	183	.732	9.93
1938	854-32	1,810	99	243	.972	13.17	1,810	100	263	1.05	14.28
1939	874-46	1,660	151	286	1.14	15.53	-	-	-	-	-

Peshtigo River at High Falls, near Crivitz, Wis.
(Drainage area, 571 square miles)

1913	404-44	2,480	222	626	1.10	14.88	2,480	230	632	1.11	15.03
1914	404-44	2,070	140	578	1.01	13.74	2,070	140	562	.984	13.36
1915	404-44	1,310	98	485	.849	11.52	1,310	98	489	.856	11.62
1916	434-32	2,850	72	708	1.24	16.88	2,850	72	765	1.34	18.24
1917	454-28	2,590	104	626	1.10	14.88	2,590	104	555	.972	13.19
1918	474-22	2,140	110	503	.881	11.96	2,140	90	530	.928	12.60
1919	504-34	2,290	55	538	.942	12.79	2,290	53	538	.942	12.79
1920	504-34	1,830	51	526	.921	12.54	1,830	51	481	.842	11.46
1921	524-23	3,430	65	528	.925	12.56	3,430	56	522	.914	12.41
1922	544-25	3,670	56	562	.984	13.36	3,670	51	566	.991	13.45
1923	564-17	2,330	51	445	.779	10.57	2,330	51	430	.753	10.22
1924	584-20	2,430	51	498	.872	11.87	2,430	0	489	.856	11.65
1925	604-32	1,200	0	271	.475	6.45	1,200	0	284	.497	6.75
1926	624-23	1,980	50	432	.757	10.28	1,980	50	489	.856	11.62
1927	644-21	1,790	12	502	.879	11.93	1,790	12	485	.849	11.52
1928	664-16	2,510	0	620	1.09	14.78	2,510	0	689	1.21	16.43
1929	684-15	3,380	2	680	1.19	16.17	3,380	0	630	1.10	14.97
1930	699-16	1,440	0	495	.867	11.77	1,440	2	440	.771	10.47
1931	714-16	905	2	256	.448	6.08	928	0	294	.515	6.99
1932	729-17	1,270	0	374	.655	8.92	1,270	0	340	.595	8.10
1933	744-21	1,470	0	355	.622	8.44	1,470	0	338	.592	8.04
1934	759-31	1,320	7	275	.482	6.54	1,320	7	341	.597	8.10
1935	784-20	1,410	7	480	.841	11.42	1,410	7	446	.781	10.60
1936	804-25	1,550	7	379	.664	9.02	1,550	7	368	.644	8.76
1937	824-21	2,500	7	387	.678	9.19	2,500	7	384	.673	9.14
1938	854-33	3,430	7	560	.981	13.31	3,430	7	602	1.05	14.32
1939	874-47	2,520	7	638	1.12	15.16	-	-	-	-	-

Oconto River near Gillett, Wis.
(Drainage area, 678 square miles)

*1907	244-47	-	95	-	-	-	-	95	-	-	-
1908	244-47	2,630	-	566	0.835	11.37	2,630	-	540	0.796	10.83
1915	404-46	1,720	-	675	.996	13.55	1,720	-	704	1.04	14.12
1916	434-34	3,220	305	854	1.23	16.75	3,220	305	872	1.29	17.53
1917	454-30	2,870	305	778	1.15	15.55	2,870	270	690	1.02	13.79
1918	474-24	2,470	230	632	.932	12.68	2,470	230	680	1.00	13.64
1919	504-37	2,320	305	753	1.11	15.10	2,950	305	782	1.15	15.65
1920	504-37	3,220	305	587	1.01	13.78	3,220	116	617	.910	12.40
1921	524-25	2,890	116	636	.938	12.72	2,890	224	631	.931	12.63
1922	544-27	6,470	290	877	1.29	17.54	6,470	290	890	1.31	17.80
1923	564-19	3,930	195	621	.916	12.43	3,930	195	590	.870	11.81
1924	584-22	3,280	235	635	.937	12.72	3,280	235	638	.941	12.79
1925	604-34	1,430	222	397	.586	7.94	1,430	205	400	.590	7.99
1926	624-24	2,320	195	519	.765	10.38	2,320	195	569	.839	11.38
1927	644-23	2,320	246	582	.858	11.66	2,320	180	536	.791	10.75
1928	664-17	3,440	180	679	1.00	13.64	3,440	180	795	1.17	15.95

*Year incomplete.

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Michigan--Continued

Oconto River near Gillett, Wis.--Continued
(Drainage area, 678 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1929	684-16	4,240	262	900	1.33	18.02	4,240	262	787	1.16	15.76
1930	699-17	920	172	427	.630	8.55	920	172	408	.602	8.15
1931	714-17	710	190	315	.465	6.31	1,030	190	347	.512	6.95
1932	729-18	1,810	217	473	.698	9.52	1,810	197	420	.619	8.45
1933	744-22	1,480	171	379	.559	7.58	1,480	161	373	.550	7.48
1934	759-32	2,490	150	322	.475	6.46	2,490	150	420	.619	8.42
1935	784-21	3,180	226	592	.873	11.82	3,180	226	531	.783	10.60
1936	804-26	2,100	172	489	.721	9.81	3,000	172	494	.729	9.90
1937	824-22	3,000	172	547	.807	10.95	2,550	172	525	.774	10.51
1938	854-34	3,000	220	612	.903	12.26	3,000	240	670	.988	13.43
1939	874-48	3,500	320	716	1.06	14.32	-	-	-	-	-

Fox River at Berlin, Wis.
(Drainage area, 1,430 square miles)

1899	504-50	2,800	300	786	0.550	7.44	2,800	300	793	0.555	7.52
1900	504-51	2,830	250	707	.494	6.68	2,830	250	801	.560	7.57
1901	504-51	4,800	350	946	.662	8.98	4,800	350	863	.603	8.19
1902	504-51	2,450	300	787	.550	7.47	2,450	300	808	.565	7.66
1903	504-51	2,670	400	1,070	.748	10.19	2,670	400	1,140	.797	10.82
1904	504-51	5,400	300	1,200	.839	11.45	5,400	300	1,190	.832	11.32
1905	504-52	5,920	400	1,560	1.09	14.81	5,920	400	1,570	1.10	14.91
1906	504-52	4,450	500	1,380	.965	13.10	4,450	500	1,440	1.01	13.65
1907	504-52	2,520	735	1,260	.881	11.96	2,520	700	1,180	.825	11.16
1908	504-52	4,020	460	1,160	.811	11.03	4,020	460	1,080	.755	10.25
1909	504-52	2,910	320	943	.659	8.96	2,910	320	959	.671	9.12
1910	504-53	3,080	420	820	.573	7.78	3,080	380	801	.560	7.59
1911	504-53	2,600	380	842	.589	7.97	2,600	380	1,050	.734	9.98
1912	504-53	4,100	600	1,450	1.01	13.84	4,100	600	1,390	.972	13.26
1913	504-53	4,340	450	1,350	.944	12.83	4,340	450	1,300	.909	12.31
1914	504-53	2,750	400	915	.640	8.69	2,750	350	859	.601	8.16
1915	504-54	3,000	350	1,090	.762	10.37	3,000	400	1,270	.888	12.02
1916	504-54	6,400	550	1,520	1.06	14.44	6,400	550	1,540	1.08	14.61
1917	504-54	5,650	525	1,540	1.08	14.63	5,650	525	1,430	1.00	13.55
1918	504-54	6,050	480	1,370	.958	13.06	6,050	480	1,320	.923	12.58
1919	504-54	2,670	560	1,090	.762	10.32	2,670	560	1,130	.790	10.74
1920	504-55	5,150	550	1,230	.860	11.69	5,150	550	1,200	.839	11.42
1921	524-27	2,450	535	991	.693	9.41	2,450	535	990	.692	9.39
1922	544-29	5,920	465	1,510	1.06	14.33	5,920	465	1,500	1.05	14.24
1923	564-21	6,050	465	1,100	.769	10.46	6,050	465	1,040	.727	9.89
1924	584-24	4,020	380	1,260	.881	12.00	4,020	380	1,350	.944	12.85
1925	604-36	2,520	535	932	.652	8.94	2,520	535	889	.622	8.44
1926	624-26	3,440	535	1,040	.727	9.87	3,440	535	1,130	.790	10.78
1927	644-24	3,170	510	1,220	.853	11.59	3,170	510	1,220	.853	11.58
1928	664-18	5,920	535	1,340	.937	12.73	5,920	510	1,380	.965	13.17
1929	684-17	6,620	645	1,620	1.13	15.40	4,240	262	1,480	1.03	14.04
1930	699-18	3,000	506	1,010	706	9.58	3,000	430	974	.681	9.25
1931	714-18	1,140	430	672	.470	6.39	1,220	488	726	.508	6.89
1932	729-19	1,910	490	810	.566	7.71	1,910	360	730	.510	6.94
1933	744-23	2,600	360	824	.576	7.82	2,600	380	842	.589	8.01
1934	759-33	1,910	360	633	.443	6.01	1,910	360	694	.485	6.57
1935	784-22	4,340	485	1,147	.802	10.89	4,340	485	1,128	.789	10.72
1936	804-27	4,340	355	871	.609	8.27	4,340	340	829	.580	7.86
1937	824-24	3,260	310	953	.666	9.04	3,260	310	980	.685	9.30
1938	854-36	6,190	400	1,543	1.08	14.64	6,190	400	1,834	1.28	17.41
1939	874-50	4,910	490	1,373	.960	13.03	-	-	-	-	-

Fox River at Rapide Croche Dam, near Wrightstown, Wis.
(Drainage area, 6,150 square miles)

1897	454-32	-	-	3,420	0.556	7.56	-	-	3,420	0.556	7.54
1898	454-32	-	-	3,150	.512	6.94	-	-	3,170	.515	6.98
1899	454-32	-	-	3,500	.569	7.73	-	-	3,480	.566	7.68
1900	454-33	-	-	2,750	.447	6.08	-	-	3,600	.585	7.96
1901	454-33	-	-	4,690	.763	10.33	-	-	4,100	.667	9.03
1902	454-33	-	-	3,660	.595	8.09	-	-	3,500	.569	7.73
1903	454-33	-	-	4,250	.691	9.37	-	-	4,600	.748	10.13
1904	454-34	-	-	4,620	.751	10.22	-	-	4,530	.737	10.02
1905	454-34	-	-	5,500	.894	12.12	-	-	5,400	.878	11.92
1906	454-34	-	-	4,880	.793	10.76	-	-	5,050	.821	11.14
1907	454-34	-	-	5,270	.857	11.61	-	-	4,970	.808	10.98
1908	454-35	-	-	4,290	.698	9.49	-	-	4,040	.657	8.92
1909	454-35	-	-	3,660	.595	8.07	-	-	3,800	.618	8.37
1910	454-35	-	-	3,010	.489	6.63	-	-	3,050	.496	6.74
1911	454-35	-	-	3,170	.515	7.00	-	-	4,240	.689	9.35
1912	454-38	-	-	6,080	.989	13.43	-	-	5,430	.883	12.00
1913	454-36	-	-	5,360	.872	11.83	-	-	5,210	.847	11.50
1914	454-36	-	-	4,200	.683	9.26	-	-	3,920	.637	8.65
1915	454-36	-	-	3,710	.603	8.19	-	-	4,300	.699	9.49
1916	454-37	-	-	6,450	1.05	14.27	-	-	6,490	1.06	14.38
1917	454-37	-	-	5,840	.950	12.90	-	-	5,580	.875	11.88
1918	474-28	16,300	1,330	5,220	.849	11.53	16,300	1,250	5,160	.839	11.39
1919	504-58	13,100	1,250	4,740	.771	10.46	13,100	1,730	5,020	.816	11.08
1920	504-58	16,600	1,320	5,170	.841	11.45	16,600	1,320	4,900	.797	10.87
1921	524-28	14,200	742	3,990	.649	8.82	14,200	742	3,800	.618	8.40
1922	544-30	20,100	1,240	5,550	.902	12.30	20,100	1,360	5,740	.933	12.67
1923	564-22	13,700	1,180	4,460	.725	9.84	13,700	1,180	4,340	.706	9.53
1924	584-25	15,500	1,280	5,450	.886	12.06	15,500	2,640	5,860	.953	12.97
1925	604-37	8,340	1,540	3,790	.616	8.37	8,340	1,540	3,550	.577	7.83

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Michigan--Continued

Fox River at Rapide Croche Dam, near Wrightstown, Wis.--Continued
(Drainage area, 6,150 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1926	624-27	9,060	1,740	4,230	0.688	9.33	10,000	2,040	4,690	0.763	10.35
1927	644-26	13,300	1,520	5,110	.831	11.27	13,300	1,520	4,940	.803	10.87
1928	664-19	15,100	1,600	5,390	.876	11.94	15,100	1,800	5,800	.943	12.85
1929	684-18	20,600	2,590	7,410	1.20	16.37	20,800	1,540	6,550	1.06	14.69
1930	699-19	8,600	620	3,370	.548	7.44	8,600	589	3,000	.488	6.62
1931	714-19	3,100	530	1,630	.265	5.88	4,160	530	1,860	.302	4.10
1932	729-20	9,900	402	3,140	.511	6.96	9,900	379	2,940	.478	6.49
1933	744-24	8,900	273	2,800	.455	6.17	8,900	273	2,770	.450	6.09
1934	759-34	6,650	282	1,900	.309	4.19	6,650	343	2,220	.361	4.91
1935	784-23	11,100	928	4,048	.658	8.94	11,100	1,520	3,960	.644	8.74
1936	804-28	6,290	138	2,751	.447	6.10	6,890	138	2,660	.433	5.90
1937	824-25	15,500	583	5,259	.530	7.17	15,500	583	5,235	.526	7.12
1938	854-37	18,000	622	4,945	.804	10.92	18,200	1,710	5,848	.951	12.90
1939	874-52	18,200	1,240	4,940	.803	10.88	-	-	-	-	-

Wolf River above West Branch of Wolf River, Wis.
(Drainage area, 633 square miles)

1929	684-19	2,580	410	792	1.25	17.00	2,580	201	699	1.10	15.01
1930	699-20	1,180	201	515	.814	11.04	1,180	274	494	.780	10.60
1931	714-20	1,350	259	419	.662	8.99	1,350	259	470	.742	10.07
1932	729-21	1,570	230	506	.799	10.89	1,570	215	444	.701	9.57
1933	744-25	1,290	201	423	.668	9.09	1,290	201	416	.657	8.92
1934	759-35	1,620	228	391	.618	8.36	1,620	228	459	.725	9.83
1935	784-24	1,680	348	582	.919	12.49	1,680	247	542	.856	11.65
1936	804-29	1,620	199	492	.777	10.58	1,620	199	482	.761	10.36
1937	824-30	1,960	270	498	.787	10.68	1,960	270	498	.787	10.67
1938	854-39	2,260	290	630	.995	13.48	2,260	290	665	1.05	14.23
1939	874-54	2,070	333	675	1.06	14.41	-	-	-	-	-

Wolf River at Keshena Falls, Wis.
(Drainage area, 812 square miles)

1929	684-20	4,010	544	1,080	1.33	17.99	4,010	201	950	1.17	15.90
1930	699-21	1,620	311	678	.835	11.32	1,620	327	654	.805	10.93
1931	714-21	1,530	383	548	.675	9.16	1,530	353	603	.743	10.08
1932	729-22	2,110	320	653	.804	10.95	2,110	320	574	.707	9.61
1933	744-26	1,660	223	564	.695	9.42	1,660	223	560	.690	9.35
1934	754-36	2,120	268	510	.628	8.53	2,120	268	581	.716	9.71
1935	784-25	2,060	401	734	.904	12.27	2,060	292	697	.858	11.65
1936	804-30	2,320	194	633	.780	10.62	2,320	194	626	.771	10.51
1937	824-31	2,880	350	668	.823	11.17	2,880	350	658	.810	11.00
1938	854-40	3,220	390	806	.993	13.47	3,220	390	855	1.05	14.29
1939	874-55	2,330	430	856	1.05	14.29	-	-	-	-	-

Wolf River at Keshena, Wis.
(Drainage area, 826 square miles)

1908	244-51	2,990	-	751	0.909	12.37	2,990	-	726	0.879	11.96
1912	324-34	3,910	-	1,080	1.31	17.80	3,910	-	978	1.18	16.12
1913	354-31	2,330	-	1,010	1.22	16.60	2,330	-	968	1.17	15.91
1914	384-38	1,920	-	794	.961	13.04	1,920	-	795	.962	13.06
1915	404-48	1,600	-	735	.890	12.08	1,600	-	709	.858	11.64
1916	434-36	3,370	414	939	1.14	15.48	3,370	414	984	1.19	16.21
1917	454-39	2,260	470	834	1.01	13.71	2,260	470	769	.931	12.64
1918	474-30	2,330	315	750	.908	12.33	9,330	315	804	.973	13.21
1919	504-61	2,330	480	896	1.08	14.73	2,330	480	907	1.10	14.90
1920	504-61	2,470	510	845	1.02	13.92	2,470	444	800	.969	13.20
1921	624-30	3,760	380	783	.948	12.87	3,760	380	757	.916	12.45
1922	544-32	4,390	410	901	1.09	14.81	4,390	410	920	1.11	15.18
1923	564-24	3,180	365	785	.950	19.90	3,180	365	765	.926	12.57
1924	584-27	3,260	415	850	1.03	14.01	3,260	415	851	1.03	14.02
1925	604-39	1,510	415	585	.708	9.61	1,510	320	550	.666	9.04
1926	624-29	2,290	320	652	.789	10.71	2,290	320	730	.884	12.00
1927	644-27	2,140	440	809	.979	13.29	2,140	308	780	.944	12.80

Wolf River at New London, Wis.
(Drainage area, 2,240 square miles)

1914	384-40	8,490	-	1,900	0.848	11.51	8,490	-	1,790	0.799	10.86
1915	404-50	4,260	-	1,780	.795	10.82	4,260	-	1,900	.848	11.54
1916	434-38	8,960	815	2,360	1.05	14.31	8,960	815	2,460	1.10	14.97
1917	454-41	8,060	840	2,120	.946	12.82	8,060	840	1,830	.817	11.08
1918	474-32	7,270	700	1,790	.799	10.85	7,270	700	1,870	.835	11.32
1919	504-64	6,350	-	2,060	.920	12.48	6,350	-	2,200	.982	13.28
1920	504-64	10,800	780	2,070	.924	12.57	10,800	780	1,950	.871	11.85
1921	524-31	6,560	780	1,720	.768	10.42	6,560	780	1,640	.732	9.96
1922	544-33	15,500	780	2,330	1.04	14.14	15,500	780	2,360	1.05	14.31
1923	564-26	10,100	780	1,830	.817	11.09	10,100	720	1,750	.781	10.60
1924	584-29	7,280	720	2,060	.920	12.50	7,280	750	2,130	.951	12.92
1925	604-41	4,270	690	1,350	.603	8.21	4,270	550	1,500	.680	7.91
1926	624-30	4,470	550	1,760	.786	10.65	4,470	580	2,020	.902	12.22
1927	644-29	6,340	720	2,020	.902	12.28	6,340	720	1,910	.853	11.61
1928	664-23	7,810	875	2,180	.973	13.28	7,810	875	2,490	1.11	15.15
1929	684-21	11,300	910	2,720	1.21	16.46	11,300	910	2,300	1.03	13.90
1930	699-22	2,900	463	1,260	.562	7.68	2,900	463	1,190	.531	7.25
1931	714-22	2,160	358	869	.388	5.27	2,710	358	993	.443	6.03
1932	729-23	4,260	306	1,390	.621	8.42	4,260	306	1,220	.545	7.44
1933	744-27	5,320	261	1,200	.536	7.24	5,320	261	1,160	.518	7.04

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Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Michigan--Continued

Wolf River at New London, Wis.--Continued
(Drainage area, 2,240 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1934	759-37	6,000	348	967	0.432	5.87	6,000	348	1,285	0.574	7.79
1935	784-26	9,570	672	1,877	.838	11.37	9,570	708	1,700	.759	10.29
1936	804-31	7,450	388	1,446	.646	8.77	7,450	388	1,420	.634	8.62
1937	824-32	6,360	362	1,574	.703	9.55	6,360	362	1,526	.681	9.26
1938	854-41	11,500	560	2,081	.929	12.61	11,500	560	2,305	1.03	13.96
1939	874-56	11,100	808	2,102	.938	12.74	-	-	-	-	-

