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SURFACE WATER SUPPLY *of the* UNITED STATES 1938

PART 4
ST. LAWRENCE RIVER BASIN

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SURFACE WATER SUPPLY OF ST. LAWRENCE RIVER BASIN, 1938

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, 1938. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of stream flow have been made at about 7,800 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July 1938, 3,830 gaging stations were being maintained by the Geological Survey and cooperating organizations. Many miscellaneous discharge measurements were made at 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 qunatity 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 inches 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 which 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 determing the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Typical gaging stations, equipped with water-stage recorder and measuring cable and car, are shown on plate 1.

Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily gage height to these rating tables gives the 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 determined from the best available maps, and information in regard to diversions that decrease the flow at the gage, artificial regulation from pondage or storage, and the accuracy of the records. Under "Average discharge" is given the average discharge for the number of years indicated. It is given only for stations for which there are 10 or more complete years of record. Information under "Extremes" gives 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, and 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 or the mean of twice-daily readings of the gage. 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 the table gives the discharge corresponding to the mean daily gage height except for stations on streams subject to sudden or rapid fluctuation. 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 gage-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. ARTIFICIAL CONTROL, RECORDER HOUSE, AND MEASURING CABLE ON OLENTANGY RIVER, DELAWARE, OHIO.

B. RECORDER HOUSE AND MEASURING CABLE ON KAWEAH RIVER, THREE RIVERS, CALIF.

TYPICAL RIVER-MEASUREMENT STATIONS.

given is the minimum daily discharge. The column headed "Mean" is 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 (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

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

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and depth in inches may be subject to gross errors caused by the inclusion of large noncontributing districts in the measured drainage area, by lack of information concerning water diverted for irrigation or other use, or by inability to interpret the effect of artificial regulation of the flow of the river above the station. "Second-feet per square mile" and "run-off in inches" are therefore not computed if such errors appear probable. The computations are also omitted for stations on streams draining areas in which the annual rainfall is less than 20 inches.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions 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 increased data and use of improved equipment.

PUBLICATIONS

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

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

Water-supply papers and other publications of the Geological Survey containing data 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:

Augusta, Maine, Statehouse.
Boston, Mass., 945 Post Office Building.
Hartford, Conn., 203 Federal Building.
Albany, N. Y., 526 Federal Building.
Trenton, N. J., 228 Federal Building.
Harrisburg, Pa., 490 Education Building.
Charlottesville, Va., University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Asheville, N. C., 220 Post Office Building.
Columbia, S. C., 119 United States Courthouse.
Atlanta, Ga., Georgia School of Technology.
Ocala, Fla., Post Office Building.
Montgomery, Ala., 507 Post Office Building.
Chattanooga, Tenn., 442 Post Office Building.
Louisville, Ky., 641 Federal Building.
Columbus, Ohio, 404 Engineering Experiment Station, Ohio State University.
Indianapolis, Ind., 316 Federal Building.
Urbana, Ill., 14 Post Office Annex.
Madison, Wis., 337 N. State Capitol.
St. Paul, Minn., 808 New Post Office Building.
Iowa City, Iowa, 402 Hydraulic Laboratory, University of Iowa.
St. Louis, Mo., 906 Customhouse, 1114 Market Street.
Rolla, Mo., Missouri Geological Survey Building, Missouri School of Mines and Metallurgy.
Topeka, Kans., 305 Federal Building.
Fort Smith, Ark., 6 Post Office Building.
Austin, Tex., State Highway Building.
Santa Fe, N. Mex., 3 United States Courthouse.
Tucson, Ariz., 210 Post Office Building.
Denver, Colo., 230 Customhouse.
Salt Lake City, Utah, 303 Federal Building.
Idaho Falls, Idaho, 204 Federal Building.
Boise, Idaho, 429 Federal Building.
Helena, Mont., 412 Federal Building.
Tacoma, Wash., 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 208 Federal Office Building.
Los Angeles, Calif., G-31 Post Office and Courthouse.
Honolulu, Hawaii, 225 Federal 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.
18th A, pt. 4	Descriptions, measurements, ratins, and monthly discharge (also similar data for some earlier years).	1895-96.

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

Report	Character of data	Year
W 15.....	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte Rivers, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27.....	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28.....	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)...	1898.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
W 65, 66.....	Descriptions, measurements, gage heights, and ratings.	1901.
W 75.....	Monthly discharge.....	1901.

Note.- The reports that contain records 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 1938. 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 from 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 283, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

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

Numbers of water-supply papers containing results of stream measurements, 1899-1938

(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 125	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	756	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

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.
597e	1927	California, Surface water supply of Sacramento River Basin.
636d	1927	California, Surface water supply of San Joaquin River Basin.
636e	1927	California, Surface water supply of Pacific slope basins in.
637a	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.
469	1921	Wyoming, Surface waters of, and their utilization.
		DRAINAGE BASIN
395	1914	Colorado River (Colo., Utah, etc.) 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 (Wyo., Utah) 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 (W. Va., Va., N. C.), Surface water supply of, 1925.
279	1909	Penobscot River Basin (Maine), Water resources of, 1912.
192	1906	Potomac River Basin (W. Va., Va., Md., etc.), 1907.
358	1913	Rio Grande Basin (N. Mex., Tex., etc.), Water resources of, 1888-1913.
491	1917	St. Mary and Milk Rivers (Mont. and Canada), Water supply of, 1920.
109	1904	Susquehanna River Basin (Pa., Md.), Hydrography of, 1905.

In addition to the records 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.
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.
Kansas.....	[b]1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	[c]1924	.....do.....	Do.

State reports containing compilation of records of discharge--Continued

State	Year ending	Report	Issued by
Kansas.....	[d]1928	Surface waters of Kansas.....	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 series, Water Resources of Missouri.	Missouri Bureau of Geology and Mines.
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.

a Includes records for the years 1927-30.
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, Nebraska, 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 1937 to September 1938 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.	1926-38	State Department of Public Works, Albany, N. Y.
Clyde River.....	Clyde, N. Y.....	1924-38	Do.
Indian River.....	Theresa, N. Y.....	1934-38	Central New York Power Corporation, Syracuse, N. Y.
New York Barge Canal*..	Brewerton, N. Y.....	1925-38	State Department of Public Works, Albany, N. Y.
Oneida River.....	Caughdenoy, N. Y.....	1929-38	Oswego River Watershed Corporation, Fulton, N. Y.
Oswegatchie River, East Branch of.	Browns Falls, N. Y.....	1934-38	Central New York Power Corporation, Syracuse, N. Y.
Oswego River.....	Lower Dam, Fulton, N. Y.	1928-38	Oswego River Watershed Corporation, Fulton, N. Y.
Raquette River.....	Colton, N. Y.....	1934-38	Central New York Power Corporation, Syracuse, N. Y.
St. Regis River, West Branch of.	Parishville, N. Y.....	1934-38	Do.
Salmon River.....	Bennetts Bridge, near Altmar, N. Y.	1934-38	Do.
Seneca River.....	Baldwinsville, N. Y.....	1928-38	Oswego River Watershed Corporation, Fulton, N. Y.
Seneca River.....	Jacks Reef, near Baldwinsville, N. Y.	1933-38	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 orgenization by which the station was operated.

COOPERATION

The work in the several States was done under cooperative agreements as follows: In Indiana, with the Department of Public Works, V. M. Simmons, administrative officer. In Michigan, with the Michigan Stream Control Commission, M. D. Van Wagoner, chairman. In Minnesota, with the Minnesota Division of Drainage and Waters, W. S. Olsor. director. In New York, with the State Conservation Department, Lithgow Osborne, commissioner; State Department of Public Works, Frederick Stuart Greene, superintendent; State Water Power and Control Commission, Lithgow Osborne, chairman; Board of Black River Regulating District, Edwin S. Cullings, chief engineer; and Commission for the Improvement of Oswegatchie River, J. J. Wallace, chairman. In Vermont, with the State, George D. Aiken, Governor. In Wisconsin, with the Public Service Commission, George P. Steinmetz, chief engineer.

Acknowledgments for financial assistance in collecting the records published herein are due also to the Corps of Engineers, United States Army, and to the Biological Survey, United States Department of Agriculture.

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: In Michigan, by the city of Allegan and the Michigan Gas & Electric Co. In New York, by the 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. In Ohio, by the Corps of Engineers, U. S. Army. In Wisconsin, by the Corps of Engineers, U. S. Army; the Wisconsin Michigan Power Co.; and Wisconsin Public Service Corporation.

Acknowledgment of records collected and furnished by individuals or corporations is made in connection with the description of each station affected.

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

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; in New York, A. W. Harrington; in Ohio, C. V. Youngquist; in Vermont, H. B. Kinnison; in Wisconsin, S. B. Soulé until September 12, 1938, succeeded by 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.

Drainage area.- 263,500 square miles.

Records available.- January 1905 to September 1938 (prior to October 1935 monthly discharge only).

Average discharge.- 33 years, 191,000 second-feet (not including diversions from Lakes Michigan and Erie).

Extremes.- Maximum daily discharge during year, 215,000 second-feet Sept. 22; minimum daily, 136,000 second-feet Feb. 2.
1905-38: Maximum monthly mean discharge, 242,000 second-feet May 1929, corresponding to gage height of 574.14 feet on Buffalo gage; minimum monthly, 117,000 second-feet February 1936, corresponding to gage height of 569.48 feet or Buffalo gage. Gage heights are elevations above mean tide level at New York.

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 Erie Canals, at Buffalo.

Discharge, in thousands of second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	182	171	173	174	142	196	189	202	195	199	212	189
2	161	206	168	179	136	187	180	195	198	195	200	190
3	173	189	170	170	152	158	190	188	195	195	200	194
4	176	181	173	186	156	157	197	187	198	197	203	202
5	181	185	168	168	152	176	185	193	197	200	197	185
6	186	179	178	159	162	184	169	197	199	198	201	184
7	194	180	203	170	164	188	167	196	201	197	198	190
8	182	187	215	167	159	180	174	187	198	201	199	175
9	176	195	202	147	167	176	191	207	194	202	199	175
10	176	171	190	144	160	176	193	195	193	198	203	185
11	178	161	171	140	154	179	200	193	196	202	206	186
12	188	168	169	159	160	177	192	196	197	202	202	192
13	179	167	159	173	168	176	194	196	197	200	201	190
14	182	182	161	161	177	152	194	184	195	205	202	188
15	174	177	162	163	159	166	196	195	197	204	202	190
16	172	177	171	160	161	175	191	203	198	202	197	188
17	172	182	156	145	160	179	196	192	199	201	204	186
18	181	179	169	123	169	179	196	189	201	201	198	190
19	186	172	167	128	146	178	197	189	198	199	196	193
20	210	175	164	157	143	182	196	204	196	198	196	188
21	187	173	177	158	160	180	194	198	198	196	197	191
22	174	176	183	163	168	180	199	195	197	197	197	215
23	182	184	167	163	180	186	191	201	198	203	200	192
24	197	178	166	160	179	184	192	199	198	198	193	190
25	181	171	166	197	178	179	195	195	196	198	192	183
26	180	173	182	183	177	180	193	196	180	200	195	190
27	169	166	161	159	184	179	195	193	191	197	196	193
28	174	195	170	151	179	174	197	193	196	201	188	193
29	179	188	163	143	-	176	205	189	198	204	192	178
30	182	193	169	158	-	178	198	192	197	200	190	183
31	175	-	153	152	-	182	-	193	-	196	195	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile*	Run-off in inches
		Maximum	Minimum	Mean		
October	5,589	210	161	180	0.683	0.79
November	5,381	206	161	179	.679	.76
December	5,346	215	153	172	.653	.75
Calendar year 1937	68,160	238	148	187	.710	9.63
January	4,960	197	123	160	.607	.70
February	4,552	184	136	163	.619	.64
March	5,499	196	152	177	.672	.77
April	5,746	205	167	192	.634	.71
May	6,032	207	184	195	.740	.85
June	5,891	201	180	196	.744	.83
July	6,186	205	195	200	.759	.88
August	6,151	212	188	198	.751	.87
September	5,668	215	175	189	.717	.80
Water year 1937-38	67,001	215	123	184	.698	9.35

*Expressed in second-feet.

159990 O—39——2

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 251.06 feet above mean tide level at New York; reference point of the Oswego gage is 251.90 feet above mean tide level at New York.

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

Records available.- January 1919 to September 1938 (prior to October 1935, monthly discharge only).

Average discharge.- 19 years, 218,500 second-feet (does not include diversion from Lake Michigan).

Extremes.- Maximum daily discharge during year, 255,000 second-feet Sept. 22; minimum daily, 180,000 second-feet Mar. 3.

1919-37: Maximum monthly mean discharge, 289,000 second-feet June 1929, corresponding to height of 248.46 feet on Oswego gage; minimum monthly, 152,000 second-feet February 1936, corresponding to height of 243.59 feet on Ogdensburg gage. Gage heights are elevations above mean tide level at New York.

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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	217	209	215	191	193	200	238	238	234	229	232	223
2	207	223	208	204	197	196	232	235	237	229	235	221
3	214	213	209	201	204	180	234	232	236	227	232	224
4	213	212	208	205	196	181	233	231	234	230	234	224
5	214	215	208	205	199	183	230	231	238	232	231	220
6	218	211	208	195	198	187	227	237	236	229	230	220
7	218	212	220	193	200	189	220	238	238	228	229	219
8	213	212	232	194	205	188	221	235	237	230	227	215
9	211	224	225	191	202	195	223	233	237	232	228	213
10	211	208	217	184	202	195	228	235	234	230	227	215
11	211	206	210	198	205	199	236	235	237	228	232	215
12	218	206	208	198	212	200	229	237	236	230	230	219
13	213	202	208	203	202	202	229	236	233	230	230	218
14	212	211	208	201	205	198	231	232	235	232	235	215
15	210	211	207	201	199	203	228	226	233	234	237	220
16	209	213	206	200	205	204	231	235	233	232	232	217
17	208	215	205	195	204	206	234	235	234	229	230	215
18	212	215	203	183	202	209	234	233	235	231	230	215
19	211	213	207	188	201	211	235	232	235	230	229	218
20	215	210	204	195	198	214	237	238	234	228	230	216
21	217	211	206	202	201	213	230	235	234	223	230	214
22	208	213	216	197	202	220	238	235	234	227	230	255
23	219	216	211	194	204	222	233	234	234	231	230	222
24	220	218	205	195	203	229	232	243	232	231	226	224
25	218	214	204	199	206	226	233	234	230	230	223	223
26	212	213	219	200	206	232	233	236	227	231	228	224
27	210	209	203	189	207	230	236	233	226	227	228	225
28	207	212	208	199	201	232	235	232	230	227	223	225
29	213	222	202	194	-	226	236	230	231	232	226	218
30	217	219	200	195	-	228	238	233	230	231	221	217
31	210	-	191	196	-	233	-	234	-	231	224	-

Month	Thousands of second-foot-days	Thousands of second-feet			Per square mile*	Run-off in inches
		Maximum	Minimum	Mean		
October	6,606	220	207	213	0.715	0.82
November	6,388	224	202	213	.715	.80
December	6,481	232	191	209	.701	.81
Calendar year 1937	79,654	245	173	218	.731	9.86
January	6,085	205	183	196	.657	.76
February	5,659	212	193	202	.678	.71
March	6,431	233	180	207	.694	.80
April	6,954	238	220	232	.778	.87
May	7,263	243	226	234	.785	.90
June	7,014	238	226	234	.785	.88
July	7,121	234	223	230	.772	.89
August	7,109	237	221	229	.768	.89
September	6,609	255	213	220	.738	.82
Water year 1937-38	79,720	255	180	218	.731	9.93

*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.
Drainage area.- 590 square miles.
Records available.- April 1924 to September 1938 in reports of Geological Survey. October 1923 to September 1932 in House Document 92, 73d Congress of the United States, 1st Session. June 1921 to September 1923 in reports of Dominion Water and Power Bureau of Department of Mines and Resources of Canada.
Average discharge.- 15 years (1923-38), 476 second-feet.
Extremes.- Maximum discharge observed during year, 4,430 second-feet Apr. 29, from rating curve extended above 7,000 second-feet; maximum gage height, 5.65 feet Mar. 26, (ice jam); minimum discharge observed, 110 second-feet Oct. 1 (gage height, 0.58 foot).
1923-38: Maximum discharge observed, 11,000 second-feet May 5, 1934 (gage height, 7.6 feet); minimum, 30 second-feet, Feb. 11 to Mar. 5, 1926.
Remarks.- Records good except those for period of ice effect, Nov. 14 to Mar. 27, which were computed on basis of four discharge measurements, gage heights, weather records, and engineers' and observer's notes and are fair. This station is one of the International gaging stations maintained by the United States under agreement with Canada.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27, Mar. 18 to Apr. 29		Apr. 30 to Sept. 30			
0.5	92	0.5	92	1.6	715
.7	140	.7	140	2.2	895
.9	207	.9	206	2.8	1,780
1.1	291	1.1	284	3.5	2,770
1.3	394	1.3	370	4.5	4,430
		1.5	480		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	269	117	84	84	94	3,910	2,770	942	450	221	185
2	114	269	117	84	104	94	2,920	2,770	1,040	450	225	185
3	117	265	119	84	148	104	1,780	2,330	990	450	229	192
4	130	256	121	82	125	104	1,360	2,050	942	420	229	199
5	140	247	114	82	104	104	1,040	2,920	942	420	225	192
6	178	239	117	82	104	104	930	2,620	895	395	225	188
7	207	235	117	82	104	104	835	2,770	760	395	217	185
8	178	231	114	82	110	104	714	2,470	805	395	214	178
9	162	223	121	82	119	94	679	2,190	850	420	206	174
10	156	219	121	84	125	94	679	2,050	1,040	395	217	171
11	146	215	114	84	117	84	752	1,910	1,090	395	214	168
12	137	211	119	84	104	84	835	1,780	1,040	370	210	168
13	132	211	112	84	104	104	1,480	1,660	895	348	214	168
14	130	340	108	84	94	94	1,540	1,540	805	348	244	162
15	127	367	110	84	94	84	1,660	1,540	760	326	260	156
16	124	251	112	84	94	80	1,660	1,480	805	326	272	152
17	196	227	104	84	84	84	2,050	1,420	805	326	268	143
18	306	215	84	84	84	92	1,910	1,360	715	305	221	132
19	316	235	84	80	84	96	2,050	1,360	672	305	233	127
20	367	223	90	80	84	137	1,910	1,300	630	284	760	132
21	320	231	96	84	84	311	1,780	1,250	590	280	672	124
22	282	203	94	84	84	367	1,640	1,200	590	276	550	119
23	256	189	94	84	94	483	1,420	1,090	550	268	480	114
24	239	171	94	84	94	483	1,360	1,040	550	264	395	112
25	223	159	94	84	94	483	1,260	1,040	515	256	348	114
26	211	156	98	80	94	483	1,660	990	480	248	326	119
27	196	156	98	80	94	514	2,050	990	450	236	284	117
28	185	127	100	80	94	980	3,910	942	450	221	252	117
29	178	119	100	80	-	3,080	4,430	895	420	225	225	114
30	282	121	96	80	-	2,770	2,920	850	450	233	210	114
31	273	-	90	84	-	3,740	-	850	-	225	192	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,118	367	110	197	0.334	0.39
November	6,580	367	119	219	.371	.41
December	3,269	121	84	105	.178	.21
Calendar year 1937	193,751	5,750	80	531	.900	12.22
January	2,564	84	80	82.7	.140	.16
February	2,802	148	84	100	.169	.18
March	15,633	3,740	80	504	.854	.98
April	53,024	4,430	679	1,767	2.99	3.34
May	51,427	2,920	850	1,659	2.81	3.24
June	22,468	1,090	420	749	1.27	1.42
July	10,255	450	221	331	.561	.65
August	9,038	760	192	292	.495	.57
September	4,521	199	112	151	.256	.29
Water year 1937-38	187,699	4,430	80	514	.871	11.84

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 1,650 feet upstream from mouth and about 350 feet upstream from new concrete bridge on U. S. Highway 61 at Lutsen. Zero of gage is 697.89 feet above mean sea level. Concrete control completed Sept. 12, 1938.