Embarrass River near Embarrass, Wis.
(Drainage area, 395 square miles)

1920	504-67	2,730	70	340	0.861	11.71	2,730	70	312	0.790	10.76
1921	524-33	2,870	100	308	.780	10.59	2,870	100	283	.715	9.72
1922	544-35	6,280	68	416	1.05	14.29	6,280	68	431	1.09	14.80
1923	564-28	3,430	39	283	.716	9.72	3,430	39	264	.668	9.06
1924	584-31	2,500	70	356	.901	12.26	2,500	70	369	.934	12.72
1925	604-43	1,230	60	207	.524	7.11	1,230	35	203	.514	6.99
1926	624-32	1,590	30	291	.737	10.03	1,590	30	314	.795	10.81
1927	644-30	1,470	54	314	.795	10.80	1,470	54	329	.833	11.32
1928	664-25	2,780	70	437	1.11	15.06	2,780	70	485	1.23	16.72
1929	684-23	3,240	72	479	1.21	16.46	3,240	72	390	.987	13.42
1930	699-24	835	55	211	.534	7.26	835	55	199	.504	6.84
1931	714-24	800	24	126	.319	4.35	800	24	141	.357	4.85
1932	729-24	1,450	36	203	.514	6.98	1,450	32	183	.463	6.29
1933	744-28	1,210	32	211	.534	7.24	1,210	30	206	.522	7.06
1934	759-38	2,100	30	149	.377	5.10	2,100	32	215	.544	7.38
1935	784-27	1,810	69	348	.881	11.98	1,810	80	305	.772	10.48
1936	804-32	1,610	38	239	.605	8.24	1,510	38	235	.595	8.09
1937	824-34	1,680	33	287	.727	9.84	1,680	33	278	.704	9.54
1938	854-42	2,910	62	343	.868	11.78	2,910	62	382	.967	13.11
1939	874-57	3,330	80	350	.886	12.04	-	-	-	-	-

Little Wolf River at Royalton, Wis.
(Drainage area, 485 squars miles)

1915	434-42	1,220	-	361	0.744	10.08	1,220	-	380	0.784	10.64
1916	434-42	3,690	130	550	1.13	15.44	3,690	130	580	1.20	16.28
1917	454-44	4,560	130	482	.994	13.48	4,560	130	432	.891	12.09
1918	474-34	2,740	132	455	.938	12.72	2,740	132	496	1.00	13.91
1919	504-69	2,620	150	529	1.09	14.81	2,620	150	556	1.15	15.56
1920	504-69	3,950	198	519	1.07	14.57	3,950	198	501	1.03	14.05
1921	524-35	2,070	166	416	.858	11.63	2,070	145	366	.755	10.24
1922	544-37	5,750	120	551	1.14	15.40	5,750	120	573	1.18	16.02
1923	564-30	3,700	160	436	.899	12.22	3,700	160	414	.854	11.65
1924	584-33	4,210	140	530	1.09	14.91	4,210	140	553	1.14	15.57
1925	604-44	1,970	155	404	.833	11.31	1,970	155	408	.841	11.43
1926	624-34	1,570	120	483	.996	13.50	1,570	120	528	1.09	14.77
1927	644-32	1,870	174	545	1.12	15.22	1,870	174	525	1.08	14.69
1928	664-26	3,700	145	606	1.25	17.00	3,700	145	654	1.35	18.37
1929	684-24	5,600	195	632	1.30	17.69	5,600	160	545	1.12	15.24
1930	699-25	1,500	95	332	.685	9.28	1,500	95	308	.635	8.50
1931	714-25	613	90	202	.416	5.66	672	90	236	.487	6.59
1932	729-25	1,330	89	330	.680	9.25	1,330	72	299	.616	8.40
1933	744-29	2,560	72	318	.656	8.89	2,560	75	303	.625	8.48
1934	759-39	3,370	57	217	.447	6.07	3,370	57	296	.610	8.29
1935	784-28	2,160	111	434	.895	12.17	2,160	111	381	.786	10.69
1936	804-33	2,950	86	292	.602	8.20	2,950	86	285	.588	7.99
1937	824-35	2,380	93	349	.720	9.75	2,380	93	348	.718	9.72
1938	854-43	4,140	120	489	1.01	13.70	4,140	120	552	1.14	15.47
1939	874-58	5,700	170	484	.998	13.56	-	-	-	-	-

Waupaca River near Waupaca, Wis.
(published as Waupaca River near Weyauwega, Wis.; prior to November 1917, drainage area, 308 square miles)
(Drainage area, 305 square miles)

1917	454-46	950	130	266	0.864	11.71	950	130	251	0.815	11.06
1918	504-73	1,300	105	256	.839	11.34	1,300	105	260	.852	11.55
1919	504-74	2,600	135	273	.895	12.14	2,600	96	282	.925	12.55
1920	504-74	1,020	96	277	.908	12.34	1,080	115	271	.889	12.09
1921	524-36	784	120	235	.770	10.45	784	120	225	.738	9.98
1922	544-39	1,690	100	282	.925	12.54	1,690	100	290	.951	12.89
1923	564-32	2,410	115	250	.820	11.14	2,410	110	240	.787	10.69
1924	584-35	1,560	110	276	.905	12.32	1,560	115	294	.964	13.10
1925	604-46	730	120	252	.826	11.23	730	100	246	.807	10.94
1926	624-36	1,060	50	241	.790	10.68	1,060	50	253	.830	11.25
1927	644-33	485	123	261	.856	11.61	487	123	248	.813	11.04
1928	664-27	1,440	140	281	.921	12.56	1,440	150	292	.957	13.03
1929	684-25	1,590	150	299	.980	13.30	1,590	120	292	.957	12.95
1930	699-26	1,090	120	252	.826	11.24	1,090	127	248	.813	11.04
1931	714-26	305	94	186	.610	8.28	338	94	186	.510	8.29
1932	729-26	454	108	212	.695	9.47	454	94	205	.675	9.12
1933	744-30	1,440	94	213	.698	9.46	1,440	94	211	.692	9.37
1934	759-40	1,980	95	207	.679	9.20	1,980	95	223	.731	9.93
1935	784-29	670	104	252	.825	11.20	670	112	245	.807	10.96
1936	804-34	943	80	216	.706	9.65	943	80	207	.679	9.25
1937	824-36	722	104	210	.689	9.32	722	104	212	.695	9.45
1938	854-44	1,170	131	281	.921	12.50	1,170	142	305	1.00	13.63
1939	874-59	1,570	166	287	.941	12.75	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Michigan--Continued

Milwaukee River at (near) Milwaukee, Wis.
(Drainage area, 661 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1916	404-55	-	-	530	0.802	10.89	-	-	526	0.794	10.79
1916	434-45	4,130	37	661	.849	11.57	4,130	37	586	.887	12.08
1917	464-50	5,160	56	567	.858	11.62	5,160	55	533	.806	10.94
1918	474-39	12,100	45	508	.769	10.43	12,100	-	462	.699	9.48
1919	504-60	5,160	-	326	.493	6.71	5,160	-	343	.519	7.03
1920	504-60	5,630	60	408	.617	8.41	5,630	33	414	.626	8.54
1921	524-40	4,150	29	354	.536	7.27	4,150	29	399	.604	8.20
1922	544-43	4,150	47	483	.731	9.92	4,150	40	415	.628	8.52
1923	564-36	6,820	38	381	.576	7.80	6,820	38	391	.592	8.01
1924	584-39	14,700	65	624	.944	12.84	14,700	65	649	.982	13.35
1925	604-48	3,160	66	304	.460	6.24	3,160	66	283	.428	5.80
1926	824-38	4,540	60	372	.563	7.65	4,540	60	441	.667	9.07
1927	644-35	3,740	38	505	.764	10.42	3,740	38	661	.849	11.56
1928	664-28	4,940	71	578	.874	11.91	4,940	71	566	.855	11.63
1929	684-26	10,800	25	792	1.20	16.26	10,800	25	681	1.03	13.99
1930	699-27	3,970	27	299	.452	6.15	3,970	27	273	.413	5.61
1931	714-27	830	20	123	.186	2.61	2,020	20	223	.337	4.58
1932	729-27	2,020	11	299	.452	6.15	1,210	11	200	.303	4.11
1933	744-31	6,060	21	382	.578	7.83	6,060	18	377	.570	7.73
1934	759-41	2,070	9	126	.191	2.56	2,070	9	156	.236	3.18
1935	784-30	3,300	29	375	.567	7.69	3,300	37	350	.530	7.19
1936	804-35	2,880	6	216	.327	4.44	2,880	6	228	.345	4.67
1937	824-39	6,360	18	398	.602	8.16	6,360	18	378	.572	7.75
1938	854-46	6,220	22	616	.932	12.66	6,220	47	679	1.03	13.96
1939	874-63	2,180	17	366	.539	7.33	-	-	-	-	-

St. Joseph River at Mottville, Mich.
(Drainage area, 1,861 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30				Calendar year			
		Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean	
1924	584-42	-	-	-		4,320	228	1,329	
1925	604-50	3,150	198	942		3,150	198	1,117	
1926	624-40	5,470	420	1,730		5,470	420	1,750	
1927	644-36	3,540	324	1,410		5,760	324	1,545	
1928	664-30	5,760	512	1,890		3,700	420	1,611	
1929	684-28	5,940	78	1,670		5,940	78	1,639	
1930	714-30	4,940	244	1,370		4,940	244	1,296	
1931	714-30	1,730	265	731		1,730	255	775	
1932	729-30	3,500	293	1,220		4,100	354	1,340	
1933	744-34	4,100	355	1,610		3,800	355	1,572	
1934	759-43	4,400	349	1,082		4,400	349	944	
1935	784-32	3,210	355	977		3,210	297	1,055	
1936	804-37	3,800	271	1,058		3,800	271	1,088	
1937	824-41	7,300	236	1,762		7,300	44	1,750	
1938	854-48	5,060	44	1,692		5,060	232	1,636	
1939	874-65	5,060	223	1,595		-	-	-	

Elkhart River at Goshen, Ind.
(Drainage area, 673 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1925	(*)	2,300	48	251	0.438	6.97	2,300	48	308	0.538	7.29
1926	(*)	3,670	57	516	.901	12.23	3,670	57	553	.965	13.11
1927	(*)	2,471	43	562	.981	13.40	4,660	43	720	1.26	17.06
1932	729-32	2,200	78	466	.813	11.08	2,340	125	504	.880	11.96
1933	744-36	2,900	140	607	1.06	14.41	2,900	140	558	.974	13.22
1934	759-45	1,130	74	253	.442	6.00	1,130	74	207	.361	4.92
1935	784-34	1,310	79	315	.550	7.45	1,310	105	361	.630	8.56
1936	804-39	2,660	71	374	.663	8.88	2,660	71	383	.668	9.12
1937	824-43	1,580	140	509	.888	12.06	1,580	104	466	.813	11.03
1938	854-61	2,240	104	447	.780	10.60	2,240	130	462	.806	10.94
1939	874-68	3,280	130	522	.911	12.36	-	-	-	-	-

*From reports of Indiana Department of Conservation.

Manistee River near Sherman, Mich.
(Drainage area, 900 square miles)

1904	244-62	2,780	842	1,228	1.36	18.56	2,780	815	1,180	1.31	17.78
1905	244-62	2,870	-	1,078	1.20	16.24	2,870	-	1,090	1.21	16.47
1906	244-63	2,240	-	1,119	1.24	16.89	2,240	-	1,120	1.24	16.90
1907	244-63	2,220	-	1,110	1.23	16.75	2,220	-	1,110	1.24	16.77
1908	244-63	1,910	-	1,094	1.22	16.53	1,910	-	1,070	1.19	16.15
1909	264-56	2,630	-	1,092	1.21	16.48	2,630	-	1,100	1.22	16.62
1910	284-50	1,870	804	997	1.11	15.08	1,870	804	1,010	1.12	15.27
1911	304-54	2,520	863	1,142	1.27	17.23	2,520	865	1,230	1.37	18.69
1912	324-39	2,900	819	1,261	1.40	19.09	2,900	819	1,240	1.38	18.71
1913	354-37	3,500	789	1,248	1.39	18.80	3,500	789	1,230	1.37	18.48
1914	384-48	2,060	-	1,140	1.27	17.28	2,060	-	1,110	1.23	16.77
1915	404-57	1,850	-	1,040	1.16	15.77	1,860	-	1,056	1.17	15.86
1938	784-46	2,290	776	1,084	1.20	16.36	2,290	776	1,027	1.14	15.60
1936	804-61	1,880	640	895	.994	13.54	1,880	540	909	1.01	13.74
1937	824-58	2,080	650	979	1.09	14.77	2,080	778	986	1.10	14.89
1938	864-64	3,060	805	1,098	1.22	16.55	3,060	805	1,072	1.19	16.15
1939	874-80	1,830	754	962	1.07	14.50	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on
STREAMS TRIBUTARY TO LAKE HURON

Tittabawassee River at Freeland, Mich.
(Drainage area, 2,550 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1912	324-41	-	-	-	-	-	32,400	930	3,660	1.45	19.69
1913	354-52	9,300	567	2,211	0.874	11.85	8,280	567	1,680	.664	9.02
1914	384-50	5,829	540	1,450	.573	7.78	5,829	288	1,497	.592	8.02
*1915	404-58	8,890	288	-	-	-	8,890	-	-	-	-
1916	434-49	25,000	900	2,780	1.10	14.95	25,000	900	2,677	1.06	14.38
1917	454-54	8,124	513	1,870	.739	10.01	8,124	513	1,744	.689	9.35
1918	474-43	10,000	565	1,720	.680	9.22	10,000	540	1,825	.721	9.79
1919	504-85	49,500	544	2,100	.830	11.25	49,500	344	2,098	.829	11.24
1920	504-85	7,500	440	1,440	.569	7.73	7,500	440	1,413	.558	7.60
1921	524-43	16,695	465	1,840	.727	9.90	16,695	455	2,115	.836	11.36
1922	544-48	15,300	440	2,790	1.10	14.97	15,300	440	2,460	.972	13.20
1923	564-40	16,800	128	2,350	.929	12.62	16,800	128	2,305	.911	12.38
1924	584-44	9,320	290	1,390	.550	7.48	9,320	90	1,270	.502	6.85
1925	604-52	4,550	90	720	.285	3.86	4,550	162	798	.315	4.28
1926	624-42	10,600	295	1,370	.541	7.36	10,600	295	1,544	.610	8.28
1927	644-39	16,800	187	1,750	.692	9.39	16,800	187	1,690	.668	9.09
1928	664-51	20,000	318	1,960	.775	10.58	20,000	318	2,111	.854	11.38
1929	684-30	31,500	440	3,180	1.26	17.06	31,500	648	3,055	1.21	16.42
1930	699-31	16,400	540	1,670	.660	8.97	16,400	369	1,504	.594	8.07
1931	714-51	2,210	222	728	.288	3.92	2,450	222	842	.333	4.53
1932	744-51	8,080	339	1,450	.573	7.79	8,080	339	1,495	.590	8.03
1933	744-51	24,000	282	1,780	.704	9.53	24,000	282	1,785	.705	9.57
1934	759-60	5,970	185	1,154	.456	6.18	5,970	185	1,098	.434	5.88
1935	784-52	15,400	328	1,524	.602	8.19	15,400	328	1,481	.562	7.64
1936	804-58	5,710	182	995	.393	5.35	-	-	-	-	-

*Year incomplete.

STREAMS TRIBUTARY TO LAKE ERIE

Huron River at Barton, Mich.
(Drainage area, 725 square miles)

1914	384-53	-	-	-	-	-	3,266	133	487	0.660	9.15
1915	404-61	2,050	188	474	0.656	8.89	2,050	195	508	.703	9.53
1916	434-51	5,951	22	680	.941	12.78	5,951	22	533	.876	11.92
1917	454-56	1,669	85	421	.582	7.90	1,669	85	424	.586	7.96
1918	474-45	5,841	18	498	.689	9.56	5,841	18	536	.741	10.07
1919	504-87	3,087	18	476	.658	8.96	3,087	18	481	.665	9.02
1920	504-87	2,485	20	372	.515	6.97	2,485	20	364	.503	6.86
1921	524-43	1,339	44	358	.495	6.71	1,159	66	419	.580	7.86
1922	544-48	3,357	6	517	.715	9.71	3,357	6	431	.596	8.09
1923	564-41	1,230	6	255	.353	4.80	1,230	6	255	.364	4.94
1924	584-46	1,750	6	343	.474	6.46	1,750	6	325	.450	6.12
1925	604-53	1,040	6	200	.277	3.78	1,040	6	294	.407	5.53
1926	624-44	2,950	32	542	.750	10.18	2,950	32	517	.718	9.71
1927	644-40	927	55	380	.526	7.14	942	55	384	.531	7.22
1928	664-32	942	53	408	.564	7.68	920	53	356	.492	6.70
1929	684-31	1,930	44	455	.643	8.74	1,930	44	494	.683	9.28
1930	699-32	1,820	37	468	.647	8.81	1,820	37	424	.586	7.96
1931	729-46	467	4	171	.237	3.22	467	4	165	.228	3.10
1932	729-46	957	61	270	.373	5.08	957	73	310	.429	5.84
1933	744-59	1,300	53	379	.524	7.11	1,300	53	348	.481	6.53
1934	759-68	2,590	6	206	.285	3.86	2,590	6	187	.259	3.51
1935	784-62	1,160	51	237	.328	4.44	1,150	63	283	.364	4.93
1936	804-68	1,040	6	244	.337	4.58	1,040	6	241	.333	4.53
1937	824-74	1,960	73	423	.585	7.97	1,960	73	426	.589	8.01
1938	874-96	2,140	71	427	.691	8.01	2,140	71	411	.568	7.70
1939	874-96	1,920	39	345	.477	6.47	-	-	-	-	-

Maumee River at Antwerp, Ohio
(Drainage area, 2,049 square miles)

1922	544-49	14,700	148	2,190	1.07	14.51	14,700	145	1,900	0.927	12.62
1923	564-42	14,200	145	1,320	.644	8.71	14,200	155	1,680	.820	11.15
1924	584-46	14,700	155	2,210	1.08	14.66	14,700	164	1,980	.966	13.10
1925	604-54	15,300	99	1,130	.551	7.60	15,300	99	1,250	.610	8.34
1926	624-44	15,500	160	1,910	.932	12.65	15,500	150	1,970	.961	13.02
1927	644-42	16,200	75	2,110	1.03	14.01	16,200	75	2,460	1.20	16.24
1928	664-34	-	73	1,850	.902	12.26	-	73	1,210	.590	8.04
1929	684-33	11,300	63	1,880	.917	12.44	11,300	63	2,350	1.14	15.44
1930	699-34	21,800	79	2,030	.990	13.44	21,800	29	1,540	.751	10.21
1931	714-56	3,300	29	389	.190	2.57	3,300	75	488	.238	3.25
1932	729-54	10,700	91	1,090	.532	7.25	12,000	91	1,470	.717	9.72
1933	744-61	14,600	26	2,210	1.08	14.58	14,600	26	1,800	.878	11.88
1934	759-70	7,520	46	710	.347	4.69	7,520	40	631	.308	4.17
1935	784-64	8,980	40	922	.450	6.11	8,980	56	936	.457	6.19

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Erie--Continued

Maumee River at Waterville, Ohio
(Drainage area, 6,314 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean			Maximum day	Minimum day	Mean		
				River	Canal	Combined*			River	Canal	Combined*
1922	544-51	41,700	337	6,000	454	6,460	41,700	337	4,980	428	5,410
1923	564-44	39,000	345	3,620	401	4,020	39,000	386	4,630	416	5,050
1924	584-48	49,600	386	5,950	315	6,260	49,600	195	5,250	283	5,530
1925	604-57	46,000	195	2,500	343	2,840	46,000	282	2,800	365	3,170
1926	624-47	56,200	332	5,280	398	5,680	56,200	430	5,790	417	6,200
1927	644-45	52,400	259	5,850	452	6,300	52,400	259	6,210	447	6,660
1928	664-36	41,400	197	4,850	456	5,310	30,100	169	3,430	425	3,850
1929	684-35	53,700	-	5,070	321	5,390	53,700	-	6,930	243	7,180
1930	699-36	72,600	63	6,490	-	-	72,600	63	4,560	-	-
1931	714-58	11,300	77	938	-	-	11,300	65	1,340	-	-
1932	729-56	34,900	65	3,220	-	-	38,300	82	4,160	-	-
1933	744-63	51,100	104	6,510	-	-	51,100	104	5,330	-	-
1934	759-72	24,500	47	1,832	-	-	24,500	47	1,659	-	-
1935	784-66	31,300	59	2,364	-	-	31,300	53	2,392	-	-

*Includes flow of Miami and Erie canal; canal abandoned June 30, 1929.