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 1938.

Extremes.- Maximum discharge during year, 908 second-feet Apr. 29 (gage height, 5.25 feet); minimum, 4.0 second-feet Nov. 3 (gage height, 1.41 feet).
1912-17, 1928-38: 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, that of Nov. 3, 1937.

Remarks.- Records good except those for period of ice effect, Nov. 16 to Mar. 25, and period of missing gage heights, Mar. 26-31 (computed on basis of four discharge measurements, gage heights, range of stage, and weather records), and those for period when artificial control was being constructed, Aug. 12 to Sept. 11 (computed on basis of weather records, engineer's notes, two discharge measurements, and gage heights), all of which are fair.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	39	33	33	26	30	555	575	248	73	37	54
2	34	42	32	31	26	31	395	523	254	74	50	46
3	30	33	34	29	28	32	286	527	216	75	44	42
4	32	38	32	31	28	30	280	503	212	70	38	36
5	49	36	28	32	30	28	268	555	188	72	31	32
6	74	35	30	30	30	28	248	615	167	74	27	34
7	58	34	31	31	31	26	240	575	153	73	25	60
8	44	41	30	30	31	25	230	515	140	70	25	60
9	38	46	30	32	31	24	224	455	148	83	24	59
10	36	48	32	30	30	23	224	407	240	88	50	59
11	34	46	30	28	30	23	240	363	224	105	62	58
12	35	45	30	32	32	24	265	339	185	88	44	57
13	34	80	29	32	32	24	276	318	159	75	41	51
14	32	150	27	32	34	24	286	310	150	65	38	45
15	30	107	28	30	34	24	290	307	187	60	34	40
16	28	89	30	30	33	25	307	286	251	60	31	37
17	53	73	32	32	33	30	387	268	224	54	28	38
18	177	70	32	33	34	34	451	251	191	49	25	37
19	144	63	27	34	34	43	463	265	170	51	200	34
20	118	61	25	35	33	53	427	251	153	49	479	31
21	102	59	23	35	32	73	375	237	135	44	258	30
22	87	59	25	34	32	107	343	218	132	40	153	29
23	73	53	24	34	31	120	314	212	123	38	123	29
24	64	49	26	34	30	120	307	206	112	36	101	26
25	58	45	28	34	30	122	296	194	101	37	85	25
26	54	42	28	31	30	120	307	194	90	35	69	24
27	49	42	28	30	32	150	391	234	82	34	59	23
28	45	39	30	27	31	200	695	227	75	37	53	23
29	44	36	31	26	-	300	885	206	73	34	47	22
30	42	36	32	26	-	450	750	194	73	34	46	22
31	39	-	32	27	-	600	-	194	-	32	54	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,775	177	28	57.3	0.415	0.48
November	1,636	150	33	54.5	.395	.44
December	909	34	23	29.3	.212	.24
Calendar year 1937	41,897	1,250	10	115	.833	11.28
January	965	35	26	31.1	.225	.26
February	868	34	26	31.0	.225	.23
March	2,943	600	23	94.9	.688	.79
April	11,005	885	224	367	2.66	2.97
May	10,524	615	194	339	2.46	2.84
June	4,858	254	73	162	1.17	1.30
July	1,809	105	32	58.4	.423	.49
August	2,381	479	24	76.8	.557	.64
September	1,163	60	22	38.8	.281	.31
Water year 1937-38	40,836	885	22	112	.812	10.99

Peak discharge.- Apr. 1 (2 p.m.) 660 sec.-ft.; Apr. 2 (11 a.m.) 515 sec.-ft.; Aug. 20 (9 a.m.) 535 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 and 6 miles northeast of village 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 1938.

Extremes.- Maximum discharge during year, 3,360 second-feet Mar. 30 (gage height, 5.46 feet), from rating curve extended above 1,900 second-feet; minimum, 8.1 second-feet Aug. 19 (gage height, 1.98 feet).

1928-29, 1930-38: Maximum discharge observed, 3,790 second-feet May 1, 1937, from rating curve extended above 1,900 second-feet; maximum gage height, 6.09 feet Jan. 1, 1937 (ice effect); minimum discharge, 1.5 second-feet Aug. 13, 1934.

Remarks.- Records good except those for periods of ice effect, Nov. 17 to Dec. 10, Mar. 17-25, (computed on basis of two discharge measurements, gage heights, and weather records), those for periods of missing gage heights, and those below 25 second-feet, all of which are fair.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.0	8.6	3.0	106	3.9	820
2.1	12	3.2	175	4.0	960
2.2	15	3.4	270	4.4	1,460
2.4	24	3.6	400	4.8	2,100
2.6	41	3.7	490	5.5	3,460
2.8	68	3.8	620		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*15	41	36	18	16	20	1,260	826	593	68	14	13
2	*30	41	35	19	16	25	946	848	530	74	14	12
3	*50	34	30	20	15	22	738	876	400	73	13	12
4	*60	51	27	20	15	21	509	787	348	68	13	11
5	102	40	23	19	15	20	415	1,260	216	64	11	10
6	*90	37	21	18	17	20	317	1,320	817	64	11	13
7	*75	35	20	17	17	19	255	1,040	727	60	10	18
8	67	48	19	17	17	18	230	760	535	74	10	17
9	61	58	19	17	17	18	225	601	459	106	10	30
10	54	54	18	16	17	18	225	472	542	167	16	44
11	*54	53	16	16	17	17	285	385	519	260	14	41
12	54	53	14	16	17	18	362	320	386	198	12	34
13	*48	165	14	16	17	20	427	270	268	150	12	27
14	*38	378	15	16	17	20	454	250	230	103	13	23
15	30	308	17	16	17	20	427	235	474	78	13	20
16	29	240	18	16	17	23	501	220	685	66	11	18
17	85	180	19	17	17	30	802	206	498	48	11	18
18	202	136	20	17	17	38	834	220	357	37	9.4	17
19	198	64	19	16	16	48	848	281	270	35	16	16
20	180	*75	17	18	16	126	740	260	211	30	86	15
21	152	*70	15	18	16	268	597	230	275	26	87	14
22	122	*65	15	16	15	332	501	211	366	24	54	14
23	93	*60	16	19	15	436	418	198	225	22	34	13
24	78	58	15	19	15	463	370	184	188	20	25	12
25	65	55	15	19	15	490	325	171	163	23	20	12
26	60	54	15	18	16	516	412	168	129	20	17	11
27	55	51	15	17	19	570	645	336	98	18	15	11
28	51	53	15	17	19	649	1,660	355	91	20	15	10
29	49	45	15	17	-	2,210	1,900	298	70	17	13	10
30	46	40	16	17	-	2,500	1,200	240	67	16	13	11
31	42	-	17	17	-	2,250	-	275	-	15	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,353	202	15	75.9	0.558	0.64
November	2,662	378	34	88.7	.652	.73
December	586	36	14	18.9	.139	.16
Calendar year 1937	61,030.6	2,660	4.1	167	1.23	16.68
January	543	20	16	17.5	.129	.15
February	460	19	15	16.4	.121	.13
March	11,245	2,500	17	363	2.67	3.08
April	18,848	1,900	225	628	4.62	5.16
May	14,123	1,320	168	456	3.35	3.86
June	10,757	817	67	359	2.64	2.94
July	2,044	260	15	65.9	.485	.56
August	626.4	87	9.4	20.2	.149	.17
September	527	44	10	17.6	.129	.14
Water year 1937-38	64,774.4	2,500	9.4	177	1.30	17.72

Peak discharge.- Mar. 29 (6 p.m.) 3,260 sec.-ft.; Mar. 30 (4:30 a.m.) 3,360 sec.-ft.; Mar. 31 (4 a.m.) 2,480 sec.-ft.

*Gage height missing; discharge computed on basis of weather records.

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 1938.

Extremes.- Maximum stage observed during year, slightly over 9 feet May 9; minimum observed, 3.94 feet Mar. 17.
1937-38: Maximum stage observed, that of May 9, 1938; minimum observed, 3.20 feet June 22, 1937.

Remarks.- Records good except those for May 2-15, which are questionable due to water being over top of staff gage. Stage of lake regulated by 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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					-	4.80	5.00	-	4.78	-	-	-
2					-	4.80	5.12	7.7	-	5.10	-	-
3		4.86			-	4.78	5.28	7.7	4.80	-	-	4.80
4					-	4.78	-	7.9	5.30	-	-	-
5					-	4.78	5.40	8.0	-	-	-	-
6					-	-	-	8.3	-	-	4.80	-
7					-	4.39	5.40	8.6	5.32	-	-	-
8					-	4.26	5.30	-	5.34	5.20	-	-
9					-	4.18	5.10	9.0	-	-	-	-
10					-	-	-	-	-	-	-	4.82
11					-	4.06	4.90	8.6	5.42	5.00	-	-
12					-	4.08	-	-	-	-	4.80	-
13					-	3.98	4.76	7.6	5.68	-	-	-
14					-	3.96	-	7.4	-	-	-	-
15					-	3.96	-	6.7	-	-	-	-
16					-	3.96	-	6.70	-	-	-	4.80
17					-	3.94	-	-	-	-	-	-
18					-	3.98	4.80	-	-	4.92	-	-
19					-	3.98	4.84	5.80	-	4.90	-	-
20					-	-	4.96	-	6.28	-	4.88	-
21					-	-	-	5.24	-	-	-	-
22					-	4.20	5.14	5.10	-	-	-	-
23					-	4.18	5.20	-	5.92	-	-	-
24					4.80	4.38	5.20	4.90	-	4.84	-	4.78
25					4.80	4.46	5.20	4.84	5.58	4.82	-	-
26					4.76	-	-	-	-	-	-	-
27					-	-	5.50	4.84	-	-	4.80	-
28					4.78	4.60	6.00	4.80	-	4.90	-	-
29					-	4.66	6.50	-	-	-	-	-
30					-	4.68	6.70	-	-	-	-	4.78
31					-	4.70	-	4.78	-	4.88	4.80	-

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 1938 (fragmentary).
Extremes.- Maximum elevation of water surface observed during year, 1,197.87 feet May 8; minimum, 1,196.41 feet Oct. 16, Nov. 3, 6.
1936-38: Maximum elevation of water surface observed, that of May 8, 1938; minimum, 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.
Revision.- In the table of elevations for Amnicon Lake in water year 1936-37 as given in Water-Supply Paper 824, the figures for April 26 to Sept. 30 are in error. To obtain the correct figure of elevation for each day in the period subtract 0.21 foot from the figure given for that day.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	6.43				-	-	7.59	-	-	6.79	6.47
2	6.53	-				-	7.51	-	-	6.89	-	-
3	6.53	6.41				-	-	7.61	-	6.87	6.75	6.45
4	-	-				-	7.49	-	-	-	-	-
5	6.51	-				-	-	7.63	-	-	-	6.43
6	-	6.41				-	-	-	-	6.87	6.71	-
7	6.49	-				-	7.43	7.79	-	-	-	-
8	-	6.45				-	-	7.87	7.31	-	6.67	-
9	6.47	-				-	7.37	-	-	6.93	-	6.71
10	-	6.49				-	-	-	7.35	6.91	-	-
11	6.45	-				-	7.31	7.77	7.31	-	-	-
12	-	-				-	-	-	7.31	-	-	6.81
13	6.43	6.49				-	7.27	-	-	6.75	6.63	6.83
14	-	-				-	-	7.61	7.31	-	-	-
15	-	6.51				6.91	7.43	7.59	-	-	6.61	-
16	6.41	-				-	7.49	-	7.29	6.77	-	-
17	-	6.53				6.91	7.53	-	-	6.77	6.59	6.81
18	-	-				6.93	-	7.55	7.25	-	6.57	-
19	6.47	6.59				6.95	-	-	7.23	-	-	-
20	-	-				6.97	7.59	-	7.17	-	6.55	-
21	-	6.59				-	7.59	7.51	-	-	6.55	6.79
22	6.45	-				-	-	-	7.11	-	-	-
23	-	6.57				7.03	7.55	-	-	6.85	-	6.77
24	6.45	-				-	7.51	-	-	-	-	6.77
25	-	-				-	-	-	7.01	6.83	-	-
26	6.47	-				7.09	-	7.41	6.97	-	-	6.75
27	-	-				7.11	-	-	-	-	6.51	-
28	-	-				-	7.53	-	-	-	-	-
29	6.45	-				7.21	-	-	6.95	-	6.49	-
30	-	-				-	7.55	-	-	6.81	-	6.71
31	-	-				-	-	7.45	-	-	6.47	-

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

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 to September 1938.
Extremes.- Maximum gage height observed during period, 6.12 feet June 17, minimum, 5.84 feet Sept. 7.
Remarks.- Records good.

Gage height, in feet, 1938

June	8	5.98	June	27	5.90	Aug. 1	6.08
	10	5.97		29	5.90	9	6.01
	11	6.00	July	2	5.92	17	5.98
	13	5.99		4	5.92	24	5.90
	16	6.00		6	5.96	30	5.86
	17	6.12		8	5.98	Sept. 7	5.84
	18	6.04		11	6.10	12	5.88
	20	6.00		16	6.07	17	5.90
	23	5.92		19	6.07	21	5.90
	25	5.90		30	6.10	27	5.89

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 to September 1938.
Extremes.- Maximum gage height observed during period, 6.16 feet July 26; minimum, 5.84 feet Aug. 30.
Remarks.- Records good.

Gage height, in feet, 1938

June 8	5.98	July 5	5.96	Aug. 2	6.00	Aug. 27	5.90
11	6.00	8	5.94	6	5.92	30	5.84
14	6.02	12	6.10	9	5.92	Sept. 2	5.90
18	6.04	16	6.10	13	5.92	6	5.90
21	6.00	19	6.00	16	6.00	10	5.94
25	5.98	23	5.98	20	5.96	13	5.92
28	5.98	26	6.16	23	5.94	17	5.93
July 2	5.98	30	6.10				

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 to September 1938.
Extremes.- Maximum gage height observed during period, 2.50 feet Aug. 12, Sept. 16; minimum, 1.70 feet July 15.
Remarks.- Records good.

Gage height, in feet, 1938

June 9	2.18	July 1	1.80	July 29	2.10	Aug. 26	1.85
11	2.18	8	1.75	Aug. 5	1.90	Sept. 2	1.80
17	2.17	15	1.70	12	2.50	10	1.95
24	2.00	22	1.75	19	2.00	16	2.50

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 to September 1938.
Extremes.- Maximum gage height observed during period, 2.39 feet Sept. 30; minimum, 1.73 feet July 24.
Remarks.- Records good.

Gage height, in feet, 1938

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	1.85	2.08	1.87	16	2.19	1.83	2.06	2.10
2	-	1.83	2.06	1.85	17	2.17	1.80	2.04	2.14
3	-	1.80	2.04	1.83	18	2.16	1.82	2.02	2.20
4	-	1.78	2.01	1.86	19	2.14	1.80	2.05	2.26
5	-	1.78	1.98	1.86	20	2.12	1.78	2.04	2.30
6	-	1.80	1.95	1.88	21	2.10	1.76	2.01	-
7	2.23	1.80	1.91	1.92	22	2.07	1.76	1.97	-
8	2.22	1.80	1.90	1.94	23	2.04	1.75	1.94	-
9	2.20	1.78	1.90	1.98	24	2.01	1.73	1.90	2.38
10	2.18	1.89	2.04	1.98	25	1.99	2.02	1.88	2.38
11	2.17	1.88	2.06	2.06	26	1.96	2.00	1.86	2.38
12	2.16	1.86	2.05	2.04	27	1.94	1.98	1.84	2.38
13	2.14	1.83	2.04	2.05	28	1.92	2.10	1.82	2.38
14	2.14	1.86	2.04	2.06	29	1.90	2.09	1.80	2.38
15	2.17	1.84	2.06	2.10	30	1.87	2.08	1.80	2.39
					31	-	2.10	1.88	-

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 to September 1938.

Extremes.- Maximum discharge observed during period, 767 second-feet Apr. 3-7; maximum gage height, 5.92 feet; minimum observed, 198 second-feet June 30; minimum gage height, 4.34 feet June 28, 29.

Remarks.- Records good. Discharge for days of missing gage heights, Mar. 28, 29, interpolated. Flow during summer months regulated by dam 1½ miles downstream from station. Gage read twice daily. Records collected in cooperation with the U. S. Biological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	723	637	421	220	240	230
2						-	745	616	421	220	240	230
3						-	767	616	421	220	250	230
4						-	767	616	421	230	250	230
5						-	767	616	402	230	250	220
6						-	767	616	402	230	250	220
7						-	767	595	402	230	250	220
8						-	745	595	402	220	250	220
9						-	745	595	402	230	250	230
10						-	723	575	402	230	250	240
11						-	723	575	402	230	250	250
12						-	723	555	384	230	250	250
13						-	723	555	384	240	240	250
14						-	723	536	384	240	250	250
15						-	723	536	384	240	250	250
16						-	701	517	384	230	250	250
17						-	723	421	384	230	250	260
18						-	745	402	384	230	250	271
19						-	745	421	384	230	250	282
20						-	723	440	384	240	250	271
21						-	723	440	366	240	250	282
22						-	701	421	366	240	250	282
23						-	679	440	366	240	250	282
24						-	679	421	366	240	250	282
25						-	701	421	366	240	250	282
26						-	679	421	366	240	250	292
27						595	658	421	366	240	240	292
28						590	658	421	366	240	240	282
29						580	658	421	348	240	230	271
30						575	637	421	198	240	230	271
31						658	-	421	-	240	230	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 27-31	2,998	658	575	600	1.99	0.37
April	21,541	767	637	718	2.38	2.66
May	15,704	637	402	507	1.68	1.94
June	11,428	421	198	381	1.26	1.41
July	7,240	240	220	234	.775	.89
August	7,640	250	230	246	.815	.94
September	7,672	292	220	256	.848	.95
Water year						

Manistique River at Germfask, Mich.

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

Drainage area.- 341 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 2,130 second-feet Apr. 1 (gage height, 8.50 feet); minimum observed, 184 second-feet Aug. 27, 29, 30, Sept. 6; minimum gage height, 1.10 feet Aug. 30.

Remarks.- Records fair. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	2,100	883	581	406	232	208
2						-	1,920	883	556	406	232	232
3						-	1,500	857	556	406	256	208
4						-	1,320	883	556	381	281	208
5						-	1,210	883	556	381	232	208
6						-	1,080	857	581	356	208	184
7						-	1,010	807	606	356	208	208
8						-	934	782	606	356	208	232
9						-	934	757	556	381	208	208
10						-	908	757	556	406	208	208
11						-	883	731	531	431	256	208
12						-	883	706	531	406	256	256
13						-	883	681	506	381	256	281
14						-	908	656	506	356	232	281
15						-	1,010	656	506	356	208	281
16						-	1,030	631	531	381	208	256
17						-	1,060	606	506	356	232	256
18						-	1,060	606	506	356	256	281
19						-	1,080	606	481	356	256	481
20						-	1,080	656	481	331	232	531
21						-	1,080	656	456	331	232	531
22						-	1,060	656	456	331	232	531
23						782	1,030	631	431	331	208	531
24						782	985	631	431	331	208	506
25						883	934	606	431	331	208	481
26						1,010	908	656	431	281	208	431
27						1,060	883	656	431	281	184	381
28						1,110	832	656	406	256	208	356
29						1,260	857	631	381	232	184	456
30						1,560	883	606	381	232	184	431
31						1,980	-	581	-	208	208	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 23-31	10,427	1,980	782	1,159	3.40	1.14
April	32,245	2,100	832	1,075	3.15	3.51
May	21,850	883	581	705	2.07	2.39
June	15,030	606	381	501	1.47	1.64
July	10,690	406	208	345	1.01	1.16
August	6,929	281	184	224	.657	.76
September	9,851	531	184	328	.962	1.07
Water year						

Manistique River near Blaney, Mich.