Auglaize River near Fort Jennings, Ohio
(Drainage area, 336 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30				Calendar year			
		Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean	
1922	604-60	5,130	14	463		5,130	16	411	
1923	604-60	3,460	16	306		3,460	12	323	
1924	604-60	4,480	12	335		4,480	12	328	
1925	604-60	3,730	13	149		2,740	13	160	
1926	624-52	4,230	14	341		4,230	14	387	
1927	644-49	7,400	26	471		7,400	26	465	
1928	664-40	5,120	26	370		5,120	24	300	
1929	684-38	5,560	19	297		5,560	19	425	
1930	699-39	7,860	14	422		7,860	14	283	
1931	714-63	1,560	7.1	65.3		1,560	7.1	93.4	
1932	744-66	3,010	6.3	214		3,160	6.3	267	
1933	744-66	4,030	9.6	358		4,030	9.6	293	
1934	759-75	2,200	12	137		2,200	12	119	
1935	784-69	3,310	12	181		3,310	14	187	

Auglaize River near Defiance, Ohio
(Drainage area, 2,329 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1916	544-55	32,200	27	2,430	1.04	14.16	32,200	20	2,160	0.927	12.62
1917	544-55	17,400	11	1,260	.541	7.34	17,400	11	1,420	.610	8.28
1918	544-55	23,200	7	1,080	.464	6.30	23,200	7	1,240	.532	7.22
1919	544-55	36,100	22	1,470	.631	8.57	36,100	29	1,550	.666	9.04
1920	544-55	19,800	10	1,560	.670	9.12	19,800	10	1,520	.653	8.89
1921	544-55	20,600	13	2,060	.884	12.00	20,600	19	2,100	.902	12.24
1922	544-55	22,200	25	2,520	1.08	14.66	22,200	23	2,140	.919	12.47
1923	564-50	20,800	18	1,490	.640	8.69	20,800	6	1,800	.773	10.49
1924	584-53	21,300	6	2,090	.897	12.21	21,300	32	1,890	.812	11.05
1925	604-64	19,300	32	906	.389	5.28	19,300	39	980	.421	5.71
1926	624-54	29,200	34	1,810	.777	10.55	29,200	34	2,010	.863	11.71
1927	644-51	32,400	39	2,360	1.01	13.71	32,400	37	2,430	1.04	14.12
1928	664-41	19,200	37	1,940	.833	11.34	18,100	30	1,470	.631	8.59
1929	684-39	19,600	30	1,680	.721	9.79	19,600	30	2,440	1.05	14.25
1930	699-40	38,700	30	2,530	1.09	14.80	38,700	29	1,720	.739	10.03
1931	714-74	5,470	28	342	.147	2.00	5,470	28	516	.222	3.01
1932	729-61	16,400	14	1,120	.481	6.55	16,600	14	1,410	.605	8.24
1933	744-68	21,700	24	2,310	.992	13.47	21,700	19	1,900	.816	11.08
1934	759-76	12,400	14	624	.268	3.64	12,400	14	570	.245	3.33
1935	784-70	15,900	19	829	.356	4.83	15,900	27	842	.362	4.91

Ottawa River at Allentown, Ohio
(Drainage area, 168 square miles)

1924	604-66	-	-	-	-	-	2,740	8.5	151	0.899	12.20
1925	604-66	2,080	8.4	63.3	0.377	5.10	1,240	8.4	63.5	.378	5.12
1926	624-55	2,200	9.6	128	.762	10.31	2,200	9.6	152	.905	12.31
1927	644-52	2,580	11	194	1.15	15.70	2,580	9.7	188	1.12	15.20
1928	664-42	2,330	9.3	160	.952	12.94	2,280	9.3	131	.780	10.58
1929	684-40	2,280	9.3	137	.815	11.10	2,280	10	195	1.16	15.74
1930	699-41	2,680	-	175	1.04	14.18	2,680	-	114	.678	9.24
1931	714-65	687	6.4	29.8	.177	2.44	695	6.4	44.7	.266	3.64
1932	729-62	1,440	4.3	97.0	.577	7.86	2,280	4.3	116	.690	9.40
1933	744-69	2,320	2.4	161	.958	13.01	2,320	2.4	132	.786	10.68
1934	759-77	946	6.5	50.5	.301	4.06	946	5.6	45.4	.270	3.65
1935	784-71	1,960	5.6	64.4	.383	5.20	1,960	7.2	65.2	.388	5.26

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Erie--Continued

Blanchard River near Findlay, Ohio
(Drainage area, 345 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1924	604-68	4,130	5.0	-	-	-	4,130	4	260	0.758	10.34
1925	604-68	2,560	4	104	0.303	4.11	2,180	4	129	.376	5.12
1926	624-57	3,890	6	294	.867	11.65	3,890	6	328	.956	12.96
1927	644-54	5,610	14	420	1.22	16.65	5,610	10	442	1.29	17.48
1928	664-45	5,560	3	306	.892	12.14	4,560	2.5	218	.636	8.64
1929	684-41	4,780	2.4	296	.863	11.70	4,780	2.4	421	1.23	16.64
1930	699-42	5,610	1.2	368	1.07	14.55	5,610	1.2	231	.673	9.13
1931	714-66	1,160	2.5	57.5	.168	2.27	1,160	5.4	83.9	.245	3.32
1932	729-66	2,920	1.1	175	.510	6.95	3,800	1.1	191	.557	7.59
1933	744-71	4,390	1.2	284	.828	11.25	4,390	1.4	248	.723	9.83
1934	759-79	1,520	.4	78.1	.228	3.09	1,820	.4	70.7	.206	2.79
1935	784-74	2,750	.9	91.6	.267	3.62	2,750	1.6	94.6	.276	3.74

Sandusky River near Bucyrus, Ohio
(Drainage area, 89.8 square miles)

1926	744-76	1,220	1.6	83.1	0.925	12.56	1,420	1.6	96.4	1.07	14.56
1927	744-76	2,530	1.2	116	1.28	17.33	4,600	1.2	125	1.39	18.88
1928	744-76	4,600	1.5	114	1.27	17.17	1,780	1.5	74.3	.827	11.23
1929	744-76	2,800	2.8	104	1.16	15.73	2,800	3.5	138	1.64	20.89
1930	744-76	3,110	.8	128	1.44	19.29	3,110	.8	88.1	.981	13.31
1931	744-76	547	2.0	36.9	.411	5.67	810	2.8	60.9	.678	9.21
1932	744-76	1,120	.9	81.1	.903	12.29	3,110	.9	83.7	.932	12.69
1933	744-76	3,110	.9	97.7	1.09	14.80	2,800	.9	71.5	.796	10.82
1934	759-83	936	.8	20.4	.227	3.08	935	.8	19.2	.214	2.92
1935	784-79	1,020	.8	31.5	.352	4.77	-	-	-	-	-
1939	874-102	2,870	1.0	68.0	.757	10.26	-	-	-	-	-

Sandusky River near Upper Sandusky, Ohio
(Drainage area, 29.9 square miles)

1922	544-64	-	-	-	-	-	4,060	7.5	334	1.12	15.15
1923	564-54	2,850	7.5	225	.753	10.23	2,850	9.4	294	.983	13.11
1924	584-62	4,240	5	342	1.14	15.59	4,240	5	279	.933	12.69
1925	604-80	3,180	3.8	153	.512	6.97	3,180	3.8	198	.662	9.00
1926	624-66	3,800	6.3	295	.987	13.38	4,470	6.3	341	1.14	15.49
1927	874-104	7,370	-	386	1.29	17.55	7,370	-	394	1.32	17.89
1928	874-104	6,380	3.7	334	1.12	15.18	2,310	3.7	240	.803	10.93
1929	874-104	7,260	5.3	289	.967	13.14	7,260	8.4	385	1.29	17.48
1930	874-104	7,120	2.4	365	1.22	16.57	7,120	2.4	252	.843	11.46
1931	714-77	1,380	5.6	114	.381	6.19	1,880	6.2	196	.652	8.88
1932	729-73	2,540	3.3	261	.873	11.89	3,170	3.3	230	.769	10.48
1933	874-104	5,680	1.3	295	.987	13.38	5,680	1.3	248	.829	11.26
1934	759-84	1,920	1.0	70.0	.234	3.17	1,920	1.0	64.2	.215	2.90
1935	784-81	2,020	2.1	88.6	.296	4.01	2,020	2.1	112	.376	5.07
1939	*874-104	7,370	1.0	196	.656	8.89	-	-	-	-	-

Sandusky River near Mexico, Ohio
(Drainage area, 776 square miles)

1924	584-64	8,200	10	835	1.08	14.66	8,200	10	680	0.876	11.95
1925	604-82	5,000	6	358	.435	5.90	5,000	6	417	.537	7.28
1926	624-68	7,200	9	666	.858	11.65	7,200	9	768	.990	13.44
1927	644-65	13,900	24	970	1.25	16.94	13,900	24	996	1.28	17.42
1928	664-52	11,100	4	696	.897	12.22	5,770	4	488	.629	8.56
1929	714-78	13,400	9.7	690	.889	12.04	13,400	9.7	919	1.18	16.06
1930	714-78	12,800	13	885	1.14	15.47	12,800	13	622	.802	10.88
1931	714-78	3,250	12	243	.313	4.25	3,250	12	375	.483	6.56
1932	729-74	5,240	15	542	.698	9.50	5,240	15	496	.639	8.71
1933	744-84	10,000	8.4	687	.885	12.01	10,000	8.4	609	.785	10.66
1934	759-85	4,360	7.2	176	.226	3.06	4,360	6.7	161	.207	2.80
1935	784-82	4,360	6.7	238	.307	4.17	4,360	11	275	.354	4.82
1939	874-106	12,500	5.8	475	.612	8.29	-	-	-	-	-

Rocky River near Berea, Ohio
(Drainage area, 269 square miles)

1924	604-92	-	-	-	-	-	7,060	6	360	1.34	18.21
1925	604-92	5,970	3.2	219	0.814	11.06	5,970	3.2	250	.929	12.61
1926	624-74	6,680	6	329	1.22	16.61	6,680	6	394	1.46	19.90
1927	644-70	6,160	8	365	1.36	18.45	11,700	8	364	1.35	18.34
1928	664-56	11,700	7	332	1.23	16.72	5,470	7	204	.758	10.32
1929	684-53	12,100	2.8	343	1.28	17.32	12,100	2.8	369	1.37	18.61
1930	699-52	7,600	.4	291	1.08	14.70	7,600	.4	253	.941	12.77
1931	729-78	2,250	.5	98.5	.366	4.96	2,250	.5	120	.446	6.06
1932	729-78	4,090	.2	205	.762	10.35	8,880	.2	222	.825	11.21
1933	744-90	9,070	.2	234	.870	11.80	9,070	.2	194	.721	9.78
1934	759-89	4,030	.5	79.5	.296	4.00	4,030	1.0	82.9	.308	4.19
1935	784-88	8,810	2.0	144	.536	7.28	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Erie--Continued

Cuyahoga River at Old Portage, Ohio
(Drainage area, 405 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30				Calendar year			
		Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean	
1922	544-66	2,130	69	468		2,130	69	371	
1923	564-59	1,760	61	329		1,760	61	401	
1924	584-70	2,940	73	586		2,940	108	566	
1925	604-95	2,120	52	391		2,120	52	427	
1926	624-76	2,620	46	567		2,620	46	663	
1927	644-72	3,010	82	669		3,330	78	619	
1928	664-60	3,330	78	626		2,080	94	523	
1929	684-66	3,320	73	600		3,320	55	619	
1930	699-55	3,120	44	470		3,120	40	410	
1931	714-86	1,140	40	202		1,140	34	213	
1932	729-83	1,680	34	335		1,680	37	335	
1933	744-92	3,080	34	344		3,080	34	332	
1934	759-92	1,700	31	181		1,700	30	187	
1935	784-91	1,980	30	306		1,980	43	328	

Cuyahoga River at Independence, Ohio
(Drainage area, 709 square miles)

Year	W.S.P. (No. and page)	Water year ending Sept. 30							Calendar year						
		River			Canal *	Combined			River			Canal *	Combined		
		Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean	Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean
1922	544-68	6,130	40	708	71.8	6,190	116	780	6,130	50	541	70.3	6,190	117	611
1928	664-61	8,040	58	1,040	47.7	8,080	-	1,090	4,860	58	825	50.3	4,907	-	875
1929	684-57	8,890	70	1,030	49.5	8,960	-	1,080	8,890	72	1,080	49.0	8,960	96	1,130
1930	699-56	6,920	30	764	55.0	6,970	87	819	6,920	26	646	55.9	6,970	83	702
1931	714-86	2,790	26	337	54.7	2,840	83	392	2,790	29	379	53.4	2,840	84	432
1932	729-84	4,140	51	618	52.2	4,204	97	670	6,240	55	616	51.6	6,294	98	668
1933	744-93	6,720	21	571	53.3	6,777	55	624	6,720	21	537	53.5	6,777	55	590
1934	759-93	5,750	24	278	51.3	5,804	75	329	5,750	24	294	49.1	5,804	75	343
1935	784-92	5,200	59	533	47.7	5,238	101	581	5,200	45	581	52.8	5,238	113	634

*Ohio canal, which diverts at point six miles upstream.

Little Cuyahoga River at Akron, Ohio
(Drainage area, 42.0 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30				Calendar year			
		Maximum day	Minimum day	Mean		Maximum day	Minimum day	Mean	
1921	644-73	410	3.6	36.9		410	3.6	39.2	
1922	644-73	291	5.1	41.0		291	4.1	37.4	
1923	644-73	237	1.5	21.2		237	1.5	24.5	
1924	644-73	-	7.4	48.3		-	7.4	46.2	
1925	644-73	223	6.8	28.3		223	6.8	29.0	
1926	644-73	-	8.7	36.4		-	8.7	44.6	
1927	644-73	-	10.1	55.2		-	10.1	53.9	
1928	664-65	597	11.6	50.3		221	14.0	43.3	
1929	684-59	-	11.6	52.9		-	11.6	53.8	
1930	699-58	296	6.5	36.4		296	6.5	31.4	
1931	714-88	93	6.5	17.7		115	6.0	19.7	
1932	729-86	268	6.0	29.7		268	8.6	29.2	
1933	744-95	838	7.1	29.1		838	6.1	27.2	
1934	759-95	172	3.8	14.6		172	3.8	15.1	
1935	784-94	314	4.1	24.1		314	4.1	25.8	

Chagrin River at Willoughby, Ohio
(Drainage area, 251 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1926	624-82	6,310	23	403	1.61	21.76	6,310	23	455	1.81	24.59
1927	644-79	5,210	21	407	1.62	22.03	6,080	21	384	1.53	20.74
1928	664-67	6,080	26	343	1.37	18.57	3,250	26	258	1.03	13.96
1929	684-61	11,800	23	360	1.43	19.46	11,800	23	374	1.49	20.24
1930	699-60	5,210	5.2	317	1.26	17.18	5,210	5.2	282	1.12	15.27
1931	714-90	7,500	14	207	.825	11.16	7,500	16	220	.876	11.86
1932	729-88	4,180	15	251	1.00	13.59	5,420	15	260	1.04	14.15
1933	744-97	5,420	6.2	*226	*.900	*12.22	4,790	6.2	207	.825	11.18
1934	759-97	2,900	3.0	*149	*.594	*8.06	2,900	3.0	146	.582	7.91
1935	784-96	4,380	14	*206	*.821	*11.18	-	-	-	-	-

*Adjusted for diversion by City of Willoughby for municipal water supply.

Note.- Mean discharge, in second-feet, for the years 1933-35 diverted by City of Willoughby, is given in the following table. Records not available prior to 1933.

Year	Water year	Calendar year
1933	1.00	1.04
1934	1.29	1.34
1935	1.40	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Erie--Continued

Grand River near Madison, Ohio
(Drainage area, 587 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1923	564-67	4,980	2	414	0.705	9.56	8,080	2	576	0.981	13.30
1924	584-75	8,320	7	854	1.45	19.79	8,320	12	837	1.43	19.43
1925	604-97	6,900	8	572	.974	13.25	6,460	8	730	1.24	16.89
1926	624-84	13,700	8	1,090	1.86	25.28	13,700	8	1,140	1.94	26.41
1927	644-80	8,660	6.6	896	1.53	20.72	9,490	6.6	789	1.34	18.23
1928	664-68	9,490	7.8	777	1.32	18.00	6,980	5.0	622	1.06	14.42
1929	684-62	16,400	5.0	863	1.47	19.98	16,400	7.1	889	1.51	20.57
1930	699-61	8,210	1.6	677	1.15	15.65	8,210	1.6	569	.969	13.16
1931	714-91	3,530	.7	323	.550	7.48	3,530	.7	346	.589	8.01
1932	729-89	6,080	1.2	439	.748	10.17	8,460	1.2	445	.758	10.30
1933	744-98	8,460	.2	453	.772	10.49	7,960	.2	470	.801	10.88
1934	759-98	5,660	0	346	.589	8.00	5,660	0	343	.584	7.94
1935	784-98	6,080	8.3	414	.705	9.59	6,080	8.3	399	.680	9.24
1939	874-111	7,110	.2	547	.932	12.65	-	-	-	-	-

Ashtabula River near Ashtabula, Ohio
(Drainage area, 118 square miles)

1925	784-99	2,430	0	84.9	0.719	9.75	2,430	0	128	1.08	14.72
1926	784-99	4,350	0	205	1.74	23.56	4,350	0	237	2.01	27.27
1927	784-99	3,330	.2	206	1.75	23.69	3,890	.2	186	1.58	21.35
1928	784-99	3,890	.2	168	1.42	19.44	1,900	.2	114	.966	13.16
1929	784-99	4,360	0	156	1.32	17.97	4,360	0	160	1.36	18.39
1930	784-99	2,360	0	162	1.37	18.58	2,360	0	141	1.19	16.20
1931	784-99	1,560	0	87.0	.737	10.00	1,560	0	96.8	.820	11.12
1932	784-99	2,400	0	113	.958	13.02	5,840	0	117	.992	13.54
1933	784-99	5,840	0	118	1.00	13.57	2,360	0	117	.992	13.49
1934	784-99	1,730	0	84.7	.718	9.75	1,730	0	77.2	.654	8.88
1935	784-99	1,860	.1	93.4	.792	10.74	1,560	.1	90.4	.766	10.40

Cattaraugus Creek at Versailles, N. Y.
(Drainage area, 465, revised, square miles)

1911	324-48	6,460	85	959	2.06	27.96	7,540	111	1,040	2.24	30.41
1912	324-48	9,340	75	927	1.99	27.09	9,340	75	747	1.61	21.91
1913	354-57	18,300	55	1,050	2.26	30.68	18,300	55	966	2.08	28.24
1914	384-57	11,200	66	701	1.51	20.50	11,200	66	714	1.54	20.90
1915	404-65	8,650	90	598	1.29	17.51	8,650	110	679	1.46	19.82
1916	434-54	13,600	61	952	2.05	27.91	13,600	61	810	1.74	23.68
1917	454-59	6,900	64	692	1.49	20.23	10,000	110	926	1.99	27.01
1918	474-48	16,000	55	756	1.63	22.13	16,000	55	608	1.31	17.78
1919	504-91	7,000	75	625	1.34	18.19	7,000	75	553	1.19	16.15
1920	504-91	15,000	50	509	1.09	14.84	15,000	50	588	1.26	17.15
1921	524-47	4,800	70	572	1.23	16.70	4,800	70	629	1.35	18.32
1922	544-73	6,500	100	736	1.58	21.45	6,500	120	592	1.27	17.24
1923	564-72	8,000	46	484	1.04	14.12	-	-	-	-	-