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

Drainage area.- 704 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 5,020 second-feet Apr. 1 (gage height, 19.42 feet); minimum observed, 345 second-feet Aug. 28-30 (gage height, 6.11 feet).

Remarks.- Records fair. Discharge for periods of missing gage heights, Mar. 25-27, 30, Apr. 3, 14, 28, May 26, June 25, Sept. 19, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 6 to July 10)

6.1	345	11.0	1,270	19.0	4,760
6.5	407	13.0	1,790	19.4	5,020
7.0	494	15.0	2,600		
9.0	870	17.0	3,610		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	5,020	1,330	832	604	391	391
2						-	4,780	1,310	813	604	375	391
3						-	4,420	1,290	794	604	407	391
4						-	4,060	1,310	794	604	407	391
5						-	3,720	1,330	794	566	407	360
6						-	3,280	1,360	813	566	391	360
7						-	2,780	1,310	851	548	375	360
8						-	2,420	1,240	851	548	360	375
9						-	2,120	1,220	832	566	360	375
10						-	1,820	1,140	813	585	375	375
11						-	1,640	1,080	794	585	407	375
12						-	1,530	1,040	775	566	407	391
13						-	1,480	1,000	756	548	424	424
14						-	1,590	965	737	530	391	424
15						-	1,700	946	794	530	375	424
16						-	1,890	927	832	512	375	407
17						-	1,930	889	813	494	391	407
18						-	1,960	870	794	494	407	458
19						-	1,960	908	756	476	407	636
20						-	2,000	927	756	476	424	813
21						-	1,960	984	718	476	407	794
22						-	1,860	984	699	476	407	775
23						-	1,760	965	680	458	391	737
24						2,930	1,670	927	680	441	375	718
25						3,230	1,560	908	670	476	360	680
26						3,530	1,460	954	661	494	360	623
27						3,830	1,380	1,000	642	441	360	585
28						4,120	1,360	965	623	424	345	623
29						4,060	1,330	927	623	424	345	512
30						4,390	1,360	889	604	407	345	566
31						4,720	-	851	-	391	360	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 24-31	30,810	4,720	2,930	3,851	5.47	1.63
April	67,800	5,020	1,330	2,260	3.21	3.58
May	32,746	1,360	851	1,056	1.50	1.73
June	22,594	851	604	753	1.07	1.19
July	15,914	604	391	513	.729	.84
August	11,911	424	345	384	.545	.63
September	15,141	813	360	505	.717	.80
Water year						

Manistique River near Manistique, Mich.

Location.- Chain gage, lat. 46°01'50", long. 86°09'30", in SE¼ sec. 15, T. 42 N., R. 15 W., half a mile downstream from West Branch of Manistique River and 6 miles northeast of Manistique.

Drainage area.- 1,100 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 9,720 second-feet Apr. 1 (gage height, 12.70 feet); minimum observed, 411 second-feet Aug. 30 (gage height, 1.32 feet).

Remarks.- Records good. Discharge for days of missing gage heights Mar. 27, 28, Apr. 3, 28, May 26, June 25, interpolated. Gage read once daily. Records collected in co-operation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge in second-feet)

1.4	440	4.0	1,370	9.0	4,610
1.7	530	5.0	1,800	10.0	5,790
2.0	622	6.0	2,330	11.0	7,120
2.5	787	7.0	2,910	12.0	8,600
3.0	973	8.0	3,660	13.0	10,200

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	9,720	2,380	1,330	787	500	500
2						-	8,150	2,380	1,290	823	500	500
3						-	7,920	2,270	1,250	823	500	500
4						-	7,700	2,270	1,250	823	500	500
5						-	7,120	2,330	1,210	787	500	470
6						-	6,570	2,330	1,250	752	500	470
7						-	6,050	2,330	1,290	718	470	440
8						-	5,300	2,270	1,290	718	470	470
9						-	4,720	2,110	1,290	718	470	470
10						-	4,020	2,000	1,250	718	470	470
11						-	3,660	1,950	1,210	787	500	470
12						-	3,250	1,750	1,130	787	530	500
13						-	3,040	1,660	1,170	752	530	530
14						-	2,970	1,570	1,090	752	530	530
15						-	3,250	1,490	1,170	718	500	560
16						-	3,570	1,450	1,210	718	470	530
17						-	3,930	1,410	1,210	718	500	530
18						-	4,020	1,330	1,170	685	500	560
19						-	4,410	1,330	1,130	653	530	752
20						-	4,410	1,450	1,090	653	530	1,010
21						-	4,410	1,530	1,050	622	530	1,090
22						-	4,410	1,570	973	622	530	1,130
23						-	3,930	1,570	973	622	500	1,090
24						-	3,660	1,530	897	591	500	1,050
25						-	3,250	1,490	897	591	470	1,010
26						6,310	2,970	1,550	897	622	470	935
27						6,770	2,790	1,620	860	622	440	860
28						7,230	2,640	1,620	860	591	440	787
29						7,700	2,490	1,570	823	560	440	718
30						8,450	2,440	1,490	823	530	411	752
31						9,240	-	1,370	-	530	440	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 26-31	45,700	9,240	6,310	7,617	6.92	1.54
April	136,770	9,720	2,440	4,559	4.14	4.62
May	54,970	2,380	1,330	1,773	1.61	1.86
June	33,333	1,330	823	1,111	1.01	1.13
July	21,393	823	530	690	.627	.72
August	15,171	530	411	489	.445	.51
September	20,184	1,130	440	673	.612	.68
Water year						

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 to September 1938.

Extremes.- Maximum discharge observed during period, 405 second-feet Mar. 31 (gage height, 10.40 feet); minimum observed, 41 second-feet Sept. 5, 6 (gage height, 7.16 feet).

Remarks.- Records fair. Discharge for days of missing gage heights, Mar. 26, May 25, June 15, 19, July 5, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

7.1	36	8.4	160
7.4	62	9.0	227
7.8	98	10.0	353

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	239	149	80	62	49	46
2						-	263	138	80	62	60	44
3						-	166	128	80	62	58	44
4						-	160	128	84	58	55	44
5						-	171	128	80	58	51	41
6						-	149	128	89	58	51	41
7						-	144	123	89	55	49	44
8						-	128	118	84	66	49	44
9						-	126	113	80	71	49	44
10						-	128	108	80	66	53	44
11						-	118	103	80	66	57	44
12						-	128	80	76	62	53	49
13						-	144	98	76	60	53	48
14						-	182	98	76	60	51	46
15						-	193	98	76	60	49	44
16						-	204	89	76	58	49	42
17						-	215	84	76	53	60	44
18						-	227	80	76	53	55	53
19						-	215	69	74	53	53	71
20						-	215	94	71	53	53	76
21						-	193	98	71	53	51	71
22						-	182	94	71	53	48	66
23						-	160	89	66	51	51	62
24						-	154	89	66	51	48	58
25						98	144	94	66	53	44	57
26						106	138	98	66	53	44	55
27						113	138	98	62	51	44	53
28						113	149	89	62	51	42	51
29						149	160	89	60	49	42	49
30						227	154	84	62	49	42	49
31						327	-	84	-	49	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 25-31	1,133	327	98	162	2.31	0.60
April	5,089	263	118	170	2.43	2.71
May	3,190	149	80	103	1.47	1.70
June	2,235	89	60	74.5	1.06	1.18
July	1,759	71	49	56.7	.810	.93
August	1,557	60	42	50.2	.717	.83
September	1,524	76	41	50.8	.726	.81
Water year						

Driggs River near Germfask, Mich.

Location.- 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, 5 miles southwest of Germfask.

Drainage area.- 114 square miles.

Records available.- April to September 1938.

Extremes.- Maximum discharge observed during period, 971 second-feet Apr. 1 (gage height, 9.54 feet), from rating curve extended logarithmically above 300 second-feet; minimum observed, 50 second-feet Aug. 30 (gage height, 3.25 feet).

Remarks.- Records fair. Discharge for days of missing gage heights, Apr. 3, 5, 6, 28, Aug. 12, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.2	47	4.6	192	7.0	552
3.4	60	5.0	247	8.0	716
3.8	96	5.5	320	9.0	886
4.2	141	6.0	396	9.5	971

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							971	192	112	86	63	56
2							750	192	107	82	65	56
3							566	192	107	82	68	56
4							381	176	107	82	68	55
5							336	178	107	77	66	51
6							292	192	118	77	63	52
7							247	178	118	77	63	58
8							233	172	112	77	59	56
9							219	159	112	86	61	54
10							206	153	107	86	66	56
11							192	147	96	82	72	56
12							192	141	102	77	70	62
13							206	135	107	77	68	61
14							219	129	102	77	62	58
15							261	124	107	72	60	56
16							275	118	102	72	60	55
17							290	118	102	72	67	63
18							305	118	102	72	66	72
19							305	124	102	68	66	77
20							305	129	96	68	65	82
21							290	135	91	68	60	82
22							261	129	96	66	60	77
23							233	124	91	66	58	72
24							219	118	82	68	55	72
25							206	124	86	72	55	68
26							206	129	77	68	55	67
27							192	141	86	65	54	66
28							199	129	82	66	54	63
29							206	124	82	65	52	62
30							206	118	82	63	50	61
31							-	107	-	63	52	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	8,969	971	192	299	2.62	2.92
May	4,447	192	107	143	1.25	1.44
June	2,980	118	77	99.3	.871	.97
July	2,279	66	63	73.5	.645	.74
August	1,903	72	50	61.4	.539	.62
September	1,882	82	51	62.7	.550	.61
Water year						

Walsh Creek near Seney, Mich.

Location.- Staff gage, lat. 46°20'45", long. 86°10'40", in NW¼ sec. 34, T. 46 N., R. 15 W., 3½ miles upstream from confluence with Driggs River and 11 miles west of Seney.

Drainage area.- 12 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge during period, 523 second-feet Mar. 31 (gage height, 7.05 feet), by discharge measurement; minimum discharge observed, 2.0 second-feet Sept. 6 (gage height, 0.70 foot).

Remarks.- Records fair. Discharge for days of missing gage heights, Mar. 26, May 25, June 15, 19, July 5, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	298	25	9.5	5.0	2.4	3.0
2						-	225	22	9.5	4.7	3.9	2.4
3						-	118	20	8.5	4.4	3.3	2.5
4						-	76	22	13	3.9	2.8	2.3
5						-	58	22	10	3.8	2.6	2.1
6						-	38	24	16	3.7	2.5	2.0
7						-	37	21	13	3.6	2.3	2.5
8						-	38	19	12	7.0	2.3	2.5
9						-	37	17	10	7.2	2.3	2.6
10						-	37	15	9.1	6.1	4.1	2.8
11						-	36	14	12	5.5	3.6	2.8
12						-	37	13	10	4.6	3.0	4.1
13						-	43	12	8.2	4.4	2.9	3.3
14						-	52	11	8.5	5.5	2.8	3.3
15						-	76	11	10	4.7	2.5	2.8
16						-	71	11	11	4.1	2.3	2.5
17						-	76	10	10	3.9	4.3	3.3
18						-	71	9.1	9.1	3.6	3.3	7.3
19						-	62	12	8.2	3.6	3.3	8.2
20						-	62	17	7.3	3.3	3.0	9.5
21						-	50	16	6.4	2.8	3.3	9.9
22						-	43	14	6.1	2.8	2.8	9.6
23						-	36	13	5.5	2.8	3.3	7.3
24						-	31	12	5.3	2.6	2.8	7.0
25						66	26	17	5.8	3.9	2.5	5.8
26						85	25	22	5.3	3.2	2.6	5.5
27						104	23	19	4.7	2.8	2.5	5.0
28						149	24	15	4.7	2.8	2.3	4.6
29						401	29	12	4.4	2.6	2.1	4.1
30						458	29	11	4.7	2.3	2.1	4.1
31						518	-	11	-	2.5	3.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 25-31	1,781	518	66	254	21.2	5.52
April	1,866	298	23	62.2	5.18	5.78
May	489.1	25	9.1	15.8	1.32	1.52
June	257.8	16	4.4	8.59	.716	.80
July	123.7	7.2	2.3	3.99	.332	.38
August	89.2	4.3	2.1	2.88	.240	.28
September	134.1	9.9	2.0	4.47	.372	.42
Water year						

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 to September 1938.

Extremes.- Maximum discharge observed during period, 268 second-feet Mar. 31 (gage height, 4.20 feet); no flow at times; minimum gage height, .87 foot Aug. 30.

Remarks.- Records fair. Discharge for days of missing gage heights, Mar. 26, May 25, June 15, 19, July 5, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.2	0	2.0	10	3.4	92
1.4	.8	2.2	16	3.8	162
1.6	2.6	2.6	31	4.2	268
1.8	6.0	3.0	54		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	226	20	5	2	1	0
2						-	114	18	4	1	1	0
3						-	81	16	4	1	1	0
4						-	62	17	6	1	1	0
5						-	48	18	5	1	0	0
6						-	52	19	7	1	0	0
7						-	48	18	6	1	0	0
8						-	39	16	6	3	0	0
9						-	34	14	5	2	0	0
10						-	27	12	4	2	0	0
11						-	24	10	6	2	0	0
12						-	23	9	4	1	0	0
13						-	24	8	3	1	0	0
14						-	31	7	4	2	0	0
15						-	66	6	4	2	0	0
16						-	58	6	4	1	0	0
17						-	66	5	3	1	0	0
18						-	62	4	3	1	0	1
19						-	54	7	3	1	0	1
20						-	58	11	3	1	0	1
21						-	45	11	2	1	0	1
22						-	36	11	2	1	0	1
23						-	31	9	2	1	0	1
24						-	25	8	2	1	0	1
25						81	23	12	2	1	0	1
26						94	21	17	2	1	0	1
27						106	19	14	1	1	0	1
28						106	20	10	1	1	0	1
29						99	27	9	1	0	0	1
30						99	24	7	2	0	0	1
31						268	-	6	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 25-31	853	268	81	122	6.17	1.59
April	1,468	226	19	48.9	2.44	2.72
May	355	20	4	11.5	.575	.66
June	106	7	1	3.53	.176	.20
July	36	3	0	1.16	.058	.07
August	4	1	0	.13	.0065	.007
September	13	1	0	.43	.022	.02
Water year						

Marsh Creek near Germfask, Mich.

Location.- Staff gage, lat. 46°10'00", long. 86°00'50", in E½ sec. 35, T. 44 N., R. 14 W., 1 mile upstream from mouth, 7 miles southwest of Germfask.

Drainage area.- 15 square miles.

Records available.- April to September 1938.

Extremes.- Maximum discharge observed during period, 48 second-feet Apr. 7 (gage height, 3.34 feet); minimum observed, 1 second-foot several days in July and August and on Sept. 6; minimum gage height, .86 foot Aug. 30.

Remarks.- Records fair. Discharge for periods of missing gage heights, Apr. 28, Aug. 12, Sept. 15, 18, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	18	7	3	1	2
2							-	14	6	3	1	2
3							-	13	6	3	1	2
4							-	13	6	2	1	2
5							-	12	6	2	1	2
6							-	13	6	2	1	1
7							48	13	6	2	1	2
8							38	16	6	2	1	2
9							30	16	6	2	1	2
10							24	15	5	2	1	2
11							23	11	4	2	1	2
12							18	11	4	1	1	2
13							17	10	4	1	1	2
14							31	10	4	1	1	2
15							32	8	8	1	1	2
16							38	8	8	1	1	2
17							40	7	6	1	2	2
18							32	7	6	1	2	5
19							32	9	5	1	2	8
20							35	10	5	1	2	8
21							32	11	4	1	2	8
22							30	12	4	1	2	6
23							22	11	3	1	2	5
24							20	10	3	1	2	4
25							19	10	3	1	2	4
26							18	10	3	1	1	4
27							17	11	3	1	1	4
28							16	11	3	1	1	3
29							15	8	2	1	1	3
30							16	8	2	1	1	3
31							-	8	-	1	1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April -30	643	48	15	26.8	1.79	1.60
May	344	18	7	11.1	.740	.85
June	144	8	2	4.8	.320	.36
July	45	3	1	1.45	.097	.11
August	40	2	1	1.29	.086	.10
September	98	8	1	3.27	.218	.24
Water year						

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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 to September 1938.

Extremes.- Maximum discharge during period, 498 second-feet Mar. 31 (gage height, 5.92 feet), by discharge measurement; minimum discharge observed, 4 second-feet Aug. 30 (gage height, 2.22 feet).

Remarks.- Records fair. Discharge for days of missing gage heights, Mar. 26, May 25, June 15, 19, July 5, interpolated. Gage read once daily. Records collected in cooperation with U. S. Biological Survey.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

2.2	4	4.0	63	5.1	187
2.6	12	4.2	74	5.5	316
3.0	23	4.5	96	6.0	541
3.5	40	4.8	128		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	336	110	38	20	7	6
2						-	316	104	40	18	9	6
3						-	298	96	36	17	8	5
4						-	280	100	46	15	7	5
5						-	247	96	44	14	6	5
6						-	187	92	56	14	6	5
7						-	161	84	53	13	5	5
8						-	144	77	50	16	5	6
9						-	144	71	46	19	5	5
10						-	136	63	42	20	7	6
11						-	122	58	48	19	9	6
12						-	122	53	40	17	8	10
13						-	136	50	34	15	7	9
14						-	174	46	34	16	6	8
15						-	316	42	37	16	6	7
16						-	316	40	40	14	5	6
17						-	316	36	36	12	9	6
18						-	355	34	34	12	9	17
19						-	376	42	32	11	9	34
20						-	316	53	29	11	10	40
21						-	298	58	26	10	8	38
22						-	247	56	26	10	7	36
23						-	202	50	23	10	8	32
24						-	174	48	21	9	7	29
25						128	154	58	22	10	6	24
26						151	136	68	21	10	6	22
27						174	122	66	19	9	6	19
28						202	122	63	17	8	5	17
29						316	115	53	16	8	5	15
30						396	115	46	16	8	4	14
31						498	-	42	-	6	6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 25-31	1,855	488	128	265	7.57	1.97
April	6,483	376	115	216	6.17	8.88
May	1,955	110	34	63.1	1.80	2.08
June	1,022	56	16	34.1	.974	1.09
July	407	20	6	13.1	.374	.43
August	211	10	4	6.81	.195	.22
September	443	40	5	14.8	.423	.47
Water year						

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 1938.

Average discharge.- 24 years, 1,731 second-feet.

Extremes.- Maximum daily discharge during year, 11,900 second-feet Apr. 1; minimum daily, 679 second-feet Jan. 30.
1914-38: 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 power-house records. Flow is regulated by power plant at which station is located and also by plant on Brule River about 5 miles above station, where drainage area is 58 percent of that at station. Records of daily discharge computed by Wisconsin Michigan Power Co. on basis of load-discharge rating of hydroelectric units as defined by Geological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	751	1,650	954	907	742	924	11,900	6,320	2,440	1,660	1,880	1,340
2	786	1,720	938	797	722	963	11,800	5,960	2,470	1,560	1,820	1,210
3	857	2,000	946	870	736	889	9,830	5,940	2,410	1,200	1,780	1,360
4	842	1,670	1,100	834	759	878	7,360	6,320	2,960	1,170	1,720	1,190
5	943	1,550	1,100	818	841	919	6,520	7,030	2,740	1,420	1,580	943
6	922	1,450	1,040	761	834	792	6,030	6,200	2,730	1,630	1,480	1,270
7	872	1,310	1,030	786	853	953	5,100	5,950	2,840	1,710	1,320	1,030
8	822	1,300	1,030	866	905	902	4,330	5,000	2,980	2,060	1,140	1,330
9	807	1,380	1,070	789	891	933	4,180	4,250	2,460	1,940	1,180	1,940
10	821	1,120	1,090	882	852	1,020	3,900	3,930	2,660	2,020	2,100	1,850
11	930	1,290	1,010	835	908	929	3,500	3,160	3,460	2,740	3,450	1,320
12	877	1,430	928	891	933	898	2,640	3,140	5,300	2,680	2,570	1,380
13	856	1,310	913	816	855	776	3,070	2,780	4,720	2,720	2,460	1,670
14	817	1,700	852	806	1,040	1,040	3,510	2,620	4,030	2,430	3,810	1,440
15	825	1,820	865	845	971	1,130	3,750	2,580	4,560	1,920	2,000	1,600
16	778	2,310	860	733	997	1,270	5,900	2,340	4,560	2,450	2,230	1,440
17	782	2,000	906	874	955	1,200	6,400	2,410	4,010	1,980	2,120	1,260
18	966	1,600	929	879	952	1,300	6,080	2,390	3,660	1,750	2,120	1,070
19	1,180	1,600	823	858	928	1,430	6,610	2,550	3,600	1,800	2,090	1,760
20	2,250	1,340	984	819	808	1,350	6,320	3,060	2,860	1,570	2,130	2,250
21	2,500	1,050	969	825	934	1,090	6,160	2,970	2,500	1,470	1,860	2,310
22	2,920	1,160	1,010	804	944	2,390	5,440	4,190	2,900	1,340	1,620	2,380
23	2,960	1,220	941	809	921	4,790	5,180	3,040	2,470	1,370	1,670	2,330
24	2,360	1,660	911	829	894	4,820	4,090	2,920	2,210	1,020	1,470	1,770
25	2,500	1,660	890	1,340	866	4,190	3,990	3,060	2,280	2,220	1,320	1,140
26	2,420	1,690	928	862	902	4,140	3,670	3,140	1,980	3,150	1,360	1,560
27	2,390	1,440	923	772	818	4,580	3,720	3,280	1,680	3,160	1,280	1,610
28	2,250	1,080	994	717	911	5,720	3,980	2,580	1,660	2,220	1,170	1,720
29	1,830	1,070	949	753	-	6,820	5,140	2,870	1,780	2,050	1,240	1,750
30	1,580	1,080	961	679	-	9,130	6,240	2,560	1,890	2,040	1,590	1,050
31	1,350	-	991	775	-	11,400	-	2,370	-	1,720	1,770	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	43,744	2,960	751	1,411	0.788	0.91
November	44,660	2,310	1,050	1,489	.832	.93
December	29,835	1,100	823	962	.537	.62
Calendar year 1937	571,098	8,530	446	1,565	.874	11.87
January	25,831	1,340	679	833	.465	.54
February	24,672	1,040	722	881	.492	.51
March	79,566	11,400	776	2,567	1.43	1.65
April	166,340	11,900	2,640	5,545	3.10	3.46
May	116,910	7,030	2,340	3,771	2.11	2.43
June	89,000	5,300	1,660	2,967	1.66	1.85
July	60,170	3,160	1,020	1,941	1.08	1.24
August	57,330	3,810	1,140	1,849	1.03	1.19
September	46,273	2,380	943	1,542	.861	.96
Water year 1937-38	784,331	11,900	679	2,149	1.20	16.29

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.- 3,730 square miles.

Records available.- July 1913 to September 1938.

Average discharge.- 25 years, 3,117 second-feet.

Extremes.- Maximum daily discharge during year, 20,700 second-feet Apr. 2; minimum daily, 795 second-feet Oct. 11.
1913-38: Maximum daily discharge, 23,200 second-feet Apr. 23, 25, 1916; minimum daily, 162 second-feet Sept. 15, 1931.

Remarks.- Records good. Discharge determined from power-house 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 load-discharge rating of hydroelectric units as defined by Geological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,300	1,420	2,020	1,440	1,080	1,300	19,200	9,330	5,100	2,590	4,200	2,610
2	1,240	1,870	1,630	1,080	1,150	1,340	20,700	8,950	5,220	2,600	3,920	2,580
3	1,370	2,550	2,080	1,150	1,010	1,580	20,500	8,950	4,830	3,080	3,420	2,210
4	936	2,250	1,830	1,220	1,300	1,580	16,900	9,070	4,990	3,260	3,580	2,100
5	1,080	2,590	1,220	1,580	1,280	1,510	15,700	9,420	5,710	2,720	3,150	2,020
6	1,080	2,220	1,220	1,180	1,270	1,440	12,500	10,200	5,770	1,940	2,490	1,370
7	1,080	2,070	1,730	1,200	1,170	1,300	10,800	10,800	5,370	2,930	2,590	1,820
8	1,580	1,660	1,920	1,010	1,170	1,220	9,000	9,960	5,250	3,060	1,930	2,400
9	1,730	2,090	1,560	1,100	1,360	1,580	6,970	8,970	2,550	3,830	2,590	2,500
10	1,510	2,230	1,440	1,100	1,440	1,580	6,760	6,890	4,530	4,760	2,360	2,710
11	795	2,090	1,080	1,100	1,500	1,510	5,680	7,060	4,900	4,460	2,940	2,840
12	1,080	1,870	1,580	1,200	1,430	1,370	5,390	6,300	5,400	4,680	3,440	3,120
13	1,580	1,730	1,440	1,280	1,220	1,700	4,300	6,700	7,160	4,850	4,290	3,340
14	1,120	2,380	1,300	1,100	1,370	1,490	5,050	4,300	7,190	4,710	5,020	3,550
15	1,080	2,810	1,580	1,100	1,300	1,360	6,870	4,300	6,460	4,760	4,450	3,310
16	1,080	3,000	1,300	1,200	1,470	1,440	7,580	4,290	7,000	3,500	3,380	2,680
17	852	3,430	1,290	1,150	1,570	1,760	9,740	3,920	7,280	3,480	3,810	2,830
18	1,010	3,240	1,440	1,150	1,580	1,860	10,500	4,320	7,180	3,540	3,590	2,640
19	1,440	2,710	1,220	1,150	1,510	1,870	11,100	4,370	6,980	2,990	2,880	2,810
20	2,490	2,660	1,150	1,300	1,520	5,140	10,800	5,780	5,920	2,780	3,500	2,980
21	3,140	2,140	1,350	1,300	1,340	3,220	10,300	8,160	4,880	2,970	4,390	3,780
22	3,130	1,700	1,220	1,200	1,220	3,120	9,530	9,110	4,150	2,380	3,480	4,130
23	3,660	1,790	1,370	1,300	1,440	4,830	8,780	9,030	3,900	2,640	3,530	4,600
24	3,870	1,730	1,440	1,220	1,490	6,460	8,000	7,380	4,480	2,900	2,980	4,590
25	3,370	2,080	1,560	1,150	1,360	8,200	6,820	6,110	3,570	3,150	2,690	4,040
26	3,280	2,480	1,150	1,370	1,350	9,850	6,150	6,650	3,200	4,300	2,400	3,440
27	3,150	2,880	1,080	1,230	1,440	11,200	6,700	7,120	3,630	6,610	2,400	3,040
28	2,890	2,480	1,300	1,870	1,440	13,000	6,480	7,160	2,620	6,450	2,490	3,000
29	2,980	1,070	1,660	1,080	-	14,200	6,740	6,340	2,840	6,060	2,080	3,180
30	2,970	1,370	1,510	1,370	-	15,600	7,840	6,440	2,760	4,550	2,180	2,590
31	2,500	-	1,580	1,210	-	17,100	-	5,830	-	4,870	2,230	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	60,373	3,870	795	1,948	0.514	0.59
November	66,590	3,430	1,070	2,220	.586	.65
December	45,250	2,080	1,080	1,460	.385	.44
Calendar year 1937	908,145	13,800	400	2,488	.656	8.90
January	38,090	1,870	1,010	1,229	.324	.37
February	37,780	1,580	1,010	1,349	.356	.37
March	140,710	17,100	1,220	4,539	1.20	1.38
April	293,380	20,700	4,300	9,779	2.58	2.98
May	223,210	10,800	3,920	7,200	1.90	2.19
June	150,820	7,280	2,550	5,027	1.33	1.48
July	117,400	6,610	1,940	3,787	.999	1.15
August	98,380	5,020	1,930	3,174	.837	.96
September	89,170	4,600	1,730	2,972	.784	.87
Water year 1937-38	1,361,153	20,700	795	3.729	.984	13.33

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 1938. January 1914 to September 1923 at site 4 miles upstream, where drainage area is 511 square miles.

Average discharge.- 15 years (1923-38) 412 second-feet.

Extremes.- Maximum daily discharge during year, 2,590 second-feet Mar. 31; minimum daily, 27 second-feet Feb. 5.
1923-38: 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 and fair for high stages. Discharge determined from power-house records. Flow regulated by power plant at station, but pondage is small and monthly discharge is very nearly natural flow. Records of daily discharge computed by Wisconsin Michigan Power Co. on basis of load-discharge rating of hydroelectric units as defined by Geological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	148	283	198	107	116	183	2,500	1,160	842	389	1,220	664
2	141	271	226	99	128	183	2,260	1,160	878	547	1,140	662
3	50	277	226	197	118	183	2,000	1,190	770	337	899	558
4	169	284	173	169	240	183	1,690	1,230	924	443	620	408
5	195	280	155	164	27	85	1,420	1,500	894	373	620	504
6	223	280	213	154	195	141	1,190	1,500	890	543	971	362
7	257	222	205	169	155	183	1,020	1,520	789	456	486	374
8	184	279	188	92	155	169	966	1,440	671	543	484	417
9	184	231	155	99	183	169	845	1,340	671	540	450	577
10	85	267	146	155	169	169	718	1,200	664	531	830	709
11	183	290	50	127	198	169	676	1,120	871	802	955	930
12	198	262	226	127	99	155	675	958	1,080	852	846	959
13	201	240	198	113	183	132	574	918	1,010	770	1,100	934
14	169	265	113	226	66	198	726	890	1,060	637	1,130	749
15	198	554	113	94	311	169	1,410	723	1,320	630	718	650
16	169	449	155	90	149	178	1,540	678	1,380	635	620	661
17	56	366	113	155	165	214	1,680	664	1,340	634	635	547
18	226	311	99	155	129	226	1,760	645	1,280	640	620	664
19	344	290	113	155	84	269	1,550	998	1,200	452	786	867
20	565	276	169	155	165	514	1,360	1,410	931	403	1,100	1,040
21	678	226	161	184	183	360	1,170	1,520	860	444	1,120	953
22	678	226	169	99	183	480	997	1,520	732	294	915	857
23	678	222	138	155	113	749	915	1,320	632	541	875	654
24	594	226	226	78	183	1,260	770	1,140	592	609	725	678
25	413	226	113	294	226	1,360	828	1,150	519	1,590	650	650
26	367	226	99	113	85	1,360	827	1,280	485	1,960	650	645
27	359	226	197	113	155	898	905	1,280	485	2,090	649	520
28	315	270	164	155	183	1,480	986	1,250	364	2,010	431	442
29	317	138	164	56	-	1,500	1,200	1,140	392	1,710	465	440
30	310	127	169	155	-	1,960	1,190	1,030	377	1,580	465	399
31	251	-	136	198	-	2,590	-	860	-	1,410	386	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,905	678	50	287	0.529	0.61
November	8,090	554	127	270	.497	.55
December	4,970	226	50	160	.295	.34
Calendar year 1937	121,684	2,110	38	333	.613	8.34
January	4,402	294	56	142	.262	.30
February	4,346	311	27	155	.285	.30
March	17,869	2,590	85	576	1.06	1.22
April	36,348	2,500	574	1,212	2.23	2.49
May	35,734	1,520	645	1,153	2.12	2.44
June	24,903	1,380	364	830	1.53	1.71
July	25,395	2,090	294	819	1.51	1.74
August	23,561	1,220	386	760	1.40	1.61
September	19,474	1,040	362	649	1.20	1.34
Water year 1937-38	213,997	2,590	27	586	1.08	14.65

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 below North Branch of Pike River.

Drainage area.- 250 square miles.

Records available.- February 1914 to September 1938.

Average discharge.- 24 years, 228 second-feet.

Extremes.- Maximum discharge observed during year, 1,810 second-feet Mar. 31, Apr. 1 (gage height, 5.68 feet), from rating curve extended above 900 second-feet; minimum observed, 99 second-feet Oct. 1-3, 14, 15.

1914-38: 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, 28 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. 19-23, Nov. 29 to Mar. 22, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Discharge for May 22, July 28, Aug. 16 interpolated. Gage read once daily.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 23 to Sept. 30)

1.6	86	2.6	306	4.2	923
1.8	114	2.8	367	4.7	1,180
2.0	150	3.0	432	5.2	1,470
2.2	196	3.4	577	5.7	1,810
2.4	249	3.8	741		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	99	131	130	100	110	120	1,810	383	336	222	222	150
2	99	131	130	100	110	120	1,230	332	416	222	222	140
3	99	131	120	100	110	120	875	321	367	222	172	131
4	106	122	120	100	110	120	656	399	367	222	172	131
5	122	131	120	100	110	120	577	616	352	222	161	131
6	131	131	120	100	130	120	502	539	306	263	150	140
7	114	131	120	100	140	120	432	502	292	277	150	161
8	114	131	110	100	130	120	399	416	277	277	150	150
9	114	150	110	100	130	120	367	367	249	352	150	161
10	114	150	110	100	130	120	352	321	249	336	172	236
11	114	150	110	100	130	120	336	292	352	367	222	263
12	106	140	110	100	130	120	321	263	367	432	196	236
13	106	150	110	100	120	130	321	249	367	367	172	209
14	99	172	110	100	120	130	321	249	321	306	172	184
15	99	209	110	110	120	140	502	236	336	277	150	196
16	106	196	110	110	120	150	577	236	399	249	161	184
17	106	172	110	110	120	150	656	236	367	249	172	172
18	140	150	110	110	120	160	698	277	321	249	172	249
19	150	140	110	110	120	180	577	432	292	209	161	321
20	236	140	110	120	120	200	502	876	263	209	172	352
21	263	160	110	120	120	220	432	1,180	249	209	161	367
22	222	150	110	120	120	260	367	918	222	209	150	336
23	196	160	110	120	120	785	336	656	222	222	140	277
24	172	150	110	120	110	741	321	502	196	209	140	249
25	161	131	110	120	110	741	352	502	196	292	131	222
26	150	131	110	120	120	741	352	577	196	352	131	196
27	150	131	110	110	120	741	336	539	184	292	122	172
28	140	150	110	110	120	785	336	466	172	270	122	161
29	140	140	110	110	-	1,120	399	432	172	249	122	161
30	131	130	110	110	-	1,400	432	383	184	222	122	161
31	131	-	110	110	-	1,810	-	336	-	209	150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,230	263	99	138	0.544	0.63
November	4,391	209	122	146	.584	.65
December	3,500	130	110	113	.452	.52
Calendar year 1937	66,866	920	80	183	.732	9.93
January	3,340	120	100	108	.432	.50
February	3,370	140	110	120	.480	.50
March	12,024	1,810	120	388	1.55	1.79
April	15,674	1,810	321	522	2.09	2.33
May	14,037	1,180	236	453	1.81	2.09
June	8,589	416	172	286	1.14	1.27
July	8,264	432	209	267	1.07	1.23
August	4,962	222	122	160	.640	.74
September	6,199	367	131	207	.828	.92
Water year 1937-38	88,580	1,810	99	243	.972	13.17

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 power house of Wisconsin Public Service Corporation, 1 mile above Thunder River and 10 miles west of Crivitz.

Drainage area.- 571 square miles.

Records available.- August 1912 to September 1938.

Average discharge.- 26 years, 488 second-feet.

Extremes.- Maximum daily discharge during year, 3,430 second-feet Mar. 31; minimum daily, 7 second-feet at many times during year.
1912-38: Maximum daily discharge, 3,860 second-feet Apr. 11, 1922 (gage height, 7.80 feet); no flow several days in 1925, 1928, 1929, 1932, 1933.

Remarks.- Records poor. Discharge determined from power-house records. Flow regulated by storage in service reservoir at plant (capacity, 7,940 second-foot days) and Caldron Falls Reservoir (capacity, 5,785 second-foot days). Records of daily discharge computed by Wisconsin Public Service Corporation on basis of load-discharge rating of hydroelectric units as defined by Geological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	631	209	101	227	197	368	2,930	825	970	585	1,250	318
2	422	164	124	196	243	362	2,600	1,160	1,020	106	975	284
3	36	240	294	273	177	271	1,920	1,150	700	7	801	178
4	51	408	229	251	199	137	1,660	1,180	1,010	7	820	7
5	254	162	107	241	583	269	1,420	1,500	659	569	677	7
6	258	318	271	145	87	7	1,220	1,230	950	446	330	350
7	175	249	151	70	428	345	1,040	1,240	1,000	673	7	698
8	207	748	110	228	246	335	1,110	1,470	916	540	223	678
9	620	227	208	7	166	243	694	1,230	1,080	834	350	618
10	131	359	303	127	117	307	597	983	555	417	263	599
11	112	297	381	200	375	163	885	1,100	510	1,010	432	24
12	42	328	56	151	339	149	1,040	925	405	855	484	840
13	252	768	104	169	329	7	719	778	942	858	215	719
14	227	35	135	114	259	802	737	519	791	974	7	849
15	167	437	143	346	240	444	1,090	579	874	923	166	776
16	533	261	98	32	223	454	1,250	1,060	823	256	664	902
17	98	289	30	82	260	569	1,200	970	945	7	540	393
18	357	178	307	219	420	730	1,540	915	797	676	586	171
19	336	414	37	190	243	526	1,530	856	413	532	339	786
20	724	490	272	241	83	23	1,250	1,010	954	286	266	892
21	781	35	323	258	147	606	1,250	1,760	1,150	300	82	818
22	606	271	281	187	267	592	1,060	1,990	758	516	104	1,010
23	460	192	426	7	259	562	768	1,760	767	561	364	1,100
24	7	86	7	366	231	510	910	1,470	561	353	312	864
25	905	242	7	539	111	1,370	1,100	1,480	400	1,020	620	733
26	767	305	42	345	282	1,490	958	1,610	99	968	779	925
27	250	521	175	270	53	1,190	883	1,370	746	904	190	816
28	186	21	280	57	301	1,690	890	1,290	693	925	7	583
29	66	278	331	128	-	2,340	1,000	1,230	734	1,330	193	596
30	394	139	69	7	-	2,140	1,080	1,050	442	935	195	546
31	27	-	43	93	-	3,430	-	1,170	-	384	125	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	10,082	905	7	325	0.569	0.66
November	8,671	768	21	289	.506	.56
December	5,445	426	7	176	.308	.36
Calendar year 1937	140,317	2,500	7	384	.673	9.14
January	5,766	539	7	186	.326	.38
February	6,865	583	53	245	.429	.45
March	22,431	3,430	7	724	1.27	1.46
April	36,331	2,930	597	1,211	2.12	2.36
May	36,860	1,990	519	1,189	2.08	2.40
June	22,664	1,150	99	755	1.32	1.47
July	18,757	1,330	7	605	1.06	1.22
August	12,366	1,250	7	399	.699	.81
September	18,080	1,100	7	603	1.06	1.18
Water year 1937-38	204,318	3,430	7	560	.981	13.31

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. Prior to Aug. 24, 1938, chain gage at same site and datum.