STREAMS TRIBUTARY TO NIAGARA RIVER

Little Tonawanda Creek at Linden, N. Y.
(Drainage area, 22.0 square miles)

1913	354-60	1,070	0.43	30.2	1.37	18.58	1,070	0.43	29.2	1.33	18.00
1914	384-59	584	.43	24.2	1.10	14.94	584	.63	24.9	1.13	15.30
1915	404-67	420	1.17	17.8	.809	10.95	420	1.17	19.9	.905	12.27
1916	434-55	1,090	.59	38.6	1.75	23.86	1,090	.51	35.7	1.62	22.06
1917	454-61	365	.51	28.1	1.28	17.33	365	1.39	34.0	1.55	21.01
1918	474-50	740	.5	26.2	1.19	16.15	740	.5	23.2	1.05	14.34
1919	504-92	940	1.8	29.5	1.33	18.23	-	-	-	-	-
1920	504-92	-	-	-	-	-	-	-	-	-	-
1921	524-48	468	.4	23.3	1.06	14.35	468	.4	19.7	.895	12.12
1922	544-75	790	.4	20.2	.918	12.43	790	.7	18.2	.827	11.22
1923	564-74	637	.7	21.4	.973	13.20	637	.6	23.6	1.07	14.59
1924	584-80	310	.6	25.2	1.15	15.63	310	2.0	25.6	1.16	15.86
1925	604-102	454	1.0	22.0	1.00	13.61	454	1.0	29.0	1.32	17.89
1926	624-90	498	1.4	33.5	1.52	20.66	498	1.4	35.6	1.62	21.90
1927	644-84	290	.6	32.1	1.46	19.81	578	.6	36.1	1.64	22.30
1928	664-70	578	.6	42.0	1.91	26.02	455	1.1	31.7	1.44	19.64
1929	684-64	718	.8	31.9	1.45	19.72	718	.8	29.3	1.33	18.12
1930	699-63	490	.9	29.2	1.33	18.00	490	.7	28.3	1.29	17.43
1931	729-92	505	.7	25.7	1.17	15.90	505	.9	26.2	1.19	16.16
1932	729-92	452	.5	27.4	1.25	16.97	452	.5	27.7	1.26	17.15
1933	744-100	625	.3	23.5	1.07	14.49	625	.3	23.2	1.05	14.32
1934	759-100	461	.1	17.8	.809	10.98	461	.1	16.9	.768	10.40
1935	784-109	321	.5	21.0	.955	12.97	321	.8	20.8	.945	12.87
1936	804-95	1,080	.1	25.1	1.14	15.51	1,080	.1	25.9	1.18	16.00
1937	824-77	532	.5	28.8	1.31	17.80	532	1.5	29.4	1.34	18.12
1938	854-88	471	.7	24.7	1.12	15.23	471	.7	23.7	1.08	14.61
1939	874-115	692	.4	25.6	1.16	15.81	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on
STREAMS TRIBUTARY TO LAKE ONTARIO

Genesee River at Scio, N. Y.
(Drainage area, 309 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1917	454-62	3,710	26	415	1.34	18.19	4,130	26	527	1.71	23.21
1918	474-51	10,000	34	529	1.71	23.21	10,000	34	477	1.54	20.90
1919	504-98	8,090	27	437	1.41	19.14	8,090	25	416	1.35	18.32
1920	504-98	6,630	25	319	1.03	14.02	6,630	28	316	1.02	13.88
1921	524-52	2,800	21	274	.887	12.04	2,880	21	312	1.01	13.71
1922	544-77	3,140	34	401	1.30	17.65	3,140	26	314	1.02	13.85
1923	564-76	5,060	17	271	.877	11.90	5,060	17	286	.926	12.57
1924	584-82	7,430	20	370	1.20	16.33	7,430	28	385	1.25	17.01
1925	604-104	6,580	16	303	.981	13.32	6,580	16	353	1.14	15.48
1926	624-92	3,140	23	317	1.03	13.98	3,140	23	324	1.05	14.25
1927	644-86	5,000	16	445	1.44	19.55	7,090	16	628	2.03	27.56
1928	664-71	7,090	17	602	1.95	26.54	4,220	26	379	1.23	16.74
1929	684-65	5,990	20	475	1.54	20.90	5,990	20	503	1.63	22.13
1930	699-64	3,190	17	366	1.18	16.02	3,000	17	281	.909	12.34
1931	714-95	2,690	18	256	.828	11.24	2,690	19	294	.951	12.91
1932	729-93	3,420	13	337	1.09	14.84	3,420	13	340	1.10	14.97
1933	744-101	2,680	17	276	.893	12.12	2,680	29	291	.942	12.79
1934	759-101	4,120	18	248	.803	10.92	4,120	18	226	.731	9.92
1935	784-110	5,870	28	400	1.29	17.55	5,870	41	415	1.34	18.23
1936	804-96	6,600	19	406	1.31	17.86	6,600	19	431	1.39	18.98
1937	824-78	4,700	23	441	1.43	19.38	4,700	29	430	1.39	18.90
1938	854-89	4,890	19	349	1.13	15.37	4,890	19	323	1.05	14.23
1939	874-116	6,090	6.9	286	.926	12.57	-	-	-	-	-

Genesee River at St. Helena, N. Y.
(Drainage area, 1,017 square miles)

1909	264-75	19,400	59	1,060	1.04	14.12	19,400	59	1,080	1.06	14.39
1910	284-63	20,300	64	1,170	1.15	15.61	20,300	69	1,280	1.26	17.10
1911	304-45	10,400	61	1,190	1.17	15.88	10,400	61	1,390	1.37	18.60
1912	324-55	17,500	64	1,340	1.32	17.97	17,500	64	1,180	1.16	15.79
1913	354-62	31,100	41	1,450	1.43	19.41	31,100	20	1,370	1.35	18.32
1914	384-61	22,000	20	1,230	1.21	16.42	22,000	50	1,200	1.18	16.02
1915	404-69	19,600	61	1,150	1.13	15.34	19,600	114	1,370	1.35	18.32
1916	434-58	29,000	77	2,040	2.01	27.35	29,000	77	1,840	1.81	24.64
1917	454-64	15,500	81	1,340	1.32	17.92	15,500	170	1,610	1.58	21.45
1918	474-53	26,000	91	1,280	1.26	17.10	26,000	91	1,130	1.11	15.07
1919	504-101	23,800	78	1,240	1.22	16.56	23,800	56	1,190	1.17	15.88
1920	504-101	28,800	56	920	.905	12.32	28,800	61	960	.944	12.81
1921	524-54	11,700	37	909	.894	12.14	11,700	37	989	.972	13.19
1922	544-79	9,220	127	1,250	1.23	16.70	9,220	85	1,010	.993	13.48
1923	564-78	10,400	50	814	.800	10.86	10,400	50	863	.849	11.52
1924	584-84	15,500	65	1,220	1.20	16.33	15,500	124	1,260	1.24	16.88
1925	604-106	14,600	86	910	.895	12.15	14,600	86	1,110	1.09	14.80
1926	624-94	11,600	88	1,190	1.17	15.88	11,600	88	1,190	1.17	15.88
1927	644-87	12,700	70	1,410	1.39	18.87	*32,400	70	1,790	1.76	23.89
1928	664-72	*32,400	72	1,660	1.63	22.19	11,500	98	1,120	1.10	14.97
1929	684-66	22,200	71	1,490	1.47	19.95	22,200	71	1,530	1.50	20.36
1930	699-65	13,900	65	1,200	1.18	16.02	13,900	52	994	.977	13.26
1931	714-96	10,300	52	789	.776	10.53	10,300	78	948	.932	12.65
1932	729-94	11,400	47	1,220	1.20	16.33	11,400	47	1,190	1.17	15.93
1933	744-102	13,200	65	960	.944	12.81	13,200	65	976	.960	13.03
1934	759-102	11,100	28	782	.769	10.42	11,100	28	736	.724	9.81
1935	784-111	11,600	75	1,172	1.15	15.64	11,600	158	1,170	1.15	15.59
1936	804-97	19,200	36	1,148	1.13	15.36	19,200	36	1,192	1.17	15.95
1937	824-79	14,000	58	1,363	1.34	18.17	14,000	92	1,353	1.33	18.04
1938	854-90	15,000	80	1,052	1.03	14.02	15,000	80	1,044	1.03	13.91
1939	874-117	17,300	32	1,094	1.08	14.60	-	-	-	-	-

*Corrected. Figure previously published is erroneous.

Genesee River at Jones Bridge, near Mount Morris, N. Y.
(Drainage area, 1,419 square miles)

1909	264-79	16,600	30	1,440	1.01	13.71	16,600	30	1,470	1.04	14.12
1910	284-66	17,800	60	1,470	1.04	14.12	17,800	60	1,580	1.11	15.07
1911	304-47	11,900	80	1,500	1.06	14.39	11,900	80	1,710	1.20	16.29
1912	324-57	16,500	141	1,670	1.18	16.06	16,500	141	1,540	1.09	14.84
1913	354-65	19,200	58	1,830	1.29	17.51	19,200	58	1,730	1.22	16.56
1916	434-61	45,700	138	2,640	1.86	25.32	45,700	118	2,410	1.70	23.14
1917	454-66	14,000	118	1,600	1.13	15.34	17,300	271	2,060	1.45	19.68
1918	474-55	22,200	126	1,790	1.26	17.10	22,200	126	1,500	1.06	14.39
1919	504-103	23,800	187	1,620	1.14	15.48	23,800	117	1,600	1.13	15.34
1920	504-104	17,700	117	1,200	.846	11.52	17,700	165	1,260	.888	12.09
1921	524-55	14,800	94	1,230	.867	11.77	14,800	94	1,320	.930	12.62
1922	544-81	13,400	154	1,690	1.19	16.15	13,400	175	1,400	.987	13.40
1923	564-80	11,200	66	1,110	.782	10.62	11,200	66	1,150	.810	11.00
1924	584-86	15,300	78	1,510	1.06	14.43	15,300	150	1,590	1.12	15.24
1925	604-107	20,000	108	1,250	.881	11.96	20,000	108	1,450	1.02	13.85
1926	624-96	14,200	133	1,520	1.07	14.52	14,200	133	1,550	1.09	14.80
1927	644-89	13,800	58	1,840	1.30	17.65	33,800	58	2,420	1.71	23.21
1928	664-73	33,800	130	2,320	1.63	22.19	12,300	140	1,570	1.11	15.11
1929	684-67	22,600	137	2,020	1.42	19.28	22,600	137	2,060	1.45	19.68
1930	699-66	16,300	38	1,620	1.14	15.48	16,300	38	1,340	.944	12.81
1931	714-97	11,600	81	999	.704	9.56	11,600	120	1,180	.832	11.29
1932	729-95	14,200	73	1,560	1.10	14.97	14,200	73	1,530	1.08	14.70
1933	744-103	16,600	108	1,240	.874	11.86	16,600	108	1,260	.888	12.05
1934	759-103	13,600	36	972	.685	9.29	13,600	36	906	.638	8.66

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Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Genesee River at Jones Bridge, near Mount Morris, N. Y.--Continued
(Drainage area, 1,419 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1935	784-112	12,200	93	1,438	1.01	13.74	12,200	224	1,459	1.03	13.95
1936	804-98	24,200	53	1,589	1.12	15.25	24,200	53	1,620	1.14	15.54
1937	824-80	14,400	89	1,745	1.23	16.69	14,400	126	1,758	1.24	16.82
1938	854-91	15,000	85	1,380	.973	13.21	15,000	85	1,369	.958	13.01
1939	874-118	24,000	46	1,358	.957	13.01	-	-	-	-	-

Genesee River at Rochester, N. Y.
(Drainage area, 2,460, revised, square miles)

1906	206-60	15,500	400	1,890	0.771	10.47	15,500	400	2,330	0.951	12.91
1907	244-101	15,000	310	2,880	1.18	16.02	17,500	310	2,650	1.08	14.66
1908	244-101	21,800	-	3,460	1.41	19.19	21,800	-	2,920	1.19	16.20
1909	264-81	21,400	240	2,180	.890	12.08	21,400	240	2,230	.910	12.35
1910	284-69	29,000	174	2,180	.890	12.08	29,000	174	2,300	.939	12.75
1911	304-50	14,000	206	2,300	.939	12.75	14,000	206	2,810	1.07	14.52
1912	324-60	25,400	238	2,550	1.04	14.16	25,400	102	2,280	.931	12.67
1913	354-67	41,000	102	2,820	1.15	15.61	41,000	162	2,710	1.11	15.07
1914	384-64	26,800	170	2,580	1.05	14.25	26,800	278	2,550	1.04	14.12
1915	404-72	19,800	313	1,960	.800	10.86	19,800	264	2,260	.922	12.52
1916	434-63	46,300	264	3,930	1.60	21.78	46,300	243	3,550	1.45	19.74
1917	454-68	14,000	243	2,190	.894	12.14	17,000	420	2,770	1.13	15.34
1918	474-57	27,200	300	2,610	1.07	14.52	-	-	-	-	-

Genesee River at Driving Park Avenue, Rochester, N. Y.
(Drainage area, 2,467 square miles).

*1920	524-58	-	-	-	-	-	-	320	-	-	-
1921	524-58	15,900	560	2,200	0.892	12.11	15,900	560	2,240	0.908	12.33
1922	544-83	15,100	420	2,530	1.03	13.98	15,100	420	2,210	.896	12.16
1923	564-82	18,300	389	2,120	.859	11.66	18,300	389	2,230	.904	12.27
1924	584-88	17,600	-	2,780	1.13	15.38	17,600	-	2,690	1.17	15.93
1925	604-109	23,200	661	2,380	.965	13.10	23,200	661	2,640	1.07	14.52
1926	624-97	22,100	689	2,730	1.11	15.07	22,100	689	2,720	1.10	14.93
1927	644-91	16,200	219	3,070	1.24	16.83	27,400	219	3,940	1.60	21.72
1928	664-74	27,400	772	4,110	1.67	22.73	16,600	772	3,040	1.23	16.74
1929	684168	23,300	740	3,390	1.37	18.60	23,300	740	3,380	1.37	18.60
1930	699-67	18,500	686	3,010	1.22	16.56	18,500	394	2,720	1.10	14.93
1931	714-98	15,500	350	2,010	.815	11.06	15,500	350	2,230	.904	12.27
1932	729-96	18,400	625	2,930	1.19	16.20	18,400	586	2,870	1.16	15.79
1933	744-104	18,100	586	2,460	.997	13.53	18,100	710	2,460	.997	13.53
1934	759-104	17,200	451	1,740	.705	9.57	17,200	451	1,675	.679	9.21
1935	784-113	13,800	610	2,383	.966	13.11	13,800	630	2,440	.989	13.42
1936	804-99	26,100	500	2,795	1.13	15.42	26,100	500	2,787	1.13	15.37
1937	824-81	15,400	465	2,854	1.16	15.71	15,400	465	2,929	1.19	16.13
1938	854-92	16,800	628	2,487	1.01	13.69	16,800	638	2,433	.986	13.39
1939	874-119	15,300	600	2,474	1.00	13.62	-	-	-	-	-

*Calendar year incomplete.

Canaseraga Creek near Dansville, N. Y.e

1912	324-64	-	3	-	-	-	-	3	-	-	-
1921	524-60	1,130	16	109	0.712	9.67	1,130	16	121	0.791	10.74
1922	544-85	1,530	23	164	1.07	14.52	1,530	34	141	.922	12.52
1923	604-112	3,350	17	127	.830	11.27	3,350	17	127	.830	11.27
1924	604-113	1,130	19	137	.895	12.18	1,130	27	138	.902	12.28
1925	604-113	2,680	22	112	.732	9.94	2,680	22	129	.843	11.44
1926	624-99	1,700	19	138	.902	12.24	1,700	19	142	.928	12.60
1927	644-92	2,260	29	171	1.12	15.20	3,820	29	240	1.57	21.31
1928	664-75	3,820	19	227	1.48	20.14	1,620	19	148	.967	13.16
1929	684-69	4,070	18	198	1.29	17.51	4,070	18	201	1.31	17.78
1930	699-58	1,370	15	151	.987	13.40	1,370	15	130	.850	11.54
1931	714-99	1,630	13	100	.654	8.88	1,630	13	115	.752	10.21
1932	729-97	1,630	16	138	.902	12.28	1,630	16	134	.876	11.93
1933	744-105	1,950	16	110	.719	9.76	1,950	16	107	.699	9.49
1934	759-105	2,000	12	84.8	.554	7.52	2,000	12	80.2	.524	7.10
1935	784-115	4,770	14	151	.987	13.42	4,770	29	158	1.03	13.99
1936	804-100	3,500	18	166	1.08	14.79	3,500	17	161	1.05	14.29
1937	824-82	1,620	17	145	.948	12.82	1,620	20	149	.974	13.18
1938	854-93	1,730	16	123	.804	10.90	-	-	-	-	-
1939	874-120	3,590	16	149	.961	13.03	-	-	-	-	-

*At two sites in the vicinity of Dansville, N. Y.: Drainage areas, 153 square miles, 1912-38 and 155 square miles, 1939.