Drainage area.- 678 square miles.

Records available.- June 1906 to March 1909. January 1914 to September 1938.

Average discharge.- 24 years (1914-38), 598 second-feet.

Extremes.- Maximum discharge observed during year, 3,000 second-feet Apr. 1-3; maximum gage height, 6.48 feet Mar. 22; minimum discharge, 220 second-feet Dec. 24, 25 (affected by ice); minimum gage height, 0.74 foot Oct. 1.

1906-09, 1914-38: 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. 18, 19, 21-24, Nov. 28 to Mar. 23, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair. Chain gage read once daily.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.6	197	1.8	700	4.0	2,280
.8	258	2.2	910	4.5	2,730
1.0	331	2.6	1,150	5.0	3,180
1.2	413	3.0	1,440		
1.5	550	3.5	1,840		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	242	293	380	270	250	370	3,000	855	910	526	331	413
2	242	293	380	260	250	370	3,000	855	800	574	351	480
3	242	293	370	260	250	360	3,000	1,020	800	599	312	503
4	258	312	370	260	260	360	2,550	1,220	800	574	331	435
5	258	293	360	250	280	360	2,100	1,760	750	526	331	351
6	276	293	350	250	310	360	1,760	1,680	750	526	312	371
7	293	293	340	250	330	360	1,600	1,680	650	503	331	457
8	293	331	320	250	340	360	1,290	1,440	624	526	351	503
9	293	351	310	250	320	360	1,220	1,370	574	526	351	550
10	258	371	300	250	300	370	1,020	1,220	574	574	435	700
11	276	413	290	250	310	380	910	1,080	550	650	526	800
12	258	371	270	240	330	390	855	1,020	599	750	480	910
13	258	371	260	240	350	420	855	1,020	624	700	435	965
14	258	413	260	240	360	450	800	910	650	700	371	965
15	258	435	250	240	360	480	965	855	650	624	351	855
16	258	413	250	240	360	520	1,760	855	650	526	351	700
17	258	413	250	240	350	640	2,010	855	650	457	371	650
18	293	390	250	240	340	720	2,010	910	624	435	413	750
19	371	350	250	240	340	880	1,920	1,020	650	413	413	855
20	435	258	240	240	340	1,080	1,680	965	574	392	413	965
21	457	380	230	240	340	1,300	1,520	1,150	526	371	413	1,020
22	457	410	230	250	340	1,500	1,370	1,290	503	371	392	1,020
23	435	500	230	260	340	2,000	1,220	1,290	503	392	371	1,020
24	413	460	220	270	340	2,280	1,080	1,290	550	526	351	965
25	293	371	220	270	350	2,100	1,020	1,220	550	503	331	855
26	312	457	230	270	350	1,760	965	1,220	503	480	331	750
27	331	457	250	270	360	1,680	965	1,080	503	480	312	650
28	331	420	260	270	370	1,600	965	1,150	371	480	312	599
29	331	390	270	260	-	1,760	910	1,020	392	457	276	550
30	312	380	280	260	-	2,010	855	965	413	413	276	550
31	293	-	280	250	-	2,460	-	965	-	371	331	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,543	457	242	308	0.454	0.52
November	11,175	500	258	372	.549	.61
December	8,750	380	220	282	.416	.48
Calendar year 1937	191,774	2,550	172	525	.774	10.51
January	7,830	270	240	253	.373	.43
February	9,120	370	250	326	.481	.50
March	30,040	2,460	360	969	1.43	1.65
April	45,175	3,000	800	1,506	2.22	2.48
May	35,230	1,760	855	1,136	1.68	1.94
June	18,267	910	371	609	.898	1.00
July	15,945	750	371	514	.758	.87
August	11,256	526	276	363	.535	.62
September	21,157	1,020	351	705	1.04	1.16
Water year 1937-38	223,488	3,000	220	612	.903	12.26

Wheeler Lake near Lakewood, Wis.

Location.- Staff gage, lat. 45°19', long. 88°29', in sec. 26, T. 33 N., R. 16 E., on east shore of lake, near home of Chas. I. Vogt, 4 miles east of Lakewood.

Records available.- August 1936 to September 1938.

Extremes.- Maximum elevation of water surface observed during year, 95.01 feet May 19; minimum, 93.64 feet Oct. 9, 12.
1936-38: Maximum and minimum elevations of water surface are those of 1938.

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

Elevation, in feet, water year October 1937 to September 1938

Oct.	2	3.69	Apr.	23	4.78	June	29	4.89
	4	3.69		25	4.78	July	3	4.85
	7	3.69		29	4.83		8	4.87
	9	3.64	May	1	4.85		10	4.91
	12	3.64		4	4.85		19	4.81
	16	3.69		7	4.88		23	4.72
	18	3.74		14	4.87		26	4.71
	21	3.74		19	5.01		30	4.68
	24	3.79		24	5.00	Aug.	5	4.66
	27	3.79		31	4.89		10	4.64
	30	3.79	June	4	5.00		18	4.64
Apr.	6	4.68		9	5.00		24	4.65
	17	4.81		14	4.88		31	4.66
	20	4.80		17	4.88			

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

Boot Lake near Townsend, Wis.

Location.- Staff gage, lat. 45°15', long. 88°39', in sec. 9, T. 32 N., R. 15 E., on narrow neck of land cut by a small channel extending across north end of lake, 5½ miles southwest of Townsend.

Records available.- August 1936 to September 1938 (fragmentary).

Extremes.- Maximum elevation of water surface observed during year, 95.85 feet June 4, 18; minimum, 95.36 feet Apr. 7.
1936-38: Maximum elevation of water surface observed, that of June 4, 18, 1938; minimum, 94.69 feet Oct. 31, Nov. 7, 1936.

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

Elevation , in feet, 1938

Apr.	7	95.36	May	25	95.84
	15	95.50	June	4	95.85
	23	95.51		18	95.85
	30	95.52	Sept.	8	95.80
May	7	95.69			

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 1938.

Average discharge.- 40 years, 1,112 second-feet.

Extremes.- Maximum daily discharge during year, 6,190 second-feet Sept. 21-23; minimum daily, 400 second-feet Jan. 11.
1898-1938: 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 furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	615	1,100	675	490	520	2,010	3,440	1,460	1,360	1,270	1,620	705
2	615	1,060	675	490	545	2,190	3,350	1,360	1,420	1,460	1,520	675
3	615	975	640	465	570	2,190	3,170	1,270	1,420	1,620	1,420	705
4	645	940	615	465	570	2,190	3,080	1,180	1,420	1,740	1,320	705
5	645	940	595	490	620	2,240	3,000	1,140	1,360	1,910	1,220	705
6	615	940	550	470	810	2,170	2,830	1,100	1,320	1,980	1,180	675
7	615	940	470	445	880	2,170	2,670	1,100	1,220	2,170	1,100	765
8	615	940	500	425	880	2,220	2,600	1,020	1,180	2,310	1,020	865
9	645	940	510	425	960	2,200	2,450	1,060	1,100	2,450	1,020	1,220
10	645	940	470	425	1,080	2,220	2,380	1,100	1,100	2,520	1,060	1,680
11	645	905	450	400	1,230	2,360	2,240	1,100	1,020	2,600	975	2,040
12	645	865	430	425	1,240	2,480	2,100	1,060	940	2,670	940	2,600
13	615	905	430	425	1,440	2,760	2,040	1,060	905	2,750	905	3,080
14	615	905	430	425	1,600	3,180	1,910	1,060	830	2,750	865	3,530
15	615	830	430	425	1,840	3,610	1,850	1,020	800	2,750	865	3,820
16	615	830	450	425	2,030	3,780	1,800	1,020	830	2,670	865	3,920
17	645	800	450	425	2,090	4,050	1,800	1,060	800	2,670	905	4,020
18	675	800	450	445	2,100	4,260	1,850	1,020	800	2,600	940	4,670
19	705	975	450	470	2,100	5,390	1,850	1,060	765	2,520	905	6,270
20	905	800	450	470	2,100	5,390	1,850	1,100	765	2,450	905	5,790
21	1,100	830	435	490	2,040	5,270	1,850	1,100	765	2,380	865	6,190
22	1,060	800	435	490	2,040	5,150	1,800	1,100	765	2,380	830	6,190
23	1,140	735	460	515	2,090	4,910	1,740	1,100	735	2,310	830	6,190
24	1,180	765	440	540	2,090	4,790	1,740	1,020	765	2,240	865	6,050
25	1,180	765	440	565	2,030	4,560	1,680	1,060	800	2,170	865	5,920
26	1,140	800	440	495	2,080	4,340	1,620	1,060	830	2,100	830	5,790
27	1,100	800	440	470	2,010	4,120	1,570	1,060	830	2,040	830	5,520
28	1,100	705	440	520	2,010	3,920	1,570	1,140	830	1,980	865	5,390
29	1,180	615	465	520	-	3,820	1,570	1,220	830	1,850	800	5,150
30	1,180	675	465	550	-	3,720	1,520	1,320	940	1,800	765	4,910
31	1,140	-	465	520	-	3,720	-	1,320	-	1,740	735	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	25,450	1,180	615	821	0.574	0.66
November	25,820	1,100	615	861	.602	.67
December	15,045	675	430	485	.339	.39
Calendar year 1937	357,715	3,260	310	980	.685	9.30
January	14,600	565	400	471	.329	.38
February	41,595	2,100	520	1,486	1.04	1.08
March	107,380	5,390	2,010	3,464	2.42	2.79
April	64,920	3,440	1,520	2,164	1.51	1.68
May	34,850	1,460	1,020	1,124	.786	.91
June	29,445	1,420	735	982	.687	.77
July	68,850	2,750	1,270	2,221	1.55	1.79
August	30,630	1,620	735	988	.691	.80
September	104,740	6,190	675	3,491	2.44	2.72
Water year 1937-38	563,325	6,190	400	1,543	1.08	14.64

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 1938.

Average discharge.- 42 years, 4,281 second-feet.

Extremes.- Maximum daily discharge during year, 18,000 second-feet Sept. 22; minimum daily, 622 second-feet Oct. 10.
1918-38: 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.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	1,510	3,020	1,740	3,330	7,060	11,400	4,940	4,400	4,160	3,320	4,080
2	736	1,270	3,120	3,030	3,860	7,040	10,200	4,510	4,300	3,490	3,960	4,520
3	865	2,100	3,200	2,740	4,010	6,050	10,600	4,050	3,950	6,370	3,900	2,350
4	1,030	1,820	2,560	3,100	3,640	7,330	10,900	4,470	3,970	5,930	3,560	2,980
5	1,200	1,880	1,980	3,370	3,750	5,920	10,700	4,780	4,850	5,270	2,950	1,710
6	960	2,170	2,830	3,600	4,860	6,260	9,720	5,330	4,030	5,600	3,140	3,890
7	975	1,580	2,790	3,290	4,450	5,550	9,350	3,210	4,950	5,560	3,070	3,190
8	1,150	2,470	2,980	2,810	4,880	5,960	8,850	4,640	4,410	4,830	2,970	3,170
9	1,010	2,270	3,190	2,910	4,900	6,240	8,880	4,410	4,090	4,500	4,640	4,060
10	622	2,610	3,330	3,320	4,910	6,260	9,470	4,880	4,480	5,320	4,560	4,610
11	999	2,470	2,860	3,630	4,890	6,080	9,640	4,460	3,520	4,750	4,020	6,690
12	957	2,190	2,590	3,480	4,460	5,440	9,800	5,520	4,280	5,320	4,020	7,690
13	1,060	2,220	2,440	3,350	6,930	6,220	7,830	5,190	3,460	5,140	4,080	9,970
14	1,090	1,740	3,040	3,460	5,730	7,120	7,590	4,770	5,050	4,940	3,700	11,000
15	929	1,880	3,430	3,050	5,700	6,890	4,990	5,660	4,220	4,740	4,260	12,500
16	884	2,640	3,170	2,880	5,490	7,780	6,440	5,040	3,860	4,560	3,970	13,700
17	699	2,780	3,320	3,130	6,040	7,770	6,140	6,090	3,820	4,970	3,420	16,200
18	1,190	2,580	3,150	3,390	6,180	8,240	5,880	5,440	2,450	3,990	4,220	16,100
19	1,040	2,120	2,540	3,760	6,310	7,920	8,740	5,060	3,760	5,270	5,180	17,700
20	1,270	2,110	3,020	3,160	6,810	8,370	8,560	7,650	3,380	4,690	4,370	15,500
21	910	1,840	3,320	3,250	6,410	8,070	8,750	5,640	3,830	4,050	5,010	16,800
22	1,050	2,210	2,840	2,860	6,620	8,060	8,470	7,550	3,980	3,630	4,620	18,000
23	888	2,340	3,320	2,540	6,920	8,840	7,800	6,680	4,110	3,220	5,120	17,700
24	701	2,530	2,780	2,890	6,530	9,130	8,270	7,970	3,540	3,060	4,670	16,100
25	1,240	1,950	2,640	2,050	6,360	9,450	7,520	6,750	3,060	3,520	4,420	16,600
26	1,710	2,580	2,630	2,970	6,370	9,890	7,240	5,230	3,360	4,100	4,490	16,500
27	1,350	2,440	3,030	4,640	6,650	9,880	7,240	4,270	3,690	3,670	4,010	16,600
28	1,400	1,590	2,940	3,570	7,140	10,500	6,180	3,630	3,560	3,420	4,450	16,600
29	1,430	1,800	2,700	3,290	-	10,800	5,020	4,430	3,760	3,410	4,210	16,300
30	1,200	3,100	2,800	2,950	-	11,500	4,560	4,010	4,380	2,800	4,540	17,700
31	1,230	-	2,820	3,110	-	11,200	-	5,200	-	3,660	4,620	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	32,865	1,710	622	1,060	0.172	0.20
November	64,790	3,100	1,270	2,160	.351	.39
December	90,380	3,430	1,980	2,915	.474	.55
Calendar year 1937	1,180,593	13,500	583	3,235	.526	7.12
January	97,320	4,640	1,740	3,139	.510	.59
February	154,180	7,140	3,330	5,506	.895	.93
March	242,820	11,500	5,440	7,833	1.27	1.46
April	246,730	11,400	4,560	8,224	1.34	1.50
May	161,460	7,970	3,210	5,208	.847	.98
June	118,500	5,050	2,450	3,950	.642	.72
July	137,940	6,370	2,800	4,450	.724	.83
August	127,490	5,180	2,950	4,113	.669	.77
September	330,510	18,000	1,710	11,020	1.79	2.00
Water year 1937-38	1,804,985	18,000	622	4,945	.804	10.92

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 icehouse, on southeast end of lake.
Records available.- August 1936 to September 1938.
Extremes.- Maximum elevation of water surface observed during year, 93.00 feet Sept. 20, 24; minimum, 91.10 feet Oct. 2, 5, 9, 19.
1936-38: Maximum elevation of water surface observed, that of Sept. 20, 24, 1938; minimum, 90.85 feet Aug. 22, 24, 1936.
Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1937 to September 1938

Oct.	2	6.10	Dec.	4	6.30	May	31	7.40	Aug.	6	7.50
	5	6.10	Mar.	14	6.49	June	4	7.45		9	7.50
	9	6.10		19	6.49		7	7.45		13	7.50
	12	6.15		22	6.54		11	7.40		16	7.50
	16	6.15		26	6.59		14	7.40		20	7.60
	19	6.10		29	6.59		18	7.40		23	7.50
	23	6.15	Apr.	2	6.59		21	7.30		27	7.50
	26	6.15		5	6.59		25	7.25		30	7.60
	30	6.20		9	6.59		28	7.25	Sept.	3	7.60
Nov.	1	6.20		23	7.36	July	2	7.30		6	7.60
	2	6.20		30	7.35		5	7.30		10	7.65
	6	6.20	May	3	7.49		9	7.80		13	7.80
	9	6.15		7	7.44		12	7.80		17	7.80
	13	6.20		10	7.30		16	7.75		20	6.00
	16	6.20		14	7.30		19	7.70		24	8.00
	20	6.20		17	7.35		23	7.60		27	7.90
	23	6.25		21	7.30		26	7.60			
	27	6.25		24	7.35		30	7.55			
	30	6.30		28	7.40	Aug.	2	7.55			

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

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 1938.
Extremes.- Maximum elevation of water surface observed during year, 96.60 feet July 7; minimum, 94.52 feet Oct. 17.
1936-38: Maximum elevation of water surface observed, that of July 7, 1938; minimum, 94.26 feet Sept. 10, 11, 1936.
Remarks.- Gage heights have been reduced to datum assumed for this lake by Public Service Commission of Wisconsin.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.62	4.80				-	5.79	-	-	6.40	-	5.72
2	4.61	4.79				-	5.79	5.76	5.99	6.40	5.88	5.70
3	4.60	4.79				-	5.79	-	5.98	6.36	-	5.68
4	4.60	4.78				-	5.75	5.76	5.97	6.32	5.84	5.67
5	4.62	4.77				-	5.72	5.74	5.96	6.30	-	-
6	4.60	4.77				-	5.70	-	5.95	6.30	5.82	5.68
7	4.59	4.76				-	5.68	5.72	5.94	6.60	5.80	5.74
8	4.59	4.79				-	5.68	5.70	-	6.50	5.78	5.80
9	4.58	4.79				-	5.68	5.74	5.92	6.40	-	5.94
10	4.59	4.78				-	5.68	5.74	5.90	6.30	5.76	6.06
11	4.58	4.77				-	-	-	5.89	6.30	-	6.02
12	4.56	4.77				-	5.67	5.74	5.88	6.26	5.72	6.00
13	4.56	4.77				5.49	5.66	-	-	6.26	5.69	5.98
14	4.56	4.76				5.51	-	5.74	5.86	6.20	-	6.08
15	4.54	4.76				5.52	5.74	5.74	5.85	6.16	5.64	6.06
16	4.53	4.76				5.63	5.74	5.74	-	6.10	-	6.00
17	4.52	4.75				5.65	5.78	-	5.84	6.06	5.68	6.06
18	4.54	4.76				5.67	-	5.76	5.82	6.03	-	6.10
19	4.57	4.76				5.69	5.78	-	5.80	6.03	5.67	6.24
20	4.84	-				5.70	5.76	5.76	5.78	6.03	-	6.26
21	4.86	-				5.70	5.76	-	5.76	6.02	5.66	-
22	4.84	-				5.71	5.77	5.76	5.74	6.02	-	6.20
23	4.84	-				5.69	5.76	-	5.72	6.00	5.88	6.18
24	4.84	-				5.68	5.78	5.76	5.90	5.98	-	6.14
25	4.82	-				5.69	5.78	5.78	5.89	5.96	5.85	6.10
26	4.82	-				5.75	-	-	5.88	5.94	-	6.08
27	4.82	-				5.75	5.78	5.79	5.86	5.92	5.80	6.04
28	4.82	-				5.75	-	6.00	5.85	6.00	5.78	-
29	4.82	-				5.78	-	6.00	-	5.98	-	5.97
30	4.81	-				5.78	5.78	5.99	6.24	5.96	5.76	-
31	4.80	-				-	-	5.99	-	5.90	5.74	-

Note.- Add 90 feet to obtain elevation above lake datum of 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 1938.

Average discharge.- 10 years, 525 second-feet.

Extremes.- Maximum discharge observed during year, 2,260 second-feet Mar. 31 (gage height, 5.56 feet, from rating curve extended above 1,500 second-feet; minimum observed, 290 second-feet Feb. 3-5.