Keshequa Creek at Craig Colony, Sonyea, N. Y.
(Drainage area, 69 square miles)

1918	474-64	-	-	-	-	-	1,590	0.8	44.3	0.642	8.72
1919	504-116	1,850	1.8	43.0	0.623	8.46	1,850	1	43.5	.630	8.55
1920	504-117	2,310	1	35.3	.512	6.97	2,310	1	40.3	.584	7.95
1921	524-63	680	1.3	39.1	.567	7.70	680	1.3	39.6	.574	7.79
1922	544-88	890	3.2	52.1	.755	10.25	890	4.0	44.0	.638	8.66
1923	564-86	1,070	.9	35.5	.514	6.98	1,070	.9	36.5	.529	7.18
1924	584-92	1,020	1.5	50.0	.725	9.87	1,020	1.9	50.6	.733	9.98
1925	604-115	1,200	1.1	36.3	.526	7.14	1,200	1.1	42.9	.622	8.44
1926	624-101	1,340	1.3	46.8	.678	9.20	1,340	1.3	47.8	.693	9.41
1927	644-94	909	1.5	54.7	.793	10.79	2,300	1.5	87.2	1.26	17.10

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Keshequa Creek at Craig Colony, Sonyea, N. Y.--Continued
(Drainage area, 69 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1928	664-76	2,300	1.8	86.8	1.26	17.13	813	2.7	49.8	0.722	9.83
1929	684-70	1,410	.8	66.8	.968	13.15	1,410	.8	67.4	.977	13.26
1930	699-69	1,200	.2	54.8	.794	10.79	1,200	.2	48.2	.699	9.49
1931	714-100	1,340	.9	33.9	.491	6.67	1,340	.9	37.2	.539	7.32
1932	729-98	1,020	.1	51.8	.751	10.17	-	-	-	-	-

Conesus Creek near Lakeville, N. Y.
(Drainage area, 72 square miles)

1920	504-118	151	-	-	-	-	151	11	41.4	0.575	7.83
1921	524-64	121	2.8	42.2	0.586	7.96	121	2.5	35.0	.486	6.60
1922	544-90	172	2.5	46.8	.650	8.82	172	-	47.9	.665	9.03
1923	564-88	184	-	38.3	.532	7.22	184	.7	37.4	.519	7.05
1924	684-94	277	.7	43.4	.603	8.21	277	6.1	48.8	.678	9.23
1925	604-116	296	10	56.8	.789	10.71	296	11	57.2	.794	10.78
1926	624-103	308	6.9	50.6	.703	9.54	308	6.9	49.9	.693	9.41
1927	644-96	161	6.9	50.2	.697	9.46	590	6.1	79.4	1.10	14.93
1928	664-77	590	6.1	101	1.40	19.01	310	12	70.9	.985	13.41
1929	684-71	400	4.1	60.8	.844	11.44	400	4.1	58.4	.811	11.01
1930	699-70	275	1.1	51.3	.712	9.65	275	.6	48.6	.675	9.16
1931	714-101	168	.6	35.4	.492	6.66	168	.6	36.0	.500	6.79
1932	729-99	262	1.4	52.8	.733	9.97	262	.4	52.6	.731	9.95
1933	744-106	185	.4	40.6	.564	7.66	185	.7	40.6	.564	7.66
1934	759-106	86	.8	17.1	.238	3.23	-	-	-	-	-

Canadice Lake outlet near Hemlock, N. Y.
(Drainage area, 12.6 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30				Calendar year			
		Mean lake elevation in feet*	Mean	Per square mile	Run-off in inches	Mean lake elevation in feet*	Mean	Per square mile	Run-off in inches
1904	170-71	2.081	15.793	1.25	17.014	1.79	15.58	1.24	16.79
1905	170-72	1.243	11.945	.948	12.869	1.354	12.36	.980	13.36
1906	206-61	-	10.187	.808	10.968	-	14.3	1.13	15.02
1907	244-102	-	15.277	1.21	16.425	-	11.89	.944	12.82
1908	244-102	-	16.090	1.28	17.423	1.309	14.70	1.17	15.92
1909	264-82	.611	8.821	.700	9.502	.430	8.955	.711	9.65
1910	284-72	.716	8.193	.650	8.823	1.148	8.506	.675	9.21
1911	304-53	1.578	5.563	.442	6.000	1.6344	5.2066	.413	5.59
1912	324-68	1.436	11.490	.911	12.400	1.430	12.115	.961	13.05
1913	354-68	1.757	15.694	1.25	16.968	1.641	15.068	1.20	16.20
1914	384-65	1.670	14.220	1.13	15.339	1.991	14.687	1.17	15.882
1915	404-77	1.927	10.927	.867	11.769	1.962	11.040	.876	11.891
1916	434-69	2.154	19.755	1.57	21.370	1.997	18.585	1.48	20.145
1917	454-75	1.728	9.908	.786	10.670	1.966	12.776	1.01	13.710
1918	504-119	1.992	11.584	.919	12.445	1.721	8.758	.695	9.434
1919	504-119	1.910	11.003	.873	11.831	1.778	12.754	1.01	13.710
1920	504-119	1.258	9.243	.734	10.068	1.245	8.971	.712	9.691
1921	524-65	.8855	8.906	.707	9.559	.669	7.536	.598	8.118
1922	544-91	1.552	9.828	.780	10.532	1.944	10.084	.800	10.860
1923	564-89	.821	9.625	.764	10.355	.147	8.873	.704	9.556
1924	584-95	.611	9.155	.727	9.950	1.052	10.032	.796	10.835
1925	604-117	1.154	9.637	.765	10.260	1.223	10.467	.832	11.294
1926	624-104	1.184	10.625	.859	11.641	1.175	11.297	.897	12.176
1927	644-97	1.637	9.477	.752	10.155	2.243	14.687	1.17	15.882
1928	664-76	2.539	20.106	1.596	21.728	2.093	13.237	1.05	14.292
1929	684-72	2.156	15.063	1.195	16.229	1.867	15.217	1.21	16.425
1930	699-71	1.292	10.486	.832	11.293	1.054	10.148	.805	10.928
1931	714-102	.216	9.270	.736	9.983	.435	8.788	.697	9.461
1932	729-100	1.271	11.832	.939	12.784	1.013	12.966	1.03	14.020
1933	744-107	.112	10.556	.838	11.374	-.083	9.742	.773	10.493
1934	759-107	-.954	4.760	.378	5.127	-.807	4.553	.361	4.903
1935	784-116	-.172	10.012	.795	10.786	.050	11.364	.902	12.244
1936	804-101	1.424	11.403	.905	12.317	1.346	10.881	.864	11.760
1937	824-83	.860	12.610	1.001	13.588	1.140	13.317	1.057	14.350
1938	854-94	1.781	10.249	.813	11.038	1.864	9.330	.740	10.048
1939	874-121	1.907	11.271	.895	12.142	-	-	-	-

*Above low-water mark.

Fall Creek near Ithaca, N. Y.
(Drainage area, 124 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1926	624-106	1,420	21	180	1.45	19.68	2,280	21	198	1.60	21.72
1927	644-98	2,280	17	213	1.72	23.35	2,080	14	248	2.00	27.15
1928	664-80	2,080	14	247	1.99	27.08	1,550	17	176	1.42	19.33
1929	684-74	2,750	17	198	1.60	21.72	2,750	24	215	1.73	23.48
1930	699-72	2,000	14	193	1.56	21.18	2,000	10	156	1.26	17.10

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Fall Creek near Ithaca, N. Y.--Continued
(Drainage area, 124 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1931	714-103	1,600	9	126	1.02	13.85	1,600	9	143	1.15	15.61
1932	729-101	1,520	10	176	1.42	19.33	1,520	10	182	1.47	20.00
1933	744-108	1,400	17	139	1.12	15.20	1,400	19	138	1.11	15.07
1934	759-109	2,200	10	137	1.10	14.95	2,200	10	137	1.10	14.99
1935	874-124	8,280	20	231	1.86	25.30	8,280	25	232	1.87	25.43
1936	874-124	4,070	12	194	1.56	21.24	4,070	12	191	1.54	20.95
1937	874-124	1,540	14	194	1.56	21.27	1,980	23	224	1.81	24.53
1938	874-124	2,050	13	212	1.71	23.24	2,050	13	184	1.48	20.14
1939	874-124	2,860	7.9	161	1.30	17.66	-	-	-	-	-

Owasco Lake outlet near Auburn, N. Y.
(Drainage area, 208 square miles)

1913	824-90	-	-	-	-	-	1,900	19	259	1.25	16.88
1914	824-90	1,770	47	304	1.46	19.80	1,770	57.3	315	1.51	20.50
1915	404-78	1,170	57.2	271	1.30	17.65	1,170	57	333	1.60	21.74
1916	824-90	1,620	48	387	1.86	25.35	1,620	10.0	315	1.51	20.55
1917	454-77	941	10.0	291	1.40	19.00	941	48	344	1.65	22.40
1918	474-65	946	48	284	1.37	18.60	946	71	251	1.21	16.42
1919	504-122	1,000	33	266	1.28	17.38	1,000	33	259	1.25	16.97
1920	504-122	1,380	15	234	1.12	15.24	1,380	15	255	1.23	16.74
1921	524-67	810	19	235	1.13	15.34	810	9.8	208	1.00	13.57
1922	544-93	1,470	9.8	364	1.75	23.76	1,470	76	372	1.79	24.30
1923	564-91	1,130	56	265	1.27	17.24	1,130	27	253	1.22	16.56
1924	584-97	1,010	27	245	1.18	16.06	1,010	45	258	1.24	16.88
1925	604-120	1,070	61	272	1.31	17.78	1,070	61	300	1.44	19.55
1926	624-107	1,090	40	279	1.34	18.19	1,090	40	314	1.51	20.50
1927	644-100	947	99	343	1.65	22.40	1,630	99	385	1.85	25.11
1928	664-81	1,630	95	364	1.75	23.82	696	34	256	1.23	16.80
1929	824-90	1,640	34	348	1.67	22.69	1,640	84	371	1.78	24.16
1930	699-73	1,030	98	319	1.53	20.77	1,030	29	279	1.34	18.19
1931	714-104	1,070	24	207	.995	13.51	1,070	20	207	.995	13.51
1932	729-102	1,320	20	271	1.30	17.70	1,320	56	278	1.34	18.24
1933	744-109	860	56	195	.938	12.73	860	42	187	.899	12.20
1934	759-110	648	15	169	.812	11.03	648	5	173	.832	11.30
1935	784-119	1,030	5	309	1.49	20.14	1,030	50	328	1.58	21.45
1936	804-104	2,030	18	320	1.54	20.96	2,030	14	295	1.42	19.27
1937	824-90	850	14	288	1.38	18.80	850	96	340	1.63	22.17
1938	854-98	828	40	300	1.44	19.56	828	40	276	1.33	18.02
1939	874-128	929	17	247	1.19	16.13	-	-	-	-	-

East Branch of Fish Creek at Taberg, N. Y.
(Drainage area, 189 square miles)

1924	604-125	8,430	44	589	3.12	42.47	8,430	44	566	2.99	40.70
1925	604-126	4,270	53	542	2.87	38.96	9,220	53	697	3.69	50.09
1926	624-111	11,000	59	724	3.83	51.99	11,000	59	677	3.58	48.60
1927	644-103	4,500	56	550	2.91	39.50	4,150	56	584	3.09	41.94
1928	664-83	9,290	57	735	3.89	52.95	9,290	86	665	3.52	47.91
1929	684-77	5,790	47	643	3.40	46.15	5,790	47	597	3.16	42.90
1930	699-75	7,160	25	547	2.89	39.23	7,160	25	474	2.51	34.07
1931	714-106	4,420	21	357	1.89	25.66	4,420	21	484	2.56	34.75
1932	729-104	3,900	58	621	3.29	44.78	13,600	58	679	3.59	48.87
1933	744-110	13,600	13	533	2.82	38.28	5,030	13	401	2.12	28.78
1934	759-111	5,030	18	373	1.97	26.76	4,110	18	381	2.02	27.36
1935	784-120	6,000	18	492	2.60	35.33	6,000	18	501	2.65	36.03
1936	804-105	5,170	16	513	2.71	36.96	5,170	16	557	2.95	40.10
1937	824-91	4,400	16	567	3.00	40.71	4,400	16	558	2.95	40.09
1938	854-99	6,000	25	589	3.12	42.29	6,000	38	539	2.85	38.70
1939	874-129	3,850	15	424	2.24	30.42	-	-	-	-	-

Black River near Boonville, N. Y.
(Drainage area, 295 square miles)

1912	324-80	6,100	36	784	2.66	36.21	6,100	36	730	2.47	33.62
1913	354-81	6,680	28	741	2.51	34.07	6,680	28	702	2.38	32.31
1914	384-72	5,240	33	523	1.77	24.03	5,240	28	467	1.58	21.45
1915	404-82	3,880	28	481	1.63	22.13	3,880	37	535	1.81	24.57
1916	434-75	4,540	38	689	2.34	31.85	4,540	38	696	2.36	32.12
1917	454-81	5,100	31	793	2.69	36.52	5,100	31	854	2.89	39.23
1918	474-68	4,820	7	663	2.25	30.54	2,620	7	675	2.29	31.08
1919	504-125	5,520	28	632	2.14	29.05	5,520	28	610	2.07	28.10
1920	504-125	3,620	31	620	2.10	28.58	4,140	31	614	2.08	28.31
1921	524-69	4,140	30	675	2.29	31.08	3,360	28	678	2.30	31.22
1922	544-95	5,100	28	778	2.64	35.84	5,100	57	667	2.26	30.68
1923	564-95	3,880	42	548	1.86	25.25	3,880	42	581	1.97	26.74
1924	584-102	5,500	34	608	2.06	28.04	5,500	34	646	2.19	29.81
1925	604-128	4,680	47	700	2.37	32.17	3,360	47	775	2.63	35.70
1926	624-113	6,030	33	698	2.37	32.17	6,030	33	721	2.44	33.12
1927	644-105	3,880	97	682	2.31	31.36	3,880	97	700	2.37	32.17
1928	664-84	5,820	97	803	2.72	37.02	5,820	184	729	2.47	33.62
1929	684-78	4,570	184	798	2.71	36.79	4,570	184	767	2.60	35.29
1930	699-76	5,100	88	685	2.32	31.49	5,100	87	591	2.00	27.15
1931	714-107	3,570	87	448	1.52	20.63	3,570	107	559	1.89	25.66
1932	729-105	3,360	113	683	2.32	31.58	5,810	113	749	2.54	34.57
1933	744-111	5,810	46	622	2.11	28.64	3,750	46	473	1.60	21.76
1934	784-121	4,530	46	485	1.64	22.30	4,530	46	533	1.81	24.55

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Black River near Boonville, N. Y.--Continued
(Drainage area, 295 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1935	784-122	2,920	120	644	2.18	29.66	2,920	120	664	2.25	30.57
1936	804-106	5,850	108	682	2.31	31.48	5,850	108	704	2.39	32.47
1937	824-92	3,500	135	724	2.45	33.33	3,500	130	703	2.38	32.34
1938	854-100	4,980	108	653	2.21	30.05	4,980	108	658	2.23	30.30
1939	874-130	3,760	78	616	2.09	28.35	-	-	-	-	-

Black River at Watertown, N. Y.
(Drainage area, 1,876 square miles)

1921	524-71	22,800	514	3,790	2.02	27.42	22,800	514	3,640	1.94	26.33
1922	544-97	25,000	661	4,350	2.32	31.49	25,000	661	3,820	2.04	27.69
1923	564-97	21,600	410	2,950	1.57	21.31	21,600	410	3,280	1.75	23.76
1924	584-104	23,600	516	4,020	2.14	29.13	23,600	645	4,110	2.19	29.81
1925	604-130	15,200	650	4,020	2.14	29.05	14,000	650	4,570	2.44	33.12
1926	624-115	29,900	873	4,670	2.49	33.80	29,900	873	4,750	2.53	34.34
1927	644-107	16,600	776	4,020	2.14	29.05	16,600	776	4,240	2.26	30.68
1928	664-85	30,700	952	5,230	2.79	37.98	30,700	1,080	4,590	2.45	33.35
1929	684-79	16,200	779	4,480	2.35	31.90	16,200	779	4,400	2.35	31.90
1930	699-77	20,800	960	4,400	2.35	31.90	20,800	775	3,830	2.04	27.69
1931	714-108	15,600	775	2,580	1.38	18.73	15,600	878	3,190	1.70	23.08
1932	729-106	18,300	1,180	4,280	2.28	31.03	25,300	1,180	4,670	2.49	33.89
1933	744-112	23,300	503	3,950	2.11	28.64	16,900	503	3,200	1.71	23.21
1934	759-113	14,400	436	2,749	1.47	19.89	14,400	436	2,749	1.47	19.89
1935	784-123	16,000	720	3,380	1.80	24.45	16,000	720	3,493	1.86	25.28
1936	804-107	26,900	570	3,537	1.89	25.67	26,900	570	3,749	2.00	27.20
1937	824-93	17,400	480	4,053	2.16	29.34	17,400	480	4,014	2.14	29.06
1938	854-101	22,700	864	4,005	2.13	28.98	22,700	864	3,967	2.11	28.71
1939	874-131	15,600	137	3,498	1.86	25.30	-	-	-	-	-

Moose River at McKeever, N. Y.
(Drainage area, 365 square miles)

1923	564-102	5,000	100	642	1.76	23.89	5,000	100	717	1.96	26.61
1924	584-110	6,880	157	828	2.27	30.90	7,030	170	829	2.27	30.90
1925	604-135	7,030	82	931	2.55	34.62	4,450	82	1,065	2.92	39.64
1926	624-121	8,780	200	1,020	2.79	37.87	8,780	200	1,019	2.79	37.87
1927	644-113	4,410	195	857	2.35	31.90	4,740	195	892	2.44	33.11
1928	874-134	10,400	194	1,096	3.00	40.73	10,400	194	937	2.57	34.98
1929	684-83	5,620	203	993	2.72	36.92	5,620	203	998	2.73	37.06
1930	699-81	8,760	112	904	2.48	33.66	8,760	112	791	2.17	29.46
1931	714-112	4,910	105	575	1.58	21.45	4,910	105	738	2.02	27.42
1932	729-110	4,740	282	973	2.67	36.28	8,230	282	1,029	2.82	38.38
1933	744-115	8,230	109	804	2.20	29.88	5,740	109	642	1.76	23.89
1934	759-117	4,900	116	590	1.62	21.93	4,900	116	601	1.65	22.35
1935	784-126	4,430	158	751	2.06	27.94	4,430	158	735	2.01	27.35
1936	804-110	7,000	123	770	2.11	28.71	7,000	123	844	2.31	31.50
1937	824-96	4,800	128	862	2.36	32.05	4,800	128	830	2.27	30.85
1938	854-104	8,310	156	829	2.27	30.84	8,310	156	849	2.33	31.58
1939	874-134	5,720	118	747	2.05	27.79	-	-	-	-	-

Moose River at Moose River, N. Y.
(Drainage area, 368 square miles)

1907	244-120	-	-	-	-	-	-	148	827	2.25	30.54
1908	244-120	6,220	250	1,080	2.93	39.88	6,220	140	879	2.39	32.53
1909	264-93	6,670	74	821	2.23	30.27	6,670	74	820	2.23	30.27
1910	284-81	6,060	90	855	2.32	31.49	6,060	90	917	2.49	33.80
1911	304-68	-	175	746	2.03	27.56	-	175	897	2.44	33.12
1912	324-85	7,660	90	895	2.43	33.08	7,660	90	824	2.24	30.49
1913	354-84	12,900	42	917	2.49	33.80	12,900	42	888	2.41	32.71
1915	404-85	5,320	58	645	1.75	23.76	5,320	58	663	1.80	24.43
1916	434-80	7,060	69	844	2.29	31.17	7,060	69	883	2.40	32.67
1917	454-88	6,310	69	858	2.33	31.63	6,310	69	875	2.38	32.31
1918	474-75	5,170	65	802	2.18	29.59	3,170	65	862	2.34	31.76
1919	504-135	9,250	103	861	2.34	31.76	9,250	103	842	2.29	31.08
1920	504-135	-	99	809	2.20	29.95	-	99	775	2.11	28.72
1921	524-76	6,130	58	806	2.19	29.73	6,130	58	817	2.22	30.14
1922	544-103	9,700	101	1,010	2.74	37.19	9,700	101	883	2.40	32.58

Middle Branch of Moose River at Old Forge, N. Y.
(Drainage area, 52 square miles)

1912	324-87	-	-	-	-	-	626	10	119	2.29	31.17
1913	354-86	760	10	107	2.06	27.96	760	9	101	1.94	26.33
1914	384-76	298	5.8	94.4	1.82	24.70	298	2	89.5	1.72	23.35
1915	404-87	265	1.9	86.3	1.66	22.53	252	1.9	86.7	1.71	23.21
1916	434-81	387	5.0	113	2.17	29.54	387	5.6	112	2.15	29.26
1917	454-89	405	22	114	2.19	29.73	405	22	121	2.33	31.63
1918	474-77	550	16	119	2.29	31.08	550	16	128	2.46	33.39
1919	504-137	290	26	113	2.17	29.46	290	16	90.4	1.74	23.62
1920	504-137	311	16	92.5	1.78	24.23	311	22	91.9	1.77	24.09
1921	524-77	862	22	107	2.06	27.96	862	28	112	2.15	29.18
1922	544-105	480	28	125	2.40	32.58	480	22	123	2.37	32.17
1923	564-105	225	22	78	1.50	20.36	225	23	74.2	1.43	19.41
1924	584-112	350	23	96.7	1.84	25.05	350	28	105	2.02	27.50
1925	604-136	375	28	112	2.15	29.18	375	34	124	2.38	32.31
1926	624-123	726	43	137	2.63	35.70	726	43	137	2.63	35.70

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Middle Branch of Moose River at Old Forge, N. Y.--Continued
(Drainage area, 52 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1927	644-115	326	38	119	2.29	31.08	375	40	113	2.17	29.46
1928	664-90	375	-	133	2.56	34.85	375	1	118	2.27	30.90
1929	684-84	620	1	122	2.35	31.90	620	2	129	2.48	33.66
1930	699-82	433	2	122	2.35	31.90	433	2	122	2.35	31.90
1931	714-113	267	1.5	59.4	1.14	15.48	267	1.5	68.4	1.32	17.92
1932	729-111	379	1.5	137	2.63	35.80	379	16	135	2.60	35.39
1933	744-116	379	1	99.8	1.92	26.06	379	1	85.3	1.64	22.26
1934	759-118	309	2	70.6	1.36	18.44	309	1.1	70.6	1.36	18.44
1935	784-127	432	.3	96	1.85	25.04	432	.3	93.6	1.80	24.41
1936	804-111	405	.3	88.5	1.70	23.19	405	.3	98.5	1.89	25.80
1937	824-97	360	.3	116	2.23	30.32	360	.2	108	2.08	28.27
1938	854-105	389	.2	92.5	1.78	24.114	389	.1	108	2.08	28.29
1939	874-136	389	.1	112	2.15	29.35	-	-	-	-	-

Middle Branch of Moose River near McKeever, N. Y.
(Drainage area, 148 square miles)

1926	624-125	2,100	137	416	2.81	38.14	2,100	137	439	2.97	40.32
1927	644-116	1,170	96	365	2.47	33.53	1,260	96	357	2.41	32.71
1928	664-91	1,900	88	427	2.89	39.27	1,900	88	373	2.52	34.30
1929	684-85	1,520	73	390	2.64	35.72	1,520	73	392	2.65	35.97
1930	699-83	1,700	63	357	2.41	32.76	1,700	63	324	2.19	29.73
1931	714-114	1,350	42	201	1.36	18.44	1,350	42	249	1.68	22.80
1932	729-112	1,090	116	391	2.64	35.96	1,090	125	410	2.77	37.70
1933	744-117	1,680	47	318	2.15	29.18	1,580	47	258	1.74	23.62
1934	759-119	1,030	48	229	1.55	20.99	1,030	48	236	1.59	21.61
1935	784-128	1,410	65	302	2.04	27.68	1,410	55	294	1.99	26.93
1936	804-112	1,090	55	288	1.95	26.45	1,090	55	320	2.16	29.40
1937	824-98	930	64	351	2.37	32.20	930	64	337	2.28	30.88
1938	854-106	1,580	65	316	2.14	28.98	1,580	65	335	2.26	30.73
1939	874-137	1,460	67	301	2.03	27.60	-	-	-	-	-

Independence River at Sperryville, N. Y.
(Drainage area, 85 square miles)

1928	664-93	2,990	47	-	-	-	2,990	47	197	2.32	31.58
1929	684-87	1,280	40	203	2.39	32.44	1,280	40	198	2.33	31.63
1930	699-85	2,600	20	198	2.33	31.63	2,600	20	168	1.98	26.88
1931	714-116	1,840	15	109	1.28	17.33	1,840	15	142	1.67	22.67
1932	729-114	1,150	24	192	2.26	30.72	2,990	24	218	2.56	34.84
1933	744-119	2,990	16	178	2.09	28.50	1,110	16	133	1.56	21.18
1934	759-120	940	14	124	1.46	19.76	940	14	129	1.52	20.58
1935	784-129	1,760	22	178	2.09	28.36	1,760	22	175	2.06	27.85
1936	804-113	2,030	16	150	1.76	24.06	2,030	16	173	2.04	27.74
1937	824-99	914	15	182	2.14	29.12	914	15	173	2.04	27.69
1938	854-107	2,120	19	195	2.29	31.17	2,120	26	194	2.28	30.94
1939	874-138	1,590	14	150	1.76	23.97	-	-	-	-	-

Beaver River below Stillwater Dam, near Beaver River, N. Y.
(Drainage area, 172 square miles)

1909	434-83	2,680	0	369	2.15	29.18	2,680	0	355	2.06	27.96
1910	434-83	2,020	0	312	1.81	24.57	2,020	0	303	1.76	23.89
1911	434-83	3,300	0	339	1.97	26.74	3,300	0	367	2.13	28.91
1912	434-84	2,670	0	326	1.90	25.86	2,670	0	332	1.93	26.27
1913	434-84	3,060	22	402	2.34	31.76	3,060	0	408	2.37	32.17
1914	434-84	3,160	0	316	1.84	24.98	3,160	0	294	1.71	23.21
1916	434-84	1,750	0	273	1.59	21.58	1,750	11	285	1.66	22.53
1916	434-84	2,210	111	397	2.31	31.44	2,210	93	384	2.23	30.35
1917	454-91	1,960	83	342	1.99	27.01	1,960	83	364	2.12	28.78
1918	474-78	1,900	160	380	2.21	30.00	1,900	160	407	2.37	32.17
1919	504-139	2,700	4	379	2.20	29.86	2,700	0	347	2.02	27.42
1920	504-139	1,640	0	324	1.88	25.59	1,640	0	332	1.93	26.27
1921	524-78	2,600	0	355	2.06	27.96	2,600	7	334	1.94	26.33
1922	544-106	3,380	24	386	2.24	30.41	3,380	24	364	2.12	28.78
1923	564-106	2,400	0	278	1.62	21.99	2,400	0	291	1.69	22.94
1924	584-116	1,680	0	370	2.15	29.26	1,680	111	407	2.37	32.26
1925	604-140	1,680	0	320	1.86	25.25	1,680	0	304	1.77	24.03

Summary of yearly discharge, in second-feet, at stations on streams tributary to Lake Ontario--Continued

Beaver River below Stillwater Dam, near Beaver River, N. Y.--Continued
(Drainage area, 172 square miles)

Water year ending Sept. 30

Year	W.S.P. (no. and page)	Observed			Adjusted for change in reservoir contents		
		Maximum day	Minimum day	Mean	Mean	Per square mile	Run-off in inches
1926	624-129	3,590	3	441	475	2.76	37.46
1927	644-122	1,140	4	404	377	2.19	29.73
1928	664-94	1,490	10	484	491	2.86	38.79
1929	684-88	1,860	2	465	449	2.61	35.43
1930	699-86	1,020	0	430	423	2.46	33.39
1931	714-117	620	0	203	227	1.32	17.99
1932	729-116	1,520	0	401	396	2.30	31.29
1933	744-120	2,040	10	417	376	2.19	29.63
1934	759-121	700	7	281	272	1.58	21.48
1935	784-130	1,020	10	322	366	2.13	28.94
1936	804-114	1,100	2	346	322	1.87	25.51
1937	824-110	1,140	12	390	408	2.37	32.16
1938	854-109	1,040	12	386	407	2.37	32.16
1939	874-140	684	11	389	324	1.88	25.57

Calendar year

1926	624-129	3,590	20	506	493	2.87	38.96
1927	644-122	1,490	4	383	402	2.34	31.76
1928	664-94	1,140	11	471	418	2.43	33.08
1929	684-88	1,860	0	466	457	2.66	36.11
1930	699-86	1,020	0	403	353	2.05	27.83
1931	714-117	610	0	202	279	1.62	21.99
1932	729-116	1,520	11	405	447	2.60	35.39
1933	744-120	2,040	9	409	302	1.76	23.89
1934	759-121	620	7	279	278	1.62	21.99
1935	784-130	1,020	10	363	356	2.07	28.16
1936	804-114	1,100	2	329	366	2.13	28.93
1937	824-110	1,140	12	386	395	2.30	31.15
1938	854-109	1,040	12	400	402	2.34	31.79

Note.- Records for 1909 to 1926 not adjusted for change in contents of Stillwater Reservoir; records for 1926-39 have been adjusted for change in contents.

Deer River at Copenhagen, N. Y.
(Drainage area, 89 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1930	699-87	3,190	10	253	2.84	38.55	3,190	10	202	2.27	30.81
1931	714-119	2,330	11	156	1.75	23.76	2,330	11	196	2.20	29.86
1932	729-117	1,620	10	219	2.46	33.48	2,100	10	253	2.84	38.66
1933	744-122	2,100	.8	206	2.31	31.36	1,920	.8	163	1.83	24.84
1934	784-132	1,920	1.0	165	1.85	25.11	1,600	1.0	150	1.69	22.81
1936	784-133	2,010	2.5	176	1.97	26.67	2,010	2.5	190	2.13	29.04
1936	804-116	2,210	3.2	208	2.34	31.79	2,210	3.2	245	2.75	37.44
1937	824-112	2,800	1.7	284	2.85	38.75	2,800	1.7	238	2.67	36.29
1938	854-111	2,370	4.4	256	2.87	38.80	2,370	6.1	236	2.65	36.03
1939	874-142	2,340	2.0	207	2.33	31.52	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

East Branch of Oswegatchie River at Cranberry Lake, N. Y.
(Drainage area, 144 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1924	584-120	1,590	144	320	2.22	30.19	1,590	105	331	2.30	31.24
1925	604-143	990	105	320	2.22	30.16	990	144	333	2.31	31.42
1926	624-130	1,170	266	378	2.62	35.60	1,170	200	361	2.51	33.98
1927	644-123	680	200	289	2.01	27.19	820	190	318	2.21	29.93
1928	664-95	1,100	190	434	3.01	41.10	1,100	160	393	2.73	37.20
1929	684-89	1,340	160	344	2.39	32.42	1,340	202	366	2.54	34.51
1930	699-88	1,320	234	372	2.58	35.03	1,320	166	352	2.44	33.14
1931	714-120	270	3	166	1.15	15.67	296	3	160	1.11	15.10
1932	729-118	1,390	76	308	2.14	29.14	1,390	18	342	2.38	32.27
1933	744-123	1,620	18	321	2.23	30.23	1,620	119	285	1.98	26.86
1934	759-124	325	119	197	1.37	18.57	325	5	192	1.33	18.11
1935	784-134	930	5	239	1.66	22.50	930	120	257	1.78	24.25
1936	804-117	800	9	269	1.87	25.39	800	9	265	1.84	25.08
1937	824-113	1,200	38	327	2.27	30.82	1,200	38	333	2.31	31.36
1938	854-112	1,080	77	290	2.01	27.31	1,080	77	299	2.08	28.17
1939	874-143	495	92	287	1.99	27.09	-	-	-	-	-

East Branch of Oswegatchie River near Oswegatchie, N. Y.
(Drainage area, 263 square miles)

1925	604-145	1,670	15	553	2.10	28.51	1,670	15	599	2.28	30.95
1926	624-132	3,390	1	647	2.46	33.39	3,390	1	616	2.34	31.76
1927	644-125	1,660	25	489	1.86	25.25	1,790	25	553	2.10	28.51
1928	664-96	3,000	26	739	2.81	38.25	3,000	26	651	2.48	33.76
1929	684-90	2,640	24	621	2.36	32.04	2,640	24	642	2.44	33.12
1930	699-89	2,900	22	637	2.42	32.85	2,900	22	579	2.20	29.86
1931	714-121	1,750	64	311	1.18	16.02	1,750	64	336	1.28	17.38
1932	729-119	2,800	89	545	2.07	28.18	2,800	89	604	2.30	31.31
1933	744-124	2,480	165	549	2.09	28.37	2,480	140	472	1.79	24.30
1934	759-125	1,230	139	361	1.37	18.61	1,230	116	353	1.34	18.22
1935	784-135	1,500	116	477	1.81	24.59	1,500	146	507	1.93	26.15
1936	804-118	2,180	120	503	1.91	26.01	2,180	120	534	2.03	27.62
1937	824-114	1,800	120	601	2.29	31.04	1,800	108	578	2.20	29.81
1938	854-113	2,850	108	526	2.00	27.17	2,850	166	530	2.02	27.38
1939	874-144	1,500	92	473	1.80	24.40	-	-	-	-	-

Oswegatchie River near Heuvelton, N. Y.
(Drainage area, 973 square miles)

1916	454-95	-	145	-	-	-	-	145	-	-	-
1917	454-95	11,700	382	1,470	1.51	20.50	11,700	420	1,580	1.62	21.99
1918	474-82	9,220	355	1,750	1.80	24.43	9,220	355	2,090	2.15	29.18
1919	504-144	7,470	433	2,110	2.17	29.46	7,470	365	1,790	1.84	24.98
1920	504-145	7,890	365	1,480	1.52	20.69	7,890	394	1,650	1.70	23.14
1921	524-83	9,700	279	1,660	1.71	23.21	9,220	279	1,470	1.51	20.50
1922	544-111	9,220	310	1,810	1.86	25.25	9,220	318	1,610	1.65	22.40
1923	564-114	9,460	308	1,200	1.23	16.70	9,460	308	1,370	1.41	19.14
1924	584-122	8,540	344	1,720	1.77	24.09	8,540	435	1,840	1.89	25.73
1925	604-147	8,320	238	1,810	1.86	25.25	8,320	238	1,970	2.02	27.42
1926	624-134	12,000	312	2,090	2.15	29.18	12,000	312	2,040	2.10	28.51
1927	644-126	10,200	279	1,640	1.69	22.94	12,200	252	1,930	1.98	26.88
1928	664-97	12,200	252	2,500	2.57	34.98	9,720	399	2,070	2.13	28.99
1929	684-91	8,110	340	2,040	2.10	28.51	8,110	340	2,010	2.07	28.10
1930	699-90	15,600	334	2,120	2.18	29.59	15,600	295	1,910	1.96	26.61
1931	714-122	6,000	289	1,030	1.06	14.39	6,000	289	1,180	1.21	16.42
1932	729-120	11,400	366	1,790	1.84	25.05	11,400	387	1,990	2.05	27.90
1933	744-125	7,670	282	1,690	1.74	23.62	7,670	282	1,380	1.42	19.28
1934	759-126	8,330	212	1,245	1.28	17.39	8,330	212	1,221	1.25	17.04
1935	784-136	6,500	300	1,550	1.59	21.60	6,500	400	1,637	1.68	22.81
1936	804-119	9,640	326	1,503	1.54	21.00	9,640	326	1,741	1.79	24.33
1937	824-115	13,800	295	1,993	2.05	27.80	13,800	295	1,816	1.87	25.33
1938	854-114	11,000	343	1,688	1.73	23.57	11,000	343	1,666	1.71	23.26
1939	874-145	7,590	328	1,452	1.49	20.27	-	-	-	-	-

Oswegatchie River near Ogdensburg, N. Y.
(Drainage area, 1,572 square miles)

1904	206-81	15,300	680	2,590	1.65	22.46	15,300	680	2,550	1.62	22.05
1905	206-81	15,800	680	2,750	1.75	23.76	15,800	680	2,880	1.83	24.84
1906	206-81	9,660	590	2,500	1.59	21.58	9,660	590	2,720	1.73	23.48
1907	244-124	10,900	590	2,670	1.70	23.08	10,900	590	2,620	1.67	22.67
1908	244-124	13,000	680	3,570	2.27	30.90	13,000	590	2,980	1.90	25.86
1909	264-96	11,800	590	2,690	1.71	23.21	11,800	590	2,870	1.83	24.84
1910	284-84	12,700	330	2,060	1.31	17.78	12,700	330	2,250	1.43	19.41
1911	304-72	14,000	330	2,690	1.71	23.21	14,000	330	2,930	1.86	25.25
1912	324-89	15,200	450	2,970	1.89	25.73	15,200	450	3,240	2.06	28.04
1913	354-91	16,500	300	3,580	2.28	30.95	16,500	300	3,110	1.98	26.88
1914	384-80	11,400	330	2,260	1.44	19.55	11,400	330	1,920	1.22	16.56
1915	404-91	6,360	295	1,670	1.06	14.39	6,360	295	1,710	1.09	14.80
1916	434-89	14,700	390	2,660	1.69	23.00	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

West Branch of Oswegatchie River near Harrisville, N. Y.
(Drainage area, 258 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1917	454-96	4,880	50	468	1.81	24.57	4,880	50	497	1.93	26.20
1918	474-84	3,980	51	540	2.10	28.51	3,980	51	631	2.45	33.26
1919	504-147	3,090	74	563	2.18	29.59	3,090	74	493	1.91	25.93
1920	504-147	3,300	60	485	1.88	25.59	3,300	60	503	1.95	26.54
1921	524-84	4,460	36	502	1.95	26.47	4,460	36	470	1.82	24.70
1922	544-113	3,740	49	570	2.21	30.00	3,740	40	488	1.89	25.66
1923	564-116	3,740	30	353	1.37	18.60	3,740	30	426	1.65	22.40
1924	584-124	3,140	32	564	2.19	29.81	4,520	101	584	2.26	30.76
1925	604-148	4,520	38	549	2.13	28.91	2,740	38	610	2.36	32.04
1926	624-135	5,760	77	621	2.41	32.71	5,760	77	601	2.33	31.63
1927	644-128	3,490	66	481	1.87	25.38	3,770	66	566	2.19	29.73
1928	664-98	4,580	74	736	2.85	38.79	4,580	100	620	2.40	32.67
1929	684-92	3,600	86	644	2.50	33.94	3,600	86	625	2.42	32.85
1930	699-91	6,140	56	627	2.43	32.99	6,140	56	549	2.13	28.91
1931	714-123	3,500	51	345	1.34	18.19	3,500	51	418	1.62	21.99
1932	729-121	3,720	76	570	2.21	30.08	4,190	76	629	2.44	33.21
1933	744-126	4,190	33	490	1.90	25.79	2,480	33	379	1.47	19.91
1934	784-137	2,720	27	361	1.40	18.98	2,720	27	366	1.42	19.22
1935	784-138	3,600	54	504	1.95	26.52	3,600	88	523	2.03	27.49
1936	804-120	3,820	46	451	1.75	23.78	3,820	46	518	2.01	27.34
1937	824-116	3,800	49	582	2.26	30.62	3,800	49	541	2.10	28.48
1938	854-115	4,630	58	550	2.13	28.93	4,630	82	540	2.09	28.40
1939	874-146	2,290	35	433	1.68	22.78	-	-	-	-	-

Grass River at Pyrites, N. Y.
(Drainage area, 335 square miles)

1925	604-150	4,050	80	683	2.04	27.69	3,720	80	728	2.17	29.46
1926	624-137	6,520	124	750	2.24	30.41	6,520	124	711	2.12	28.78
1927	644-130	3,660	99	552	1.65	22.40	7,780	99	689	2.06	27.96
1928	664-99	7,780	129	876	2.61	35.53	5,290	129	686	2.05	27.90
1929	684-93	4,240	94	628	1.87	25.38	4,240	94	632	1.89	25.66
1930	699-92	5,000	97	655	1.96	26.61	5,000	97	585	1.75	23.76
1931	714-124	3,340	73	353	1.05	14.25	3,340	73	428	1.28	17.38
1932	729-122	4,810	85	645	1.93	26.27	4,810	85	691	2.06	28.04
1933	744-127	3,040	70	572	1.71	23.21	3,370	70	471	1.41	19.14
1934	759-128	4,180	59	434	1.30	17.62	4,180	59	435	1.30	17.63
1935	784-139	3,020	103	545	1.63	22.08	3,020	120	551	1.64	22.34
1936	804-121	3,400	90	514	1.53	20.90	3,400	90	646	1.93	26.24
1937	824-117	6,900	104	762	2.27	30.88	6,900	104	656	1.96	26.60
1938	854-116	4,800	110	557	1.66	22.57	4,800	110	563	1.68	22.81
1939	874-147	3,200	71	520	1.55	21.05	-	-	-	-	-

Raquette River at Piercefield, N. Y.
(Drainage area, 722 square miles)

1909	264-101	5,500	91	1,200	1.66	22.53	5,500	142	1,230	1.70	23.08
1910	284-89	4,840	90	1,230	1.70	23.08	4,840	90	1,270	1.76	23.89
1911	304-76	5,880	41	1,020	1.41	19.14	5,880	22	1,150	1.59	21.58
1912	324-97	7,060	22	1,130	1.57	21.37	7,060	44	1,220	1.69	23.00
1913	354-93	6,970	11	1,480	2.05	27.83	6,970	11	1,380	1.91	25.93
1914	384-82	6,430	-	1,150	1.59	21.58	6,430	-	1,040	1.44	19.55
1915	404-93	3,610	68	945	1.31	17.78	3,610	18	942	1.30	17.65
1916	434-92	4,750	59	1,350	1.87	25.45	4,750	59	1,380	1.91	26.00
1917	454-98	4,900	62	1,320	1.83	24.84	4,900	101	1,410	1.95	26.47
1918	474-86	4,400	70	1,360	1.88	25.52	4,400	70	1,580	2.19	29.73
1919	504-150	5,090	50	1,490	2.06	27.96	5,090	50	1,300	1.80	24.43
1920	504-1.0	-	98	1,230	1.70	23.14	-	98	1,210	1.68	22.87
1921	524-86	7,030	220	1,370	1.90	25.79	7,030	220	1,320	1.83	24.84
1922	544-115	7,550	95	1,510	2.09	28.37	7,550	60	1,370	1.90	25.79
1923	564-118	4,450	56	921	1.28	17.38	4,450	56	1,020	1.41	19.14
1924	604-155	5,800	77	1,340	1.86	25.32	5,800	210	1,460	2.02	27.50
1925	604-155	4,140	140	1,480	2.05	27.83	4,140	140	1,620	2.24	30.41
1926	624-140	6,920	118	1,590	2.20	29.86	6,920	118	1,590	2.20	29.86
1927	644-133	3,050	214	1,290	1.79	24.30	4,140	207	1,380	1.91	25.93
1928	664-101	6,600	197	1,800	2.49	33.89	6,600	197	1,510	2.09	28.45
1929	684-95	5,150	194	1,500	2.08	28.24	5,150	194	1,510	2.09	28.37
1930	699-94	4,630	180	1,510	2.09	28.37	4,630	85	1,350	1.87	25.38
1931	714-126	3,570	65	751	1.04	14.12	3,570	65	902	1.25	16.97
1932	729-124	4,760	164	1,450	2.01	27.36	4,760	164	1,640	2.27	30.90
1933	744-128	6,600	99	1,390	1.93	26.20	6,600	99	1,080	1.50	20.36
1934	759-129	4,890	70	866	1.20	16.27	4,890	63	900	1.25	16.92
1935	784-140	4,430	63	1,138	1.58	21.38	4,430	255	1,185	1.64	22.27
1936	804-122	5,290	138	1,166	1.61	21.96	5,290	138	1,260	1.75	23.75
1937	824-118	4,560	299	1,491	2.07	28.03	4,560	299	1,460	2.02	27.43
1938	854-117	4,210	319	1,330	1.84	24.99	4,210	319	1,389	1.92	26.09
1939	874-148	5,770	35	1,205	1.67	22.65	-	-	-	-	-