1928-38: 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 excellent except those for period of ice effect, Nov. 23 to Mar. 27, which were computed on basis of two discharge measurements, gage heights, observer's notes, and weather records and are fair. Gage read once daily.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.6	281	2.6	619	4.0	1,310
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

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	413	390	320	300	340	2,010	1,040	1,090	748	500	538
2	306	430	390	320	300	350	1,770	1,090	1,090	748	500	500
3	320	430	380	320	290	350	1,600	1,090	1,040	704	500	464
4	320	413	370	320	290	350	1,480	1,480	988	661	538	464
5	333	413	370	320	290	360	1,310	1,540	938	619	538	464
6	363	413	360	320	300	360	1,250	1,420	889	578	538	538
7	380	413	350	320	300	360	1,150	1,370	841	578	619	538
8	348	500	340	320	300	370	1,090	1,310	794	661	619	578
9	333	500	330	320	310	370	1,040	1,370	794	578	661	619
10	348	464	320	320	310	380	938	1,310	794	538	794	1,040
11	348	464	310	320	310	390	889	1,250	841	661	704	988
12	333	430	310	320	320	390	889	1,150	1,040	619	619	889
13	333	464	320	320	330	400	889	1,090	988	578	578	841
14	320	464	320	320	340	400	1,040	1,040	889	578	538	748
15	320	500	320	320	340	410	1,310	988	938	538	500	704
16	320	464	320	320	340	420	1,310	938	938	500	538	661
17	333	430	320	320	340	430	1,310	938	889	500	538	661
18	396	333	320	320	340	450	1,250	1,040	841	464	464	794
19	464	380	325	320	340	490	1,200	1,200	794	500	464	938
20	578	430	325	320	340	560	1,090	1,420	748	464	464	988
21	661	413	325	320	340	710	1,040	1,540	748	464	464	889
22	578	413	330	330	340	820	988	1,540	704	464	430	841
23	500	420	330	330	340	1,000	938	1,540	661	538	413	748
24	500	420	330	330	330	1,030	988	1,540	661	538	396	748
25	500	420	330	330	330	1,050	988	1,480	619	538	396	704
26	464	420	330	330	330	1,070	988	1,420	619	500	396	661
27	464	410	330	320	340	1,200	938	1,370	578	500	396	661
28	430	360	330	320	340	1,540	938	1,310	578	500	396	619
29	430	360	330	310	-	1,830	1,040	1,250	538	464	380	619
30	413	400	330	310	-	2,010	1,090	1,200	661	464	396	619
31	413	-	330	300	-	2,260	-	1,090	-	464	538	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	12,469	661	306	402	0.635	0.73
November	12,784	500	333	426	.673	.75
December	10,415	390	310	336	.531	.61
Calendar year 1937	181,612	1,960	270	498	.787	10.67
January	9,930	330	300	320	.506	.58
February	9,020	340	290	322	.509	.53
March	22,450	2,260	340	724	1.14	1.31
April	34,751	2,010	889	1,158	1.83	2.04
May	39,354	1,540	938	1,269	2.00	2.31
June	24,531	1,090	538	818	1.29	1.44
July	17,249	748	464	556	.878	1.01
August	15,815	794	380	510	.806	.93
September	21,064	1,040	464	702	1.11	1.24
Water year 1937-38	229,832	2,260	290	630	.995	13.48

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 below West Branch of Wolf River.

Drainage area.- 812 square miles.

Records available.- March 1928 to September 1938. May 1907 to March 1909 and February 1911 to March 1928 at site at Keshena, 1½ miles downstream.

Average discharge.- 27 years (1911-38), 779 second-feet.

Extremes.- Maximum discharge during year, 3,330 second-feet Mar. 31 (gage height, 8.60 feet), from rating curve extended above 2,100 second-feet; minimum, 290 second-feet Dec. 19.

1911-38: 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. 29 to Mar. 27, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are fair.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 13 to Sept. 30)

5.1	266	5.7	590	6.8	1,440	8.2	2,880
5.3	365	6.0	785	7.2	1,820	8.6	3,330
5.5	472	6.4	1,090	7.7	2,330		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	392	535	500	390	410	510	3,110	1,220	1,300	1,020	596	698
2	397	518	500	390	410	510	2,360	1,220	1,300	1,030	590	660
3	418	518	490	390	420	510	1,970	1,390	1,260	930	615	622
4	445	512	470	390	420	510	1,770	1,920	1,220	855	609	590
5	483	506	460	390	430	510	1,570	2,380	1,180	792	628	572
6	495	495	460	390	440	520	1,440	2,070	1,090	731	653	622
7	472	518	450	390	450	520	1,350	1,720	1,060	765	705	712
8	440	634	440	390	460	520	1,260	1,670	1,010	834	745	731
9	434	640	430	390	460	520	1,180	1,720	962	827	698	878
10	445	622	410	390	460	530	1,130	1,670	954	752	878	1,390
11	472	596	400	400	460	540	1,090	1,620	1,130	834	954	1,620
12	434	553	400	400	460	540	1,060	1,480	1,350	785	820	1,530
13	429	560	400	400	470	540	1,030	1,350	1,300	758	718	1,180
14	407	609	390	400	480	550	1,040	1,260	1,180	752	666	1,060
15	418	634	390	400	470	560	1,670	1,220	1,130	705	634	938
16	407	615	390	410	470	580	1,920	1,220	1,220	653	640	855
17	445	560	390	410	470	600	1,870	1,130	1,130	634	672	841
18	529	489	390	420	470	640	1,670	1,260	1,080	615	628	1,000
19	541	418	380	420	480	700	1,530	1,390	1,000	603	615	1,260
20	731	547	380	420	490	800	1,390	1,720	938	596	672	1,390
21	792	541	380	430	490	900	1,300	1,920	915	584	622	1,220
22	758	634	380	430	490	1,100	1,220	1,870	870	590	584	1,060
23	660	590	380	430	490	1,400	1,130	1,870	841	672	518	954
24	634	541	380	440	490	1,300	1,130	1,770	772	672	506	885
25	628	566	380	440	500	1,200	1,220	1,720	792	666	512	862
26	578	584	390	440	510	1,400	1,220	1,620	785	660	495	848
27	553	535	400	430	520	1,700	1,180	1,620	745	628	483	827
28	535	541	400	430	520	1,920	1,130	1,570	692	628	500	799
29	518	520	400	420	-	2,120	1,220	1,480	679	603	495	758
30	512	520	400	420	-	2,770	1,260	1,390	792	596	472	752
31	523	-	400	420	-	3,220	-	1,300	-	603	596	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	15,925	792	392	514	0.633	0.73
November	16,651	640	418	555	.683	.76
December	12,810	500	380	413	.509	.59
Calendar year 1937	240,082	2,880	350	658	.810	11.00
January	12,710	440	390	410	.505	.58
February	13,090	520	410	468	.576	.60
March	30,240	3,220	510	975	1.20	1.38
April	43,440	3,110	1,030	1,448	1.73	1.99
May	48,760	2,380	1,130	1,573	1.94	2.24
June	30,677	1,350	679	1,023	1.26	1.41
July	22,373	1,030	584	722	.889	1.02
August	19,519	954	472	630	.776	.89
September	28,114	1,620	572	937	1.15	1.28
Water year 1937-38	294,309	3,220	380	806	.993	13.47

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 Pearl Street Bridge, three-quarters of a mile below Embarrass River. Zero of gage is 749.4 feet above mean sea level, by levels of Corps of Engineers, U. S. Army.
Drainage area.- 2,240 square miles.
Records available.- October 1913 to September 1938.
Average discharge.- 25 years, 1,789 second-feet.
Extremes.- Maximum discharge observed during year, 11,500 second-feet Mar. 23-25 (gage height, 9.8 feet); minimum discharge, 555 second-feet Dec. 21 (gage height, 1.1 feet), by discharge measurement.

1913-38: 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, Nov. 19 to Mar. 20, which were computed on basis of two 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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	699	808	740	670	620	1,120	6,800	2,570	2,990	1,400	1,030	957
2	664	882	800	670	630	1,130	6,590	2,450	2,990	1,620	1,030	1,070
3	629	808	820	660	640	1,130	7,030	2,350	2,830	2,050	957	1,250
4	594	845	810	660	640	1,140	7,280	2,350	2,690	2,350	957	1,320
5	629	882	780	680	670	1,160	7,030	2,450	2,570	2,450	957	1,360
6	560	845	750	690	730	1,160	6,800	2,570	2,450	2,350	957	1,250
7	735	808	710	690	800	1,130	6,390	2,630	2,350	2,240	882	1,510
8	735	882	700	630	860	1,070	5,850	2,760	2,190	1,960	882	1,620
9	735	1,110	680	580	890	1,030	5,360	2,990	2,050	1,790	957	2,290
10	735	1,070	660	560	930	1,040	4,740	3,170	1,870	1,700	1,110	2,990
11	735	1,110	650	570	960	1,050	4,320	3,590	1,740	1,700	1,400	3,820
12	629	1,110	640	600	980	1,070	3,940	3,820	1,660	1,700	1,540	4,320
13	560	1,110	620	640	1,010	1,250	3,480	3,820	1,580	1,620	1,700	4,740
14	699	1,110	620	620	1,030	1,480	3,270	4,060	1,580	1,620	1,700	5,680
15	664	1,110	620	600	1,050	1,760	3,080	4,060	1,660	1,470	1,470	6,020
16	664	1,110	640	600	1,070	2,050	3,080	3,820	1,740	1,400	1,320	5,850
17	664	1,110	650	590	1,080	2,560	3,170	3,590	1,740	1,400	1,250	5,850
18	699	1,070	650	590	1,090	3,040	3,170	3,370	1,740	1,320	1,320	6,020
19	629	900	620	600	1,100	4,100	3,170	3,170	1,700	1,250	1,400	6,590
20	882	800	580	620	1,100	6,400	3,270	2,990	1,700	1,180	1,400	7,280
21	1,070	770	560	640	1,110	8,540	3,370	2,990	1,620	1,110	1,400	7,560
22	1,210	760	580	650	1,100	10,100	3,480	2,990	1,620	1,110	1,320	7,560
23	1,250	770	600	660	1,100	11,500	3,480	2,830	1,470	1,110	1,250	7,560
24	1,290	800	610	670	1,100	11,500	3,480	2,830	1,400	1,110	1,250	7,030
25	1,250	850	600	680	1,100	11,500	3,370	2,830	1,320	1,180	1,110	6,800
26	1,140	860	580	680	1,110	10,600	3,270	2,990	1,250	1,110	1,110	6,390
27	1,070	860	560	670	1,110	9,300	3,170	2,990	1,250	1,110	1,030	6,020
28	957	850	580	660	1,110	8,540	2,990	2,990	1,250	1,110	957	5,680
29	919	830	610	650	-	7,860	2,910	3,170	1,250	1,110	882	5,200
30	919	800	620	640	-	7,280	2,760	3,170	1,180	1,110	808	4,740
31	919	-	650	630	-	6,800	-	2,990	-	1,030	808	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	25,534	1,290	560	824	0.368	0.42
November	27,630	1,110	760	921	.411	.46
December	20,290	820	560	655	.292	.34
Calendar year 1937	556,995	6,360	362	1,526	.681	9.26
January	19,750	690	560	637	.284	.33
February	26,720	1,110	620	954	.426	.44
March	139,390	11,500	1,030	4,496	2.01	2.32
April	130,100	7,280	2,760	4,337	1.94	2.16
May	95,350	4,060	2,350	3,076	1.37	1.58
June	55,430	2,990	1,180	1,848	.825	.92
July	46,770	2,450	1,030	1,509	.674	.78
August	36,144	1,700	808	1,166	.521	.60
September	136,327	7,560	957	4,544	2.03	2.26
Water year 1937-38	759,435	11,500	560	2,081	.929	12.61

Lucerne (Stone) Lake near Crandon, Wis.

Location.- Staff gage, lat. 43°33', long. 88°51', in lot 1, sec. 34, T. 36 N., R. 13 E., at pier of Planet Resort, in northeast corner of lake, 4 miles east of Crandon.
Records available.- August 1936 to September 1938 (fragmentary).
Extremes.- Maximum elevation of water surface observed during year, 95.2 feet May 21; minimum, 93.5 feet Nov. 10.

1936-38: Maximum elevation of water surface observed, that of May 21, 1938; minimum, 93.38 feet Nov. 26, 1936.

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

Elevation, in feet, 1937-38

1937	1938							
Nov. 10 93.5	Apr. 6 94.2	May 15 94.5	May 18 94.7	May 21 95.2
	9 94.2	16 94.5	19 94.8	
		17 94.6	20 95.1	

Embarrass River near Embarrass, Wis.

Location.- Water-stage recorder, lat. 44°43', long. 88°44', on line between sec. 13, T. 28 N., R. 14 E., and sec. 18, T. 28 N., R. 15 E., three-quarters of a mile downstream from Mill Creek and 4 miles northwest of Embarrass. Prior to Aug. 23, 1938, chain gage at same site and datum.

Drainage area.- 395 square miles.

Records available.- June 1919 to September 1938.

Average discharge.- 19 years, 292 second-feet.

Extremes.- Maximum discharge observed during year, 3,060 second-feet Mar. 22 (gage height, 8.04 feet); minimum observed, 60 second-feet Oct. 2.

1919-38: 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 for Aug. 23 to Sept. 30 and fair for remainder of year except those for periods of ice effect, Nov. 23-25, Nov. 30 to Mar. 20, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records and are poor. Chain gage read twice daily. Slight diurnal regulation by power plants above station.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

(Shifting-control method used Oct. 1 to Nov. 22, Nov. 26-29, June 13 to July 24)

2.6	47	3.2	203	3.8	462	5.0	1,070	7.0	2,310
2.8	92	3.4	277	4.0	562	5.5	1,350	8.0	3,060
3.0	145	3.6	365	4.5	812	6.0	1,670		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	87	120	79	62	120	2,000	319	365	277	115	562
2	66	85	120	78	62	120	1,610	319	319	787	110	612
3	75	87	120	78	62	120	1,180	342	298	762	105	462
4	82	92	120	77	64	120	912	438	342	537	110	342
5	92	129	110	76	76	120	612	512	298	438	115	185
6	97	105	110	76	110	120	537	562	273	389	102	200
7	87	123	100	75	130	120	438	512	269	389	113	389
8	108	173	94	73	130	120	389	562	250	413	95	537
9	113	200	90	72	130	120	365	762	254	389	108	932
10	100	206	86	71	130	130	258	862	277	298	170	2,320
11	97	217	84	70	140	130	258	762	298	298	173	2,630
12	82	188	80	70	140	150	269	612	277	277	210	2,340
13	78	182	78	70	150	180	277	537	298	265	254	1,800
14	73	200	76	70	140	220	277	512	365	238	188	1,610
15	82	197	76	69	140	260	413	537	319	242	121	912
16	100	191	74	68	140	310	687	562	365	258	134	737
17	108	170	73	68	130	400	1,020	537	342	134	197	612
18	105	170	70	68	130	600	1,020	537	298	134	191	812
19	142	188	70	68	120	1,000	962	687	261	151	203	1,290
20	298	179	70	68	120	1,500	862	862	261	126	254	1,350
21	389	156	70	68	110	2,340	637	962	185	129	182	1,180
22	365	142	70	69	110	2,910	512	962	167	137	185	1,020
23	277	130	70	70	110	2,480	389	737	142	153	203	812
24	228	130	70	72	110	1,800	413	637	129	159	142	637
25	167	120	70	72	110	1,480	413	762	165	159	123	512
26	123	121	72	69	110	1,240	413	462	159	148	129	389
27	118	129	76	65	110	1,070	413	319	142	151	121	365
28	105	145	79	64	120	962	389	413	159	162	97	365
29	95	134	80	63	-	1,180	365	487	153	159	105	342
30	80	130	82	63	-	1,410	342	462	185	159	123	319
31	87	-	80	62	-	1,800	-	389	-	170	220	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,085	389	66	132	0.334	0.39
November	4,506	217	85	150	.380	.42
December	2,640	120	70	85.2	.215	.25
Calendar year 1937	101,466	1,680	33	278	.704	9.54
January	2,181	79	62	70.4	.178	.21
February	3,196	150	62	114	.288	.30
March	24,632	2,910	120	795	2.01	2.32
April	18,632	2,000	258	621	1.57	1.75
May	17,927	962	319	578	1.46	1.68
June	7,615	365	129	254	.643	.72
July	8,488	787	126	274	.694	.80
August	4,698	254	95	152	.385	.44
September	26,575	2,630	185	886	2.24	2.50
Water year 1937-38	125,175	2,910	62	343	.863	11.78

Peak discharge.- Mar. 22 (observed at 8:45 a.m.) 3,060 sec.-ft.; Sept. 10 (8:30 p.m.) 2,770 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 1938.

Average discharge.- 24 years, 436 second-feet.

Extremes.- Maximum discharge during year, 4,380 second-feet Sept. 11; maximum gage height, 9.50 feet Mar. 19 (affected by ice), from rating curve extended above 3,000 second-feet; minimum discharge, 99 second-feet Dec. 12.

1914-38: 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. 19; minimum discharge, 57 second-feet Feb. 10, 1934 (stage-discharge relations affected by ice).

Remarks.- Records good except those for period of ice effect, Nov. 29 to Mar. 20, which were computed on basis of two discharge measurements, recorder record, observer's notes, and weather records and are poor. Diurnal regulation by power plant 6 miles upstream.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 20)

0.9	101	2.0	583	3.6	1,860	5.5	4,020
1.1	148	2.4	862	4.0	2,270	6.0	4,620
1.4	248	2.8	1,170	4.5	2,830		
1.7	400	3.2	1,490	5.0	3,420		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	157	173	210	160	150	170	1,670	327	465	752	243	305
2	191	190	190	160	130	190	1,450	401	441	1,260	239	373
3	171	171	210	140	140	190	1,210	377	331	1,540	242	406
4	132	187	220	160	140	180	980	577	374	1,410	232	441
5	169	193	180	150	160	160	752	787	344	1,000	225	368
6	192	203	180	140	190	150	622	773	279	780	234	453
7	188	163	160	160	170	140	552	682	270	628	201	870
8	162	299	160	140	210	160	508	596	262	622	237	1,450
9	173	348	140	150	210	160	508	737	246	545	288	1,860
10	165	375	150	150	190	160	447	878	245	471	446	3,420
11	148	342	160	160	210	200	459	885	262	465	766	4,140
12	157	262	140	150	230	250	403	787	254	441	901	4,020
13	153	307	140	150	240	380	390	628	299	388	682	2,950
14	158	266	150	160	250	540	404	508	251	477	418	2,160
15	161	274	150	150	250	740	522	471	261	412	389	1,670
16	179	292	160	150	240	660	737	483	276	357	329	1,330
17	161	262	170	170	230	900	917	420	315	280	471	1,190
18	195	229	180	170	200	1,150	940	490	346	310	609	1,720
19	281	273	150	160	220	1,540	870	533	274	273	590	2,540
20	449	387	150	160	180	2,160	759	583	255	255	533	2,780
21	483	359	170	170	170	3,060	655	642	247	265	502	2,270
22	454	381	170	180	170	3,060	533	577	236	253	406	1,720
23	415	321	170	170	190	2,320	430	514	235	288	378	1,410
24	291	294	170	150	190	1,760	490	471	246	362	317	1,110
25	242	219	160	160	150	1,450	508	403	260	362	297	972
26	221	240	170	120	160	1,300	508	350	302	315	288	794
27	222	254	170	140	170	1,170	483	408	291	280	298	675
28	216	210	160	150	150	1,010	514	564	272	288	232	668
29	211	240	170	150	-	1,020	483	628	230	283	259	590
30	240	250	170	150	-	1,190	471	514	360	330	267	642
31	185	-	180	140	-	1,450	-	471	-	247	280	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,922	483	132	223	0.460	0.53
November	7,964	387	163	265	.546	.61
December	5,210	220	140	168	.346	.40
Calendar year 1937	126,865	2,380	93	348	.718	9.72
January	4,770	180	120	154	.318	.37
February	5,290	250	130	189	.390	.41
March	28,970	3,060	140	935	1.93	2.22
April	20,175	1,670	390	672	1.39	1.55
May	17,465	885	327	563	1.16	1.34
June	8,729	465	230	291	.600	.67
July	15,939	1,540	247	514	1.06	1.22
August	11,799	901	201	381	.786	.91
September	45,297	4,140	305	1,510	3.11	3.47
Water year 1937-38	178,530	4,140	120	489	1.01	13.70

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Waupaca River near Waupaca, Wis.