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Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

St. Regis River at Brasher Center, N. Y.
(Drainage area, 616 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1910	324-105	-	30	-	-	-	-	30	-	-	-
1911	324-105	5,440	225	1,210	1.96	26.61	5,440	225	1,330	2.16	29.32
1912	324-105	12,900	225	1,280	2.08	28.31	12,900	225	1,360	2.21	30.08
1913	354-98	7,880	148	1,560	2.53	34.34	7,880	148	1,420	2.31	31.36
1915	404-97	6,250	128	813	1.32	17.92	6,250	239	820	1.33	18.05
1916	434-97	13,800	171	1,080	1.75	23.82	13,800	171	1,080	1.75	23.82
e1917	454-100	5,850	37	830	1.35	18.32	-	-	-	-	-
1920	504-152	7,530	121	1,040	1.69	23.00	7,530	121	1,070	1.74	23.68
1921	524-88	6,310	158	981	1.59	21.58	6,310	158	903	1.47	19.95
1922	544-117	7,280	179	1,120	1.82	24.70	7,280	179	1,010	1.64	22.26
1923	564-120	5,400	146	847	1.38	18.73	5,400	146	923	1.50	20.36
1924	584-128	5,400	212	1,050	1.70	23.22	5,400	272	1,110	1.80	24.50
1925	604-157	5,290	184	1,160	1.88	25.50	4,580	184	1,280	2.08	28.24
1926	624-142	10,700	316	1,370	2.22	30.30	10,700	316	1,330	2.16	29.32
1927	644-134	5,350	230	979	1.59	21.58	8,680	201	1,110	1.80	24.43
1928	664-102	9,100	201	1,500	2.44	33.13	9,100	296	1,300	2.11	28.72
1929	684-96	5,000	201	1,240	2.01	27.22	5,000	201	1,200	1.95	26.47
1930	699-95	6,640	207	1,270	2.06	27.93	6,640	196	1,150	1.87	25.38
1931	714-127	5,120	145	644	1.05	14.19	5,120	145	779	1.26	17.10
1932	729-125	-	201	1,170	1.90	25.91	-	201	1,250	2.03	27.63
1933	744-129	7,050	157	1,080	1.75	23.83	6,560	157	910	1.48	20.09
1934	759-130	6,000	110	814	1.32	17.94	6,000	110	781	1.27	17.21
1935	784-141	5,440	140	972	1.58	21.43	5,440	220	1,027	1.67	22.65
1936	804-123	6,500	200	989	1.61	21.86	6,500	200	1,183	1.92	26.14
1937	824-119	11,000	198	1,384	2.25	30.49	11,000	198	1,217	1.98	26.78
1938	854-118	9,000	173	1,005	1.63	22.11	9,000	173	988	1.60	21.76
1939	874-149	5,160	158	912	1.48	20.10	-	-	-	-	-

*Year incomplete.

Salmon River at Chasm Falls, N. Y.
(Drainage area, 132 square miles)

1926	624-144	2,670	102	301	2.28	30.95	2,670	90	281	2.13	28.91
1927	644-136	1,140	55	209	1.58	21.45	1,140	52	233	1.77	24.03
1928	664-103	2,640	52	299	2.27	30.90	2,640	82	272	2.06	28.04
1929	684-97	1,140	73	267	2.02	27.42	1,140	73	257	1.95	26.47
1930	699-96	1,190	58	255	1.93	26.20	1,190	58	239	1.81	24.57
1931	714-128	1,300	42	163	1.23	16.70	1,300	42	179	1.36	18.46
1932	729-126	1,320	77	232	1.76	23.96	1,320	77	236	1.79	24.36
1933	744-130	2,170	81	235	1.78	24.16	2,170	80	218	1.65	22.40
1934	759-131	1,360	28	188	1.42	19.34	1,360	28	181	1.37	18.66
1935	784-142	831	56	186	1.41	19.17	831	60	195	1.48	20.03
1936	804-124	1,750	62	211	1.60	21.72	1,750	62	242	1.83	25.00
1937	824-120	1,320	92	283	2.14	29.15	1,320	92	260	1.97	26.76
1938	854-119	2,020	60	211	1.60	21.70	2,020	60	206	1.56	21.18
1939	874-150	1,270	74	197	1.49	20.31	-	-	-	-	-

Chateaugay River near Chateaugay, N. Y.
(Drainage area, 112 square miles)

1927	644-138	430	78	144	1.29	17.51	690	67	172	1.54	20.90
1928	664-104	1,990	67	255	2.28	31.04	1,990	28	218	1.95	26.54
1929	684-98	778	28	203	1.81	24.57	778	27	207	1.85	25.11
1930	699-97	766	27	195	1.74	23.62	766	65	190	1.70	23.08
1931	714-129	437	60	117	1.04	14.12	437	60	118	1.05	14.25
1932	729-127	916	79	181	1.62	22.05	916	75	181	1.62	22.05
1933	744-131	1,620	75	196	1.75	23.76	1,620	74	195	1.74	23.62
1934	759-132	685	26	136	1.21	16.51	685	26	128	1.14	15.45
1935	784-143	715	50	161	1.44	19.46	715	46	173	1.54	20.98
1936	804-125	990	45	167	1.49	20.23	990	55	176	1.57	21.31
1937	824-121	1,080	61	225	2.01	27.28	1,080	89	217	1.94	26.32
1938	854-120	975	80	170	1.52	20.53	975	80	167	1.49	20.17
1939	874-151	939	78	171	1.53	20.74	-	-	-	-	-

Great Chazy River at Perry Mills, N. Y.
(Drainage area, 247 square miles)

1929	684-101	5,590	12	383	1.55	21.04	5,590	12	334	1.35	18.32
1930	714-133	4,000	19	340	1.38	18.73	4,000	11	330	1.34	18.19
1931	714-133	2,170	11	154	.623	8.46	2,170	15	193	.781	10.60
1932	729-130	2,910	10	303	1.23	16.74	2,910	10	300	1.21	16.46
1933	744-134	2,740	19	267	1.08	14.66	2,740	19	244	.988	13.41
1934	759-135	2,970	17	205	.830	11.27	2,970	17	200	.810	10.98
1935	784-146	2,090	30	236	.955	12.95	2,090	46	255	1.03	14.03
1936	804-128	4,600	26	278	1.12	15.21	4,600	26	305	1.23	16.84
1937	824-124	4,200	43	355	1.44	19.52	4,200	43	326	1.32	17.86
1938	854-123	4,400	23	262	1.06	14.39	4,400	23	256	1.04	14.07
1939	874-154	3,050	47	257	1.04	14.16	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

Saranac River near Plattsburg, N. Y.
(Drainage area, 607 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1905	170-103						4,199	100	975	1.61	21.86
1906	206-87	2,940	52	746	1.23	16.70	2,940	42	679	1.12	15.20
1907	244-152	4,080	42	562	.926	12.57	4,080	87	582	.959	13.02
1908	244-152	4,630	15	763	1.26	17.15	4,630	15	684	1.13	15.38
1909	384-91	5,150	135	785	1.29	17.53	5,150	135	804	1.32	17.92
1910	384-91	2,770	210	618	1.02	13.88	2,770	220	630	1.04	14.12
1911	384-91	3,260	140	647	1.06	14.46	3,260	140	675	1.11	15.07
1912	384-92	5,580	225	742	1.22	16.59	5,580	225	799	1.32	17.97
1913	384-92	6,090	155	923	1.52	20.69	6,090	155	880	1.45	19.68
1914	384-92	6,410	90	719	1.18	16.04	6,410	90	653	1.08	14.66
1915	404-102	3,600	114	583	.960	13.06	3,600	220	598	.985	13.37
1916	434-101	4,100	165	826	1.36	18.50	4,100	165	839	1.38	18.78
1917	454-103	5,400	100	782	1.29	17.53	5,400	100	813	1.34	18.19
1918	474-90	5,600	200	915	1.51	20.45	5,600	200	1,130	1.86	25.25
1919	504-156	3,400	205	1,060	1.74	23.70	3,400	205	905	1.49	20.23
1920	504-156	3,400	270	887	1.46	19.88	3,400	270	891	1.47	20.01
1921	524-91	4,900	140	824	1.36	18.45	4,900	140	712	1.17	15.88
1922	544-120	5,900	122	828	1.36	18.51	5,900	83	806	1.33	18.05
1923	564-125	3,250	65	609	1.00	13.60	3,250	65	644	1.06	14.39
1924	584-132	3,450	144	764	1.26	17.11	3,450	178	802	1.32	17.97
1925	604-161	6,200	178	867	1.43	19.38	6,200	180	1,020	1.68	22.80
1926	624-148	7,200	255	1,080	1.78	24.18	7,200	255	1,000	1.65	22.40
1927	644-142	3,000	158	787	1.30	17.61	3,750	158	877	1.44	19.55
1928	664-107	8,600	226	1,110	1.83	24.93	8,600	226	976	1.61	21.92
1929	684-103	3,800	360	988	1.63	22.13	3,800	310	949	1.56	21.18
1930	699-101	4,700	310	881	1.45	19.67	-	-	-	-	-

West Branch of Ausable River near Newman, N. Y.
(Drainage area, 116 square miles)

1920	504-160	1,740	7.2	174	1.50	20.43	1,740	7.2	204	1.76	23.96
1921	524-93	5,710	26	215	1.85	25.07	5,710	13	195	1.68	22.80
1922	544-122	4,550	13	233	2.01	27.20	4,550	24	209	1.80	24.43
1923	564-127	2,210	8	162	1.40	18.93	2,210	8	179	1.54	20.90
1924	584-134	4,550	34	241	2.08	28.35	4,550	40	253	2.18	29.67
1925	604-163	4,170	34	245	2.11	28.66	2,990	34	275	2.37	32.17
1926	624-150	3,100	43	265	2.28	31.03	3,100	43	249	2.15	29.18
1927	644-144	2,300	44	197	1.70	23.00	2,640	44	238	2.05	27.83
1928	664-108	2,950	45	304	2.62	35.62	2,950	45	247	2.13	28.99
1929	684-104	2,130	44	252	2.17	29.45	2,130	44	252	2.17	29.46
1930	699-102	2,270	33	248	2.14	29.03	2,270	33	220	1.90	25.79
1931	714-135	1,560	28	149	1.28	17.41	1,560	28	164	1.41	19.14
1932	729-132	1,750	43	225	1.94	26.45	3,400	43	266	2.29	31.17
1933	744-136	3,400	29	249	2.15	29.14	3,000	28	199	1.72	23.35
1934	759-137	1,480	28	164	1.41	19.23	1,480	32	174	1.50	20.34
1935	784-148	1,460	40	198	1.71	23.19	1,460	40	196	1.69	22.99
1936	804-130	3,200	36	205	1.77	24.01	3,200	36	227	1.96	26.69
1937	824-126	2,280	46	253	2.18	29.59	2,280	46	240	2.07	28.12
1938	854-125	5,660	46	247	2.13	28.90	5,660	46	247	2.13	28.88
1939	874-156	1,940	39	194	1.67	22.68	-	-	-	-	-

Ausable River at Ausable Forks, N. Y.
(Drainage area, 445 square miles)

1912	324-113	9,510	51	713	1.60	21.78	9,510	9	765	1.72	23.41
*1913	354-104	15,000	9	-	-	-	15,000	82	-	-	-
1914	384-94	12,100	70	638	1.43	19.41	12,100	70	541	1.22	16.56
1915	404-104	6,190	83	459	1.03	13.98	6,190	83	479	1.08	14.66
1916	434-103	6,490	137	762	1.71	23.28	6,490	137	782	1.76	23.96
1917	454-105	6,800	100	724	1.63	22.13	6,800	100	739	1.66	22.53
1918	474-92	5,600	80	772	1.73	23.48	14,300	80	969	2.18	29.59
1919	504-162	14,300	121	901	2.02	27.42	9,790	121	748	1.68	22.80
1920	504-162	5,030	132	657	1.48	20.14	5,030	132	724	1.63	22.19
1921	524-94	12,500	82	761	1.71	23.21	12,500	82	639	1.44	19.55
1922	544-123	9,200	86	707	1.59	21.56	9,200	66	656	1.47	19.95
1923	564-128	5,030	28	493	1.11	15.07	5,030	28	534	1.20	16.29
1924	584-136	8,530	86	697	1.57	21.37	11,600	130	755	1.70	23.14
1925	604-165	12,500	115	794	1.78	24.16	-	-	-	-	-

*Year incomplete.

Ausable River near Ausable Forks, N. Y.
(Drainage area, 448 square miles)

1925	604-166	11,800	150	772	1.72	23.35	10,600	150	867	1.94	26.33
1926	624-152	9,130	153	806	1.80	24.43	9,130	153	734	1.64	22.26
1927	644-145	7,910	156	616	1.38	18.73	8,280	156	762	1.70	23.08
1928	664-109	8,880	175	940	2.10	28.58	8,880	181	748	1.67	22.74
1929	684-105	6,320	194	798	1.78	24.20	6,320	194	798	1.78	24.21
1930	699-103	8,370	178	745	1.66	22.58	8,370	160	681	1.52	20.66
1931	714-136	5,300	110	440	.982	13.34	5,300	110	465	1.04	14.11
1932	729-133	5,010	124	612	1.37	18.60	8,890	124	725	1.62	22.02
1933	744-137	10,200	120	763	1.70	23.10	10,200	100	634	1.42	19.19
1934	759-138	5,170	82	521	1.16	15.76	5,170	82	549	1.23	16.59
1935	784-149	4,180	140	612	1.37	18.52	4,180	120	600	1.34	18.16
1936	804-131	10,600	117	615	1.37	18.65	10,600	117	674	1.50	20.48
1937	824-127	9,300	142	773	1.73	23.43	9,300	142	760	1.70	23.02
1938	854-126	14,300	142	717	1.60	21.72	14,300	142	713	1.59	21.59
1939	874-157	5,850	140	642	1.43	19.48	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

Black Brook at Black Brook, N. Y.
(Drainage area, 49.4 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1925	604-168	750	5	52.3	1.06	14.39	750	9	61.9	1.25	16.97
1926	624-153	544	6	64.5	1.31	17.78	544	6	56.4	1.14	15.48
1927	644-147	268	6	48.3	.978	13.28	268	6	51.0	1.03	13.98
1928	664-110	589	6	60.5	1.22	16.61	589	6	55.6	1.13	15.38
1929	684-106	266	6	64.3	1.30	17.65	266	4	62.4	1.26	17.10
1930	699-104	426	4	49.8	1.01	13.71	426	6	54.7	1.11	15.07
1931	714-137	309	1	31.3	.634	8.61	309	1	24.8	.502	6.81
1932	729-134	338	1	35.8	.725	9.87	338	2	38.5	.779	10.60
1933	744-138	510	5	60.3	1.22	16.56	510	5	57.7	1.17	15.88
1934	759-139	362	6	44.6	.903	12.27	362	3	43.0	.870	11.82
1935	784-150	294	3	43.2	.874	11.89	294	7	45.3	.917	12.45
1936	804-132	608	2	48.6	.984	13.39	608	2	52.9	1.07	14.58
1937	824-128	640	3	67.9	1.37	18.66	640	5	65.5	1.33	18.00
1938	854-127	494	5.8	43.7	.885	12.00	494	5.8	47.2	.955	12.98
1939	874-158	360	9	59.5	1.20	16.34	-	-	-	-	-

East Branch of Ausable River at Ausable Forks, N. Y.
(Drainage area, 198 square miles)

1925	604-170	6,930	41	365	1.84	24.98	6,860	41	403	2.04	27.69
1926	624-155	3,550	41	344	1.74	23.62	3,550	41	312	1.58	21.45
1927	644-148	4,570	46	280	1.41	19.14	4,900	41	357	1.80	24.43
1928	664-111	4,900	41	448	2.26	30.76	3,800	52	345	1.74	23.68
1929	684-107	3,680	40	355	1.79	24.30	3,680	40	354	1.79	24.30
1930	699-105	5,530	37	340	1.72	23.35	5,530	37	308	1.56	21.18
1931	714-138	2,740	34	189	.955	12.96	2,740	34	206	1.04	14.12
1932	729-135	1,850	38	258	1.30	17.70	4,010	38	316	1.60	21.78
1933	744-139	5,110	26	345	1.74	23.62	5,110	26	280	1.41	19.14
1934	759-140	2,310	20	223	1.13	15.29	2,310	20	235	1.19	16.12
1935	784-151	2,360	34	276	1.39	18.87	2,360	44	271	1.37	18.54
1936	804-133	7,100	27	286	1.44	19.65	7,100	27	309	1.56	21.23
1937	824-129	5,220	42	348	1.76	23.83	5,220	42	358	1.81	24.50
1938	854-128	7,830	47	336	1.70	23.04	7,830	47	324	1.64	22.21
1939	874-159	3,030	32	295	1.49	20.26	-	-	-	-	-

Bouquet River at Willsboro, N. Y.
(Drainage area, 275 square miles)

1924	584-138	2,860	40	332	1.21	16.47	8,400	46	374	1.36	18.51
1925	604-172	8,400	61	397	1.44	19.55	6,840	61	413	1.50	20.36
1926	624-157	4,500	58	335	1.22	16.56	5,070	58	309	1.12	15.20
1927	644-150	5,070	73	266	.967	13.13	4,020	73	349	1.27	17.24
1928	664-112	4,020	70	468	1.70	23.14	3,740	70	357	1.30	17.70
1929	684-108	2,130	65	353	1.28	17.38	2,310	65	348	1.27	17.24
1930	699-106	3,940	54	312	1.13	15.34	3,940	54	293	1.07	14.52
1931	714-139	2,530	38	170	.618	8.39	2,530	38	175	.636	8.64
1932	729-136	2,820	29	220	.800	10.89	4,190	29	284	1.03	14.02
1933	744-140	4,940	38	345	1.25	16.97	4,940	36	281	1.02	13.85
1934	759-141	3,800	31	215	.782	10.59	3,800	31	220	.800	10.84
1935	784-152	1,840	50	259	.942	12.81	1,840	50	266	.967	13.12
1936	804-134	6,200	41	282	1.03	13.95	6,200	41	303	1.10	14.98
1937	824-130	4,200	44	345	1.25	17.03	4,200	44	339	1.23	16.70
1938	854-129	5,800	50	297	1.08	14.66	5,800	63	312	1.13	15.39
1939	874-160	3,120	50	324	1.18	16.01	-	-	-	-	-

Poultney River below Fair Haven, Vt.
(Drainage area, 187 square miles)

1929	684-110	2,640	14	254	1.36	18.44	2,640	18	272	1.45	19.73
1930	699-108	1,600	23	217	1.16	15.73	1,600	20	209	1.12	15.15
1931	714-141	1,550	20	173	.925	12.57	1,550	20	188	1.01	13.64
*1932	729-138	4,250	17	239	1.28	17.43	4,250	17	273	1.46	19.91
*1933	744-142	3,590	16	242	1.29	17.57	2,180	16	198	1.06	14.34
*1934	759-143	2,150	4.7	195	1.04	14.13	2,150	4.7	199	1.06	14.47
*1935	784-154	3,070	28	256	1.37	18.63	3,070	2.9	273	1.46	19.85
1936	804-136	5,300	2.9	296	1.58	21.50	5,300	10	305	1.63	22.23
1937	824-132	3,230	5.2	323	1.73	23.49	3,230	5.2	288	1.54	20.89
1938	854-131	6,880	9.2	214	1.14	15.56	6,880	9.2	285	1.52	20.70
1939	874-162	4,310	6.2	316	1.69	22.90	-	-	-	-	-

*Revised yearly figures not previously published.