Location.- Staff gage, 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 Mar. 25, 1938, chain gage at same site and datum.

Drainage area.- 305 square miles.

Records available.- October 1917 to September 1938. June 1916 to October 1917 at site 1 mile downstream.

Average discharge.- 22 years, 249 second-feet.

Extremes.- Maximum discharge observed during year, 1,170 second-feet Sept. 10, 11 (gage height, 4.60 feet); minimum observed, 131 second-feet Oct. 2.
1916-38: 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, 35 second-feet Jan. 22, 28, 1926 (stage-discharge relation affected by ice).

Remarks.- Records poor. Discharge for periods of ice effect, Nov. 18-23, Nov. 28 to Mar. 16, computed on basis of two discharge measurements, gage heights, observer's notes, and weather records. Considerable diurnal fluctuation from power plants above station. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	194	238	240	180	160	210	420	194	269	722	194	167
2	131	194	160	180	150	230	385	180	238	869	194	223
3	194	180	160	180	150	200	269	167	254	402	208	223
4	180	180	150	170	160	190	318	368	194	437	269	167
5	167	223	140	170	150	170	269	318	180	420	238	238
6	208	142	180	160	200	250	254	*286	208	334	194	301
7	142	194	140	160	350	220	269	254	142	269	154	722
8	167	334	190	160	290	240	238	*294	269	318	238	980
9	*167	301	180	150	270	250	301	334	223	238	223	943
10	167	238	170	160	250	260	238	334	180	238	507	1,170
11	194	254	200	210	230	340	223	285	301	269	1,020	1,170
12	194	194	190	180	270	420	223	334	238	208	756	1,090
13	208	269	180	200	230	500	223	223	223	318	368	795
14	180	194	180	200	320	540	254	208	254	334	285	650
15	208	223	190	200	240	580	334	238	208	318	269	578
16	194	223	190	170	190	580	385	194	318	238	301	507
17	194	208	220	200	200	614	301	180	285	194	368	385
18	194	200	160	190	200	1,060	351	301	269	254	301	869
19	223	220	200	200	180	1,060	269	254	208	223	285	869
20	454	230	220	200	170	1,020	269	334	254	154	334	758
21	368	210	140	200	180	686	269	254	208	154	*302	578
22	208	200	190	200	190	578	318	223	154	160	269	507
23	208	210	180	210	210	578	238	301	154	194	254	454
24	194	208	190	220	200	507	238	269	167	194	238	454
25	269	223	170	170	190	402	238	208	180	180	269	402
26	208	208	150	180	200	334	301	194	167	238	154	402
27	238	208	150	170	200	318	334	334	238	194	154	385
28	208	200	170	160	210	254	334	334	180	*201	180	385
29	194	230	200	180	-	285	208	301	194	208	180	351
30	180	200	140	160	-	420	254	*278	472	208	238	285
31	208	-	170	160	-	542	-	254	-	238	194	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,443	454	131	208	0.682	0.79
November	6,536	334	142	218	.715	.80
December	5,490	240	140	177	.580	.67
Calendar year 1937	77,550	722	104	212	.695	9.45
January	5,630	220	150	182	.597	.69
February	5,940	350	150	212	.695	.72
March	13,838	1,060	170	446	1.46	1.68
April	8,525	420	208	284	.931	1.04
May	8,230	368	167	265	.869	1.00
June	6,829	472	142	228	.748	.83
July	8,946	869	154	289	.948	1.09
August	9,140	1,020	154	295	.967	1.11
September	17,008	1,170	167	567	1.86	2.08
Water year 1937-38	102,555	1,170	131	281	.921	12.50

*Gage heights missing; discharge interpolated.

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 1938.

Extremes.- Maximum elevation of water surface observed during year, 98.20 feet Sept. 18; minimum, 97.32 feet June 13, 18, 20, 24, 27, Aug. 8, 12.
1936-38: Maximum elevation of water surface observed, that of Sept. 18, 1938; minimum, 96.90 feet Aug. 15, 1936.

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

Elevation, in feet, water year October 1937 to September 1938

Oct.	2	7.48	May	9	7.44	June	30	7.68	Aug.	19	7.48
Nov.	12	7.74		14	7.40	July	2	7.64		22	7.46
Mar.	25	7.88		16	7.44		5	7.60		26	7.46
	29	7.70		21	7.46		9	7.50		29	7.46
Apr.	1	7.70		23	7.44		12	7.50	Sept.	2	7.38
	4	7.48		28	7.44		15	7.46		5	7.38
	9	7.48		30	7.42		18	7.46		9	7.70
	11	7.46	June	4	7.40		23	7.46		12	7.76
	16	7.48		6	7.40		25	7.46		16	7.80
	17	7.50		11	7.38		29	7.40		18	8.20
	22	7.46		13	7.32	Aug.	2	7.38		22	7.80
	25	7.48		18	7.32		6	7.34		26	7.76
	30	7.46		20	7.32		8	7.32		30	7.60
May	2	7.46		24	7.32		12	7.32			
	7	7.46		27	7.32		14	7.34			

Note.- Add 90 feet to obtain elevation above lake datum of 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 1938.

Extremes.- Maximum elevation of water surface observed during year, 96.77 feet Apr.16, 23, 30, May 7; minimum, 95.28 feet Oct. 2.
1936-38: Maximum elevation of water surface observed, that of Apr. 16, 23, 30, May 7, 1938; minimum, 94.95 feet Aug. 14, 1936.

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

Elevation, in feet, water year October 1937 to September 1938

Oct.	2	5.28	Mar.	24	6.56	June	4	6.77	Aug.	13	6.52
	9	5.38	Apr.	2	6.70		11	6.42		20	6.52
	16	5.38		9	6.70		18	6.34		27	6.10
	23	5.38		16	6.77		25	6.34	Sept.	3	6.10
	30	5.38		23	6.77	July	2	6.40		10	6.10
Nov.	6	5.48		30	6.77		9	6.41		17	6.64
	13	5.48	May	7	6.77		16	6.34		24	6.64
	20	5.48		14	6.60		23	6.34			
	27	5.48		21	6.60		30	6.34			
Mar.	19	6.48		28	6.60	Aug.	6	6.32			

Note.- Add 90 feet to obtain elevation above lake datum of 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 1938.

Average discharge.- 24 years, 422 second-feet.

Extremes.- Maximum discharge during year, 7,360 second-feet Feb. 12 (gage height, 6.19 feet), from rating curve extended above 2,900 second-feet; minimum, 18 second-feet Dec. 13 (stage-discharge relation affected by ice).

1914-38: Maximum discharge, 15,100 second-feet Mar. 20, 1918 (gage height, 9.00 feet, from high-water mark); minimum, 6 second-feet Aug. 6, 1936.

Remarks.- Records good except those for periods of ice effect, Nov. 19-23, Nov. 28 to Feb. 6 (computed on basis of two discharge measurements, gage-height record, observer's notes, and weather records) and those for period of channel improvement, June 25 to Sept. 12 (computed on basis of three discharge measurements, gage-height record, and observer's notes), which are fair.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	80	41	95	130	464	907	*150	161	915	72	114
2	36	86	42	90	120	801	824	133	145	1,560	88	94
3	37	64	53	120	110	1,130	680	139	152	1,840	70	70
4	37	62	53	110	100	1,050	596	125	155	1,610	56	47
5	66	62	49	90	500	1,130	524	114	122	1,360	58	56
6	66	64	47	85	2,500	848	446	104	109	985	66	106
7	55	80	45	80	3,710	680	406	117	106	816	61	171
8	54	88	42	76	4,680	630	390	120	77	623	47	203
9	55	100	32	70	5,520	543	304	114	74	512	49	1,780
10	48	102	26	80	4,260	637	328	164	88	469	164	2,680
11	47	100	30	80	2,880	637	319	136	97	384	199	3,840
12	51	88	26	86	3,840	848	277	139	72	328	203	3,580
13	49	82	22	92	4,960	1,220	242	128	64	328	260	2,780
14	59	73	40	100	5,100	1,780	260	114	104	309	218	2,990
15	64	117	52	100	5,520	2,110	218	130	75	281	251	3,710
16	57	102	45	90	3,980	2,260	255	122	64	268	452	3,840
17	51	84	58	110	2,990	2,260	338	148	66	247	300	3,810
18	57	90	63	120	2,260	2,780	369	133	61	226	277	6,220
19	90	69	63	110	1,720	2,780	396	211	56	207	260	5,940
20	95	69	80	100	1,320	2,880	379	272	58	226	423	5,800
21	156	47	128	110	1,200	2,590	304	295	60	247	446	4,820
22	172	54	90	120	958	2,040	281	242	79	418	218	3,840
23	176	62	85	130	716	1,840	238	226	62	260	218	2,880
24	133	75	80	500	680	1,720	238	196	85	128	364	2,340
25	102	100	83	300	537	1,450	251	168	234	207	242	1,840
26	100	102	90	250	481	1,200	230	145	328	164	164	1,610
27	75	84	100	220	446	1,020	247	136	106	148	148	1,360
28	104	73	110	185	396	950	*220	142	171	122	120	1,190
29	95	37	100	175	-	848	*190	133	114	79	94	1,030
30	73	35	95	160	-	882	*170	125	226	92	106	993
31	71	-	120	140	-	915	-	99	-	97	114	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,374	176	36	76.6	0.116	0.13
November	2,331	117	35	77.7	.118	.13
December	1,990	128	22	64.2	.097	.11
Calendar year 1937	137,948	6,360	18	378	.572	7.75
January	4,174	500	70	135	.204	.24
February	61,614	5,520	100	2,200	3.33	3.47
March	42,923	2,880	464	1,385	2.10	2.42
April	10,827	907	170	361	.546	.61
May	4,720	295	99	152	.230	.27
June	3,371	328	56	112	.169	.19
July	15,456	1,840	79	499	.755	.87
August	5,808	452	47	187	.283	.33
September	69,134	6,220	47	2,304	3.49	3.89
Water year 1937-38	224,722	6,220	.22	616	.932	12.66

Peak discharge.- Feb. 9 (2 p.m.) 6,640 sec.-ft.; Feb. 12 (11 p.m.) 7,360 sec.-ft.
*Gage height missing; discharge interpolated.

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 above mouth.

Drainage area.- 113 square miles.

Records available.- August 1930 to September 1938.

Extremes.- Maximum discharge observed during year, 1,520 second-feet Sept. 19 maximum gage height, 12.00 feet Feb. 7 (affected by ice); minimum observed, 2 second-feet Dec. 8-14; minimum gage height observed, 5.00 feet Dec. 11-13.

1930-38: Maximum discharge observed, that of Sept. 19, 1938; maximum gage height, that of Feb. 7, 1938; minimum observed, 0.2 second-foot Aug. 9-12, 1936.

Remarks.- Records fair except those for period of ice effect, Nov. 17 to Mar. 19, which were computed on basis of four discharge measurements, gage heights, observer's notes, weather records, and records for Milwaukee River at Milwaukee and are poor. Gage read once daily.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 16, July 9 to Sept. 8)

4.9	1.0	5.6	44	7.0	538
5.0	2.1	5.8	100	7.5	745
5.1	4.4	6.0	165	8.0	973
5.2	8.2	6.3	271	8.5	1,220
5.4	19	6.6	380	9.1	1,520

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	6.7	4	17	17	45	200	29	21	380	7.8	9.6
2	4.4	7.4	4	17	15	70	172	25	38	458	7.8	7.8
3	5.2	7.4	5	12	13	100	168	25	35	478	6.3	7.8
4	5.2	6.7	5	11	10	110	113	25	35	343	5.5	7.1
5	5.2	6.7	4	12	200	100	100	25	18	235	3.7	6.3
6	5.2	6.7	4	13	360	84	94	25	23	158	3.7	6.3
7	6.0	6.7	3	13	400	70	82	23	17	100	4.8	17
8	5.2	6.0	2	13	450	64	76	23	17	88	6.3	28
9	5.2	6.0	2	14	540	54	60	27	17	60	6.3	619
10	5.2	6.0	2	15	410	60	65	29	17	49	14	880
11	5.2	6.7	2	15	250	90	54	27	18	35	22	926
12	5.2	6.7	2	17	400	150	44	27	11	35	36	660
13	5.2	7.4	2	19	500	210	41	27	10	32	57	478
14	5.2	8.2	2	22	520	260	41	25	13	32	52	660
15	5.2	9.2	3	22	560	310	41	23	13	32	36	880
16	4.4	8.2	4	22	380	320	38	23	14	32	36	880
17	4.4	9	5	24	280	350	70	29	13	32	34	834
18	6.0	9	5	24	220	400	88	32	13	27	34	1,070
19	10	8	6	24	170	330	82	60	9.2	25	40	1,520
20	14	7	7	24	150	307	70	76	8.2	23	36	1,120
21	15	5	8	25	140	271	54	82	9.2	19	30	789
22	15	5	9	25	130	207	41	70	11	18	28	538
23	13	4	10	26	110	271	41	44	14	18	26	352
24	11	4	10	100	90	307	41	35	235	17	24	271
25	9.2	5	11	70	74	253	41	32	343	17	22	207
26	8.2	8	12	45	60	228	41	32	119	18	20	152
27	7.4	9	12	34	52	179	41	29	76	15	16	132
28	6.7	7	12	28	40	165	35	29	44	12	12	119
29	6.7	4	12	26	-	179	35	25	35	12	12	106
30	6.7	3	12	25	-	158	29	25	106	11	11	106
31	6.0	-	15	20	-	207	-	21	-	8.7	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	220.9	15	4.4	7.1	0.063	0.07
November	199.7	9.2	3	6.7	.059	.07
December	196	15	2	6.3	.056	.06
Calendar year 1937	26,847.0	1,250	2	73.6	.651	8.82
January	774	100	11	25.0	.221	.25
February	6,541	560	10	234	2.07	2.16
March	5,909	400	45	191	1.69	1.95
April	2,098	200	29	69.9	.619	.69
May	1,029	82	21	33.2	.294	.34
June	1,352.6	343	8.2	45.1	.399	.45
July	2,819.7	478	8.7	91.0	.805	.93
August	661.2	57	3.7	21.3	.188	.22
September	13,388.9	1,520	6.3	446	3.95	4.41
Water year 1937-38	35,190.0	1,520	2	96.4	.853	11.60

St. Joseph River at Mottville, Mich.

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

Records available.- December 1923 to September 1938.

Average discharge.- 14 years, 1,367 second-feet.

Extremes.- Maximum discharge during year, 5,180 second-feet May 31 (gage height, 2.94 feet); minimum, 22 second-feet Oct. 10; minimum gage height, -1.90 feet Oct. 10, 17; minimum daily discharge, 44 second-feet Oct. 17.

1924-38: Maximum discharge, 8,250 second-feet April 20, 1926 (gage height, 4.4 feet); minimum, 20 second-feet Sept. 7, 1930; minimum gage height, -1.90 feet July 26, 27, 1931, Oct. 10, 17, 1937; minimum daily discharge that of Oct. 17, 1937.

Remarks.- Records good except those for period of ice effect, Jan. 10, 11, 17, 18, 28, which were computed on basis of records for station at Niles, and are fair. Flow regulated by power plant. Gage read hourly.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	885	835	1,100	835	1,740	2,380	2,640	1,990	4,940	2,250	1,260	835
2	835	1,150	1,040	988	2,250	2,250	2,770	1,740	4,820	2,770	1,260	788
3	99	935	988	1,200	1,740	2,510	2,770	1,740	4,460	2,640	1,100	740
4	696	935	1,260	1,040	1,740	2,510	2,770	1,500	3,940	2,250	988	318
5	1,100	885	885	1,150	1,740	2,510	2,770	1,440	3,550	2,510	935	610
6	935	885	1,260	1,040	1,620	2,640	2,770	1,440	3,160	2,250	988	696
7	885	492	1,150	1,040	2,510	2,640	2,900	1,500	3,290	1,990	610	835
8	885	885	1,200	988	2,900	2,510	2,900	935	3,420	2,250	1,260	788
9	988	835	1,150	450	2,900	2,640	2,900	1,500	3,810	2,250	1,380	788
10	218	988	885	950	3,030	2,510	3,030	1,440	4,070	1,990	1,150	696
11	935	1,040	1,100	1,000	3,160	2,510	2,900	1,200	3,940	1,990	1,150	450
12	988	1,100	652	988	3,030	2,380	3,160	1,320	3,810	1,860	935	835
13	885	1,100	788	835	2,900	2,250	3,420	1,320	3,810	1,990	935	569
14	835	569	935	835	2,770	2,380	3,420	1,260	3,420	1,620	652	885
15	935	1,260	935	835	2,900	2,380	3,290	935	3,030	1,380	1,260	740
16	788	1,200	835	409	2,770	2,380	3,160	1,620	3,030	1,380	1,260	935
17	44	1,150	1,150	1,050	2,640	2,510	2,900	1,740	2,770	1,200	1,150	696
18	935	1,100	988	1,000	2,770	2,510	2,770	1,620	2,510	1,500	1,150	788
19	1,320	1,040	610	988	3,030	2,510	2,770	1,620	2,250	1,500	1,200	1,040
20	1,260	885	788	835	2,900	2,900	2,770	2,120	2,380	1,260	1,100	1,380
21	1,200	610	1,200	885	3,030	2,900	2,510	2,510	2,250	1,380	935	885
22	1,100	1,100	988	788	3,160	2,640	2,380	2,510	1,990	1,200	1,150	835
23	1,040	1,040	835	341	3,160	2,770	2,380	2,640	2,250	1,440	1,200	1,150
24	422	1,040	885	1,100	3,030	2,640	2,250	2,900	1,990	740	1,100	788
25	1,440	610	740	1,320	3,030	2,640	2,380	3,030	1,500	1,440	988	569
26	1,380	935	696	1,040	2,900	2,770	2,250	3,290	2,250	1,260	988	988
27	1,200	885	1,200	835	2,770	2,510	2,120	3,550	2,250	1,260	652	885
28	1,150	696	1,200	750	2,640	2,640	1,740	3,550	2,250	1,150	270	988
29	1,040	1,150	1,260	788	-	2,510	1,860	3,810	2,120	1,040	885	885
30	1,040	1,320	935	1,100	-	2,510	1,990	4,700	2,120	1,260	988	835
31	422	-	988	1,620	-	2,640	-	5,060	-	1,150	935	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	27,885	1,440	44	900	
November	28,655	1,320	492	955	
December	30,626	1,260	610	988	
Calendar year 1937	638,713	7,300	44	1,750	
January	29,023	1,620	341	936	
February	74,760	3,160	1,620	2,670	
March	78,980	2,900	2,250	2,548	
April	80,640	3,420	1,740	2,688	
May	67,530	5,060	935	2,178	
June	91,380	4,940	1,500	3,046	
July	52,150	2,770	740	1,682	
August	31,814	1,380	270	1,026	
September	24,220	1,380	318	807	
Water year 1937-38	617,663	5,060	44	1,692	

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, one 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 1938.