Otter Creek at Center Rutland, Vt.
(Drainage area, 307 square miles)

*1929	684-111	4,910	62	680	2.21	30.09	4,910	62	671	2.19	29.67
1930	699-109	2,520	82	530	1.73	23.44	2,520	82	496	1.62	21.91
1931	714-142	3,680	86	488	1.59	21.58	3,680	90	517	1.68	22.87
1932	729-139	3,090	100	512	1.67	22.69	3,190	100	545	1.78	24.17
1933	744-143	6,110	96	528	1.72	23.35	6,110	96	491	1.60	21.71
1934	759-144	4,920	61	507	1.65	22.40	4,920	61	501	1.63	22.16
1935	784-155	5,930	102	496	1.62	21.93	5,930	102	517	1.68	22.83
1936	804-137	7,440	85	561	1.83	24.86	7,440	85	607	1.98	26.92
1937	824-133	3,920	67	704	2.29	31.11	3,920	64	649	2.11	28.68
1938	854-132	10,100	64	592	1.93	26.19	10,100	99	659	2.15	29.12
1939	874-163	5,650	66	600	1.95	26.51	-	-	-	-	-

*Revised yearly figures not previously published.

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

Otter Creek at Middlebury, Vt.
(Drainage area, 628 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1904	424-32	4,200	-	796	1.27	17.29	4,200	-	856	1.36	18.51
1905	424-33	5,630	-	1,010	1.61	21.86	5,630	-	1,020	1.62	21.99
1906	424-33	4,610	220	1,160	1.85	25.11	4,610	220	1,130	1.80	24.43
1911	424-33	3,160	110	746	1.19	16.15	3,160	110	879	1.40	19.00
1912	424-33	4,950	175	1,130	1.80	24.50	4,950	175	1,150	1.83	24.91
*1913	424-34	9,950	138	1,170	1.86	25.25	9,950	138	1,040	1.66	22.53
1914	424-34	5,540	155	957	1.52	20.63	5,540	100	895	1.43	19.41
1915	424-34	3,410	100	594	.946	12.84	3,410	150	627	.998	13.55
1916	424-34	4,850	217	901	1.43	19.46	4,850	175	925	1.47	20.01
1917	454-110	3,680	175	807	1.29	17.51	3,680	202	811	1.29	17.51
1918	474-96	3,500	202	854	1.36	18.46	3,500	202	983	1.57	21.31
1919	504-169	3,050	224	1,010	1.61	21.86	3,050	224	1,020	1.62	21.99
1929	684-112	4,700	219	1,070	1.70	23.05	4,700	219	1,060	1.69	22.94
1930	699-110	2,990	272	975	1.55	21.05	2,990	222	951	1.51	20.50
1931	714-143	3,410	222	896	1.43	19.36	3,410	220	939	1.50	20.36
1932	729-140	4,210	220	935	1.49	20.26	4,210	235	1,040	1.66	22.59
1933	744-144	6,450	220	1,040	1.66	22.53	6,450	220	929	1.48	20.09
1934	759-145	4,300	138	926	1.47	20.02	4,300	138	897	1.43	19.39
1935	784-156	3,410	246	994	1.58	21.47	3,410	310	1,080	1.72	23.35
1936	804-138	11,000	185	1,122	1.79	24.34	11,000	185	1,174	1.87	25.47
1937	824-134	4,250	225	1,295	2.06	28.02	4,250	178	1,178	1.88	25.47
1938	854-133	6,540	178	1,064	1.69	22.99	6,540	261	1,255	2.00	27.13
1939	874-164	5,860	180	1,186	1.89	25.63	-	-	-	-	-

*Revised yearly figures not previously published.

Winooski River at Montpelier, Vt.
(Drainage area, 433 square miles)

1915	434-119	4,190	21	334	0.771	10.59	4,190	42	355	0.820	11.13
1916	434-119	6,070	42	556	1.28	17.42	6,070	56	584	1.35	18.38
1917	454-112	9,010	68	616	1.42	19.28	9,010	68	637	1.47	19.95
1918	474-98	5,950	60	586	1.35	18.33	6,000	60	739	1.71	23.21
1919	504-171	8,000	54	761	1.76	23.89	8,000	54	666	1.54	20.90
1920	504-172	7,890	49	729	1.68	22.87	7,890	49	745	1.72	23.41
1921	524-99	7,500	21	594	1.37	18.60	6,770	21	501	1.16	15.75
1922	544-128	11,800	53	701	1.62	21.99	11,800	61	658	1.52	20.63
1923	564-132	7,430	65	494	1.14	15.48	-	-	-	-	-
1929	684-113	6,200	84	606	1.40	19.00	6,200	84	588	1.36	18.46
1930	699-111	5,060	94	524	1.21	16.43	5,060	62	526	1.21	16.43
1931	714-144	4,830	62	416	.961	13.05	4,830	62	442	1.02	13.85
1932	729-141	6,520	114	496	1.15	15.61	6,520	114	550	1.27	17.29
1933	744-145	12,300	17	622	1.44	19.55	12,300	17	533	1.23	16.70
1934	759-146	6,780	47	465	1.07	14.53	6,780	51	502	1.16	15.73
1935	784-157	12,000	80	641	1.48	20.08	12,000	80	656	1.52	20.54
1936	804-139	15,200	61	766	1.77	24.07	15,200	61	803	1.85	25.22
1937	824-135	6,900	24	720	1.66	22.56	6,900	24	693	1.60	21.71
1938	854-134	6,040	28	593	1.37	18.60	6,040	55	642	1.48	20.12
1939	874-165	6,210	27	*661	*1.53	*20.73	-	-	-	-	-

*Adjusted for change in contents in Peacham Pond and Mollys Falls Reservoir, East Barre and Wrightsville Detention Reservoirs (combined usable capacity, 1,909,500,000 cubic feet).

Winooski River near Essex Junction, Vt.
(Drainage area, 1,079 square miles)

1929	684-114	17,700	180	1,800	1.67	22.67	17,700	172	1,710	1.58	21.45
1930	699-112	18,700	172	1,620	1.50	20.36	18,700	140	1,570	1.46	19.82
1931	714-145	17,200	136	1,170	1.08	14.66	17,200	136	1,270	1.18	16.02
1932	729-142	18,500	152	1,510	1.40	19.06	18,900	152	1,700	1.58	21.51
1933	744-146	28,300	124	1,770	1.64	22.26	28,300	119	1,510	1.40	19.00
1934	759-147	28,000	95	1,327	1.23	16.70	28,000	95	1,381	1.28	17.36
1935	784-158	26,600	140	1,525	1.41	19.21	26,600	140	1,585	1.47	19.98
1936	804-140	41,600	116	2,004	1.86	25.30	41,600	116	2,224	2.06	28.05
1937	824-136	19,600	70	2,039	1.89	25.63	19,600	70	1,840	1.71	23.14
1938	854-135	29,800	130	1,588	1.47	19.97	29,800	130	1,696	1.57	21.34
1939	874-166	16,200	84	*1,808	*1.68	*22.75	-	-	-	-	-

*Adjusted for change in contents in Peacham Pond, Mollys Falls Reservoir, East Barre and Wrightsville Detention Reservoirs, and Waterbury Reservoir (combined usable capacity, 4,721,800,000 cubic feet).

Dog River at Northfield Falls, Vt.
(Drainage area, 52 square miles)

1912	424-71	1,320	6.0	80.8	1.55	21.10	1,320	6.0	85.0	1.63	22.19
1913	424-71	2,100	3.0	86.0	1.65	22.40	2,100	3.0	79.7	1.53	20.77
1914	424-71	2,010	4.0	85.4	1.64	22.26	2,010	5.0	76.6	1.47	19.95
1915	424-71	1,450	8.1	58.0	1.12	15.20	1,450	11	58.6	1.13	15.34
1916	424-72	650	9	73.9	1.42	19.33	650	-	77.1	1.48	20.15
1917	454-114	700	-	80.9	1.56	21.18	700	-	84.0	1.62	21.99
1918	474-100	760	-	72.3	1.39	18.87	760	-	92.9	1.79	24.30
1919	504-174	2,360	7	112	2.15	29.18	2,360	7	100	1.92	26.06
1920	504-174	1,630	4	112	2.15	29.26	-	-	-	-	-
1929	684-115	761	2	92.0	1.77	24.05	761	2	86.8	1.67	22.70
1930	699-113	1,060	4	79.6	1.53	20.77	1,060	8.0	80.8	1.55	21.09
1931	714-146	1,390	8.0	59.9	1.15	15.65	1,390	8.2	61.5	1.18	16.07
1932	729-143	1,380	4.8	67.8	1.30	17.74	1,380	4.8	75.9	1.46	19.88
1933	744-147	1,750	4.4	76.9	1.48	20.08	1,750	4.4	64.8	1.25	16.91
1934	759-148	1,410	2.3	57.7	1.11	15.06	-	-	-	-	-

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

Mad River near Moretown, Vt.
(Drainage area, 139 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
*1929	684-116	3,400	2.9	273	1.96	26.61	3,400	2.9	263	1.89	25.66
1930	699-114	2,700	12	261	1.88	25.52	2,700	11	249	1.79	24.30
1931	714-147	4,130	11	182	1.31	17.78	4,130	20	200	1.44	19.55
1932	729-144	2,620	8.1	230	1.65	22.46	2,620	8.1	253	1.82	24.77
1933	744-148	5,500	4.5	249	1.79	24.30	5,500	4.5	217	1.56	21.18
1934	759-149	4,070	7.0	207	1.49	20.18	4,070	7.0	210	1.51	20.55
1935	784-160	3,630	27	222	1.60	21.70	3,630	27	230	1.65	22.48
1936	804-149	7,020	13	291	2.09	28.55	7,020	13	336	2.42	32.93
1937	824-140	4,900	12	317	2.28	30.96	4,900	10	280	2.01	27.38
1938	854-139	5,540	10	261	1.88	25.51	5,540	14	279	2.01	27.28
1939	874-172	3,200	12	276	1.99	26.91	-	-	-	-	-

*Yearly figures not previously published; discharge for October and November 1929 estimated to complete water year.

Lamoille River at Cadys Falls, Vt.
(Drainage area, 293 square miles)

1914	424-81	6,650	50	333	1.14	15.48	6,650	50	330	1.13	15.34
1915	424-82	5,620	90	287	.980	13.30	5,620	90	299	1.02	13.85
1916	424-82	2,950	104	403	1.38	18.78	2,950	104	429	1.46	19.87
1917	454-116	3,820	105	518	1.77	24.03	4,100	105	552	1.88	25.52
1918	474-102	4,550	85	483	1.65	22.40	4,900	85	540	1.84	24.98
1919	504-177	5,600	40	529	1.81	24.57	5,600	40	492	1.68	22.80
1920	504-177	3,900	33	514	1.75	23.82	5,750	33	513	1.75	23.82
1921	524-104	5,750	40	429	1.46	19.82	4,450	24	361	1.23	16.70
1922	544-134	6,400	16	464	1.58	21.45	6,400	15	430	1.47	19.95
1923	564-139	4,650	10	355	1.21	16.42	-	-	-	-	-

Lamoille River at Johnson, Vt.
(Drainage area, 335 square miles)

1929	684-117	3,770	49	575	1.72	23.35	3,770	49	552	1.65	22.40
1930	699-115	4,930	56	485	1.45	19.68	4,930	52	473	1.41	19.14
1931	714-148	5,410	36	373	1.11	15.07	5,410	36	407	1.21	16.42
1932	729-145	4,470	73	482	1.44	19.60	4,920	94	532	1.59	21.64
*1933	744-149	8,890	30	544	1.62	21.99	8,890	30	456	1.36	18.46
1934	759-150	5,840	28	414	1.24	16.83	5,840	28	446	1.33	18.09
1935	784-161	4,680	27	525	1.57	21.26	4,680	27	528	1.58	21.36
1936	804-151	10,700	90	626	1.87	25.44	10,700	90	690	2.06	28.04
1937	824-142	6,300	43	612	1.83	24.79	6,300	37	566	1.69	22.91
1938	854-141	6,890	28	534	1.59	21.65	6,890	28	551	1.64	22.35
1939	874-175	6,890	42	571	1.70	23.15	-	-	-	-	-

*Revised yearly figures not previously published.

Lamoille River at East Georgia, Vt.
(published as Lamoille River near Milton, Vt., 1930-37, drainage area, 723 square miles)
(Drainage area, 711 square miles)

1930	699-117	9,680	256	1,260	1.74	23.62	9,680	250	1,197	1.66	22.53
1931	714-149	10,400	214	894	1.24	16.83	10,400	214	1,026	1.42	19.28
1932	729-146	10,700	197	1,320	1.83	24.91	12,500	197	1,420	1.96	26.61
1933	744-150	15,400	91	1,260	1.74	23.62	15,400	91	1,030	1.42	19.28
1934	759-151	15,000	107	947	1.31	17.78	15,000	107	1,015	1.40	19.08
1935	784-162	9,920	160	1,188	1.64	22.32	9,920	160	1,204	1.67	22.62
1936	804-152	21,700	149	1,424	1.97	26.83	21,700	149	1,629	2.25	30.66
1937	824-143	12,100	177	1,485	2.05	27.88	12,100	177	1,315	1.82	24.75
1938	874-176	18,000	174	1,328	1.87	25.35	18,000	237	1,391	1.96	26.55
1939	874-176	13,700	229	1,371	1.93	26.17	-	-	-	-	-

Green River at Garfield, Vt.
(Drainage area, 18 square miles)

1915	424-90	-	-	-	-	-	394	7.2	22.8	1.27	17.24
1916	424-90	229	7.8	30.5	1.69	23.00	229	7.8	31.7	1.76	23.96
1917	454-118	318	9.3	37.9	2.11	28.64	318	9.3	39.9	2.22	30.14
1918	474-103	286	4.7	34.6	1.92	26.06	352	4.7	38.9	2.16	29.32
1919	504-179	610	4.7	36.7	2.04	27.69	610	4.7	34.8	1.93	26.20
1920	504-179	302	2.7	34.2	1.90	25.86	302	2.7	32.0	1.78	24.23
1923	564-141	-	-	-	-	-	565	2.2	32.4	1.80	24.43
1924	584-142	322	3.7	36.8	2.04	27.77	322	4.8	33.5	1.86	25.32
1925	604-174	410	2.2	28.3	1.57	21.31	410	2.2	36.5	2.03	27.56
1926	624-159	460	3.7	38.6	2.14	29.05	460	3.7	33.5	1.86	25.25
1927	644-152	260	3.0	25.9	1.44	19.55	1,130	3.0	36.8	2.04	27.77
1928	664-115	1,130	3.0	53.0	2.94	40.05	628	7.1	40.3	2.24	30.45
1929	684-118	388	6.5	38.2	2.12	28.78	388	6.5	36.7	2.04	27.73
1930	699-118	334	2.9	32.9	1.83	24.81	334	2.9	31.7	1.76	23.89
1931	714-150	424	3.3	24.6	1.37	18.54	424	3.3	27.7	1.54	20.87

Summary of yearly discharge, in second-feet, at stations on streams tributary to St. Lawrence River--Continued

Missisquoi River near Richford, Vt.
(Drainage area, 479 square miles)

Year	W.S.P. (no. and page)	Water year ending Sept. 30					Calendar year				
		Maximum day	Minimum day	Mean	Per square mile	Run-off in inches	Maximum day	Minimum day	Mean	Per square mile	Run-off in inches
1912	424-100	-	-	1,140	2.38	32.40	-	-	1,130	2.36	32.12
1913	424-100	-	-	941	1.96	26.61	-	-	765	1.60	21.72
1914	424-100	-	-	592	1.24	16.83	-	-	593	1.24	16.83
1915	424-101	-	-	564	1.18	16.02	-	-	612	1.28	17.38
1916	424-101	7,460	-	951	1.99	27.09	7,460	-	1,010	2.11	28.72
1917	454-120	8,000	200	1,040	2.17	29.46	8,000	120	1,040	2.17	29.46
1918	474-105	9,000	72	906	1.89	25.66	9,000	72	1,120	2.34	31.76
1919	504-182	8,000	28	1,150	2.40	32.58	8,000	28	1,090	2.28	30.95
1922	544-136	8,170	68	893	1.86	25.25	8,170	70	817	1.71	23.21
1923	564-142	11,500	50	786	1.64	22.26	-	-	-	-	-
1929	684-119	6,900	104	1,120	2.34	31.76	6,900	104	1,000	2.09	28.37
1930	699-119	8,150	48	1,070	2.23	30.27	8,150	48	972	2.03	27.56
1931	714-151	8,770	65	709	1.48	20.09	8,770	76	882	1.84	24.98
1932	729-149	8,760	85	989	2.06	28.04	8,760	85	1,010	2.11	28.72
1933	744-152	10,100	58	947	1.98	26.88	10,100	58	800	1.67	22.67
1934	759-153	6,920	38	711	1.48	20.09	6,920	38	722	1.51	20.45
1935	784-164	6,530	59	840	1.75	23.79	6,530	59	889	1.86	25.21
1936	804-154	13,100	77	1,042	2.18	29.61	13,100	77	1,209	2.52	34.34
1937	824-145	5,920	93	1,126	2.35	31.90	5,920	93	962	2.01	27.25
1938	854-144	10,500	90	912	1.90	25.84	10,500	90	920	1.92	26.05
1939	874-179	13,700	101	989	2.06	28.00	-	-	-	-	-

Clyde River at Newport, Vt.*

1910	424-108	1,320	39	228	1.63	22.13	1,320	39	216	1.54	20.90
1911	424-108	1,600	30	170	1.21	16.42	1,600	30	198	1.41	19.14
1912	424-108	-	-	278	1.99	27.09	-	-	284	2.93	27.63
1913	424-108	2,660	31	275	1.96	26.61	2,660	31	252	1.80	24.43
1914	424-109	2,080	36	196	1.40	19.00	2,080	36	183	1.31	17.78
1915	424-109	875	36	162	1.16	15.75	875	70	173	1.24	16.83
1916	424-109	875	70	248	1.77	24.09	875	70	265	1.89	25.73
1917	454-122	1,370	75	262	1.87	25.38	1,370	64	287	2.05	27.83
1918	474-107	1,220	52	290	2.07	28.10	1,330	52	328	2.34	31.76
1919	504-184	1,330	31	316	2.26	30.68	-	-	-	-	-
1921	524-110	1,180	25	247	1.76	23.89	1,180	25	208	1.49	20.23
1923	564-144	2,100	17	209	1.49	20.23	2,100	40	252	1.80	24.43
1924	584-144	1,710	40	317	2.26	30.76	-	-	-	-	-
1929	684-120	-	-	-	-	-	1,280	70	279	1.99	27.01
1930	699-120	955	63	253	1.81	24.57	955	3.0	249	1.78	24.16
1931	714-153	944	3.0	180	1.29	17.51	944	34	196	1.40	19.00
1932	729-151	1,380	73	261	1.86	25.32	1,380	73	282	2.01	27.36
1933	744-154	2,560	45	287	2.05	27.83	2,560	45	247	1.76	23.95
1934	759-155	1,460	50	205	1.46	19.91	1,460	50	225	1.61	21.78
1935	784-166	1,430	79	275	1.96	26.71	1,430	84	269	1.92	26.03
†1936	804-156	3,610	-	-	-	-	3,610	-	-	-	-
1939	874-181	2,060	67	274	1.93	26.21	-	-	-	-	-

*At two sites in the vicinity of Newport: Drainage areas, 140 square miles, 1910-36 and 142 square miles, 1939.
†Year incomplete.

INDEX

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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