Extremes.- Maximum discharge during year, 9,440 second-feet May 31 (gage height, 7.34 feet); minimum, 655 second-feet Oct. 1 (gage height, 1.69 feet).
1930-38: Maximum discharge, 11,500 second-feet June 29, 1937 (gage height, 8.46 feet); minimum, 244 second-feet Aug. 30, 1931.

Remarks.- Records good except those for periods of ice effect, Dec. 10-15, Jan. 9-11, 28, which were computed on basis of one discharge measurement and records for station at Mottville and are poor. No record Feb. 8 to Mar. 13, Apr. 10-26, June 1-3, July 2-27. Flow regulated by operation of power plants upstream. Gage-height record furnished by City of Niles.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,880	2,100	2,070	2,000	4,110	-	6,090	3,690		5,770	2,660	1,770
2	1,810	2,260	1,810	2,180	3,970	-	6,090	3,340	-	-	2,660	1,810
3	1,630	2,070	2,140	2,400	4,850	-	5,300	2,860	-	-	2,780	1,650
4	1,810	1,940	2,200	2,120	4,110	-	5,610	3,130	6,910	-	2,520	1,600
5	2,070	2,000	1,930	1,940	3,840	-	5,300	3,100	6,250	-	2,240	1,650
6	2,260	1,810	2,460	2,070	5,300	-	5,770	1,810	5,930	-	2,200	1,930
7	2,140	1,810	2,070	1,680	6,250	-	5,450	2,590	5,770	-	2,210	1,810
8	2,140	2,200	2,140	1,740	-	-	6,250	2,200	5,930	-	2,260	2,070
9	1,810	2,140	2,200	1,800	-	-	6,740	2,500	5,930	-	2,590	2,200
10	1,810	2,140	2,000	1,900	-	-	-	3,900	6,410	-	2,990	2,420
11	1,850	2,140	1,900	2,000	-	-	-	2,590	6,410	-	2,140	1,590
12	2,200	2,000	2,000	2,220	-	-	-	2,070	6,090	-	2,330	1,740
13	2,000	1,680	2,100	1,880	-	-	-	2,520	6,250	-	2,140	2,070
14	2,000	1,700	2,150	1,740	-	4,550	-	2,260	5,770	-	2,200	2,420
15	2,070	2,330	2,250	1,940	-	4,400	-	2,330	4,850	-	2,260	2,590
16	1,580	2,200	1,770	1,650	-	4,550	-	2,660	4,550	-	2,400	2,330
17	2,000	2,070	1,940	1,810	-	5,000	-	2,850	4,400	-	2,400	2,070
18	1,940	2,070	1,810	2,070	-	5,150	-	3,200	3,830	-	2,140	2,000
19	2,320	1,940	1,810	1,880	-	4,850	-	3,830	3,830	-	2,460	2,400
20	2,270	1,940	2,140	1,880	-	5,150	-	4,400	3,060	-	2,000	2,200
21	2,260	1,650	1,780	1,640	-	5,610	-	5,000	3,250	-	2,590	2,330
22	2,290	2,000	2,200	1,680	-	5,150	-	5,150	3,410	-	2,520	1,740
23	2,070	1,900	2,070	1,450	-	5,150	-	5,300	3,200	-	2,260	2,000
24	1,740	2,000	1,880	2,630	-	5,450	-	6,090	3,260	-	2,390	1,880
25	1,630	1,740	1,860	4,850	-	5,610	-	6,570	2,950	-	2,140	1,580
26	2,520	1,810	2,030	3,420	-	5,300	-	6,090	3,300	-	2,140	1,940
27	2,250	1,820	2,100	2,260	-	5,150	3,830	5,930	4,550	-	1,880	1,810
28	2,520	1,810	2,200	1,900	-	5,150	3,690	6,570	4,250	2,660	1,650	1,880
29	2,070	2,460	2,140	2,070	-	4,850	3,270	7,250	3,970	2,530	1,810	1,940
30	2,070	2,460	2,140	3,200	-	4,850	3,270	8,310	3,830	2,210	2,000	1,880
31	1,750	-	2,000	3,970	-	5,150	-	9,060	-	2,750	2,140	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	62,760	2,520	1,580	2,025	0.559	0.64
November	60,390	2,460	1,650	2,013	.556	.62
December	63,290	2,460	1,770	2,042	.564	.65
Calendar year 1937	1,260,070	10,900	1,530	3,452	.954	12.93
January	67,970	4,850	1,450	2,193	.606	.70
February 1-7	32,430	6,250	3,840	4,633	1.28	.33
March 14-31	91,070	5,610	4,400	5,059	1.40	.94
April	-	-	-	-	-	-
May	129,150	9,060	1,810	4,166	1.15	1.33
June 4-30	128,140	6,910	2,950	4,746	1.31	1.32
July	-	-	-	-	-	-
August	71,100	2,990	1,650	2,294	.634	.73
September	59,300	2,590	1,580	1,977	.546	.61
Water year						

Peak discharge.- Feb. 7 (9:30 a.m.) 6,910 sec.-ft.; May 31 (9:30 a.m.) 9,440 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 1938.

Extremes.- Maximum discharge observed during period, 206 second-feet May 20 (gage height, 2.20 feet); minimum observed, 11 second-feet Sept. 30; minimum gage height, 0.55 foot Jan. 18.

Remarks.- Records good except those for periods of ice effect and missing gage heights, Jan. 7-21, Jan. 28 to Feb. 4, Mar. 27-30, July 3, 4, which were computed on basis of weather records and records for stations on Raisin River and are poor. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	21	30	119	174	*72	103	85	33	20
2			-	19	30	128	154	64	96	72	33	18
3			-	19	34	119	*145	62	84	68	32	17
4			-	18	38	84	136	60	79	62	31	*16
5			-	21	43	145	136	58	*75	57	29	15
6			-	16	111	*136	136	54	71	53	*34	14
7			-	16	103	128	136	49	164	51	35	23
8			-	16	89	96	145	*46	164	50	36	17
9			-	16	103	119	206	44	128	47	35	15
10			-	15	103	119	195	43	119	*45	36	15
11			-	15	103	119	174	39	111	43	50	*16
12			-	15	96	111	174	35	*98	42	44	16
13			-	15	103	*111	164	34	84	40	43	17
14			-	15	89	111	154	34	79	40	*43	21
15			-	14	69	103	154	*36	76	39	43	20
16			-	14	69	136	145	39	84	38	43	19
17			-	14	103	128	*145	35	79	*38	42	19
18			-	13	119	128	145	57	74	38	37	*18
19			15	13	145	119	136	96	*69	36	34	18
20			14	13	*136	*119	154	206	64	96	33	18
21			16	14	128	119	128	136	56	47	*33	17
22			16	16	128	119	119	*120	50	37	33	16
23			16	*28	128	128	111	103	49	31	30	15
24			16	40	128	136	*107	119	47	*32	29	14
25			15	37	128	119	103	111	49	26	28	*14
26			15	34	119	128	96	96	*56	28	25	14
27			14	30	119	120	96	89	64	36	24	14
28			16	28	119	120	89	84	62	32	*23	13
29			16	26	-	130	89	145	58	30	22	12
30			17	27	-	140	80	136	54	31	21	11
31			22	30	-	154	-	119	-	*32	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	208	22	14	16.0	0.271	0.13
Calendar year						
January	628	40	13	20.3	.344	.40
February	2,713	145	30	96.9	1.64	1.71
March	3,791	154	84	122	2.07	2.39
April	4,126	206	80	138	2.34	2.61
May	2,421	206	34	78.1	1.32	1.52
June	2,446	164	47	81.5	1.38	1.54
July	1,402	96	26	45.2	.766	.88
August	1,035	50	21	33.4	.566	.65
September	492	23	11	16.4	.278	.31
Water year						

*Interpolated.

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 and half a mile upstream from Rock Run.

Drainage area.- 573 square miles.

Records available.- April 1931 to September 1938 in reports of Geological Survey. September 1924 to September 1927 in reports of Indiana Department of Conservation.

Average discharge.- 10 years (1924-27, 1931-38), 430 second-feet.

Extremes.- Maximum discharge during year, 2,380 second-feet Apr. 10 (gage height, 6.16 feet); minimum, 41 second-feet Oct. 12 (gage height, 1.42 feet).

1931-38: Maximum discharge, 3,060 second-feet Apr. 18, 1933 (gage height, 7.05 feet), from rating curve extended above 1,000 second-feet; minimum, that of Oct. 12, 1937; minimum gage height, 1.27 feet May 25, 30, 1932; minimum daily discharge, 71 second-feet Sept. 20, 1936.

Remarks.- Records good. Regulation by operation of three power plants above gage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	162	171	302	759	692	1,420	546	692	488	288	178
2	134	156	183	294	606	1,050	1,080	507	828	670	300	183
3	129	156	222	217	606	1,260	1,020	473	900	627	283	159
4	117	156	290	237	648	1,020	1,000	488	714	546	269	164
5	130	169	236	256	627	900	975	469	627	526	286	158
6	128	179	200	250	1,120	900	1,000	433	606	492	276	155
7	130	159	192	255	1,100	876	1,000	437	627	480	278	169
8	116	148	182	204	852	828	1,200	426	606	477	300	164
9	119	156	180	207	782	782	1,930	416	586	451	275	181
10	115	129	180	198	759	759	2,240	393	546	426	272	187
11	126	154	185	230	714	714	1,780	397	526	412	301	174
12	104	154	191	216	692	782	1,420	391	462	395	295	153
13	116	142	183	158	714	782	1,310	338	437	375	339	197
14	108	129	181	181	714	759	1,260	410	408	368	272	272
15	120	157	177	214	670	714	1,200	469	378	375	263	327
16	128	132	211	194	606	852	1,180	438	368	355	255	260
17	120	157	187	213	606	1,080	1,120	392	365	349	282	219
18	172	149	192	284	852	1,000	1,080	447	293	330	242	180
19	195	174	210	212	1,180	876	1,000	548	318	318	251	188
20	199	136	177	217	1,120	852	975	433	287	309	242	174
21	239	161	191	223	900	828	925	422	297	351	235	170
22	194	149	223	227	852	805	852	469	282	433	240	168
23	161	160	191	293	828	828	805	582	286	412	230	142
24	198	158	188	724	782	975	736	759	274	365	228	175
25	212	147	233	1,050	782	925	670	670	276	327	207	192
26	166	149	156	450	782	876	627	477	310	305	212	190
27	163	172	233	398	759	852	627	499	479	315	213	175
28	194	176	219	325	736	805	670	606	385	303	195	163
29	176	260	309	450	-	782	586	852	343	283	178	174
30	192	180	242	618	-	782	586	1,000	346	279	188	167
31	168	-	229	876	-	1,140	-	852	-	284	181	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,735	239	104	153	0.267	0.31
November	4,766	260	129	159	.277	.31
December	6,344	309	156	205	.358	.41
Calendar year 1937	170,161	1,580	104	466	.813	11.03
January	10,173	1,050	158	328	.572	.66
February	22,148	1,180	606	791	1.38	1.44
March	27,076	1,260	692	873	1.52	1.75
April	32,274	2,240	586	1,076	1.88	2.10
May	16,039	1,000	338	517	.902	1.04
June	13,852	900	274	462	.806	.90
July	12,426	670	279	401	.700	.81
August	7,876	339	178	254	.443	.51
September	5,558	327	142	185	.323	.36
Water year 1937-38	163,267	2,240	104	447	.780	10.60

Peak discharge.- Feb. 6 (8 p.m.) 1,280 sec.-ft.; Apr. 1 (5 a.m.) 1,540 sec.-ft.; Apr. 10 (2 a.m.) 2,380 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., three miles downstream from city of Battle Creek and half a mile upstream from Wabascon Creek. Zero of gage is 797.00 feet above mean sea level (general adjustment of 1929).

Drainage area.- 849 square miles.

Records available.- July 1937 to September 1938.

Extremes.- Maximum discharge during year, 2,200 second-feet May 31 (gage height, 6.49 feet); minimum, 113 second-feet Sept. 30 (gage height, 1.83 feet).
1937-38: Maximum discharge, that of May 31, 1938; minimum, that of Sept. 30, 1938.

Remarks.- Records good. None for Nov. 27 to Jan. 18. Discharge for periods of missing gage heights, July 9-13, Aug. 11-15, computed on basis of weather records and records for station at Comstock. Gage-height record furnished by city of Battle Creek.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	336	407		-	850	652	1,070	612	2,050	810	378	307
2	267	304		-	850	810	1,070	593	1,950	770	343	341
3	407	315		-	850	950	1,110	429	1,650	730	328	350
4	360	429		-	790	890	990	450	1,380	730	346	274
5	400	291		-	950	890	930	480	1,150	632	375	382
6	318	454		-	1,330	990	850	378	970	730	375	304
7	473	303		-	1,510	910	950	443	910	593	536	329
8	312	354		-	1,800	970	710	414	1,070	671	439	226
9	294	332		-	1,900	890	890	465	1,110	570	250	411
10	480	287		-	1,750	990	1,030	350	1,110	510	450	429
11	364	389		-	1,460	830	990	432	1,070	500	550	389
12	326	432		-	1,280	750	1,070	517	990	470	690	421
13	340	360		-	1,200	790	990	389	850	450	650	407
14	277	375		-	1,110	810	990	473	770	450	560	439
15	460	411		-	1,330	710	950	498	710	430	450	447
16	332	400		-	1,330	930	870	555	555	410	371	400
17	277	316		-	1,330	970	830	498	671	385	327	480
18	432	368		-	1,380	1,110	770	790	498	536	369	498
19	439	357		287	1,420	1,150	612	671	612	371	422	400
20	612	458		295	1,510	1,150	750	910	632	260	341	264
21	473	329		393	1,560	1,030	710	930	443	308	432	378
22	517	364		328	1,420	990	612	890	476	465	574	450
23	389	315		350	1,280	930	690	890	498	473	372	411
24	429	264		574	1,030	950	710	1,070	517	294	325	364
25	498	298		790	930	970	710	1,110	632	418	411	378
26	382	343		710	850	990	555	1,070	574	270	403	418
27	382	-		730	870	870	574	1,240	555	322	343	303
28	398	-		750	790	870	632	1,600	710	382	393	236
29	469	-		790	-	830	671	1,900	498	382	326	274
30	364	-		930	-	850	480	2,050	574	443	233	287
31	458	-		930	-	990	-	2,100	-	403	260	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	12,263	612	267	396	0.466	0.54
November 1-26	9,255	458	264	356	.419	.41
December	-	-	-	-	-	-
Calendar year						
January 19-31	7,857	930	287	604	.711	.34
February	34,660	1,900	790	1,238	1.46	1.52
March	28,412	1,150	652	917	1.08	1.25
April	24,766	1,110	480	826	.973	1.09
May	25,197	2,100	350	813	.958	1.10
June	26,185	2,050	443	873	1.03	1.15
July	15,168	810	260	489	.576	.66
August	12,622	690	233	407	.479	.55
September	10,997	498	226	367	.432	.48
Water year						

Peak discharge.- Feb. 9 (2 p.m.) 2,000 sec.-ft.; Feb. 21 (12:30 a.m.) 1,700 sec.-ft.; May 31 (1 p.m.) 2,200 sec.-ft.

Kalamazoo River at Comstock, Mich.

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

Drainage area.- 1,010 square miles.

Records available.- April to August 1931 and October 1932 to September 1938.

Extremes.- Maximum discharge observed during year, 2,430 second-feet June 2 (gage height, 4.14 feet); minimum observed, 415 second-feet Nov. 3 (gage height, 1.09 feet).
1931,1932-38: 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 except those for periods of ice effect, Dec. 8-18, Jan. 9-19, which were computed on basis of gage heights, weather records, and records for station at Battle Creek and are poor. Flow regulated by operation of power plants upstream. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	620	710	840	742	1,100	970	1,310	742	2,430	742	560	470
2	500	530	808	775	1,100	1,100	1,380	742	2,430	905	560	470
3	442	415	808	608	1,170	1,310	1,450	650	2,360	775	442	500
4	530	530	905	742	1,100	1,170	1,380	470	2,150	775	470	470
5	530	650	608	650	970	1,240	1,240	680	1,590	775	470	363
6	500	500	808	680	1,590	1,310	1,170	620	1,380	620	530	530
7	363	742	808	742	1,730	1,240	1,170	530	1,240	710	530	500
8	590	500	630	620	1,940	1,240	840	560	1,170	530	808	530
9	442	590	550	600	2,080	1,170	1,170	530	1,310	650	742	389
10	389	590	520	540	2,150	1,240	1,380	590	1,310	530	530	620
11	620	590	550	490	2,010	1,100	1,380	500	1,380	560	840	650
12	442	650	580	460	1,730	1,040	1,310	560	1,240	530	905	620
13	470	742	610	490	1,590	1,040	1,310	650	1,100	470	905	680
14	470	560	670	540	1,520	1,100	1,240	389	970	710	808	620
15	415	680	770	580	1,520	970	1,240	620	905	442	650	680
16	620	680	770	590	1,590	1,240	1,040	530	840	500	710	680
17	530	775	750	580	1,660	1,170	970	590	620	470	650	560
18	470	650	720	580	1,730	1,380	970	560	775	560	590	680
19	742	650	710	580	1,730	1,310	840	970	530	680	500	680
20	680	808	742	590	1,730	1,450	970	808	680	470	650	650
21	840	590	650	620	1,800	1,380	905	1,040	680	442	620	500
22	680	650	650	620	1,870	1,240	775	1,040	442	470	680	590
23	775	560	590	590	1,730	1,240	775	970	500	590	840	650
24	530	530	620	840	1,520	1,240	905	1,040	530	620	560	530
25	620	650	620	1,100	1,240	1,240	905	1,100	775	415	500	442
26	742	560	590	1,100	1,170	1,240	742	1,100	808	560	620	500
27	650	560	620	970	1,100	1,170	742	1,100	680	363	590	530
28	620	650	590	970	1,170	1,170	808	1,380	620	442	500	442
29	680	808	620	1,100	-	1,100	840	1,870	775	500	590	389
30	710	905	650	1,170	-	1,100	620	2,080	500	500	470	389
31	530	-	680	1,310	-	1,240	-	2,360	-	590	389	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	17,742	840	363	572	0.566	0.65
November	19,005	905	415	634	.628	.70
December	21,237	905	520	685	.678	.78
Calendar year 1937	317,488	3,720	292	870	.861	11.69
January	22,769	1,310	460	734	.727	.84
February	43,340	2,150	970	1,548	1.53	1.59
March	37,150	1,450	970	1,198	1.19	1.37
April	31,777	1,450	620	1,059	1.05	1.17
May	27,371	2,360	389	883	.874	1.01
June	32,720	2,430	442	1,091	1.08	1.20
July	17,896	905	363	577	.571	.66
August	19,209	905	389	620	.614	.71
September	16,304	680	363	543	.538	.60
Water year 1937-38	306,520	2,430	363	840	.832	11.28

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 one 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 1938.

Extremes.- Maximum discharge during year, 3,300 second-feet Feb. 6 (gage height, 603.97 feet); minimum, 314 second-feet Nov. 7 (gage height, 596.55 feet).
1929-36, 1937-38: 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.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	800	1,300	1,060	1,520	1,960	2,350	1,300	2,750	1,060	680	1,680
2	-	860	1,130	1,200	1,680	1,840	1,920	660	2,600	1,270	1,060	990
3	-	830	1,100	860	1,640	1,920	1,640	1,270	2,850	1,240	830	515
4	-	800	1,060	1,060	1,720	2,050	2,050	990	2,700	1,240	770	470
5	-	575	1,130	1,100	1,920	1,880	1,760	830	2,600	1,020	800	470
6	-	725	1,020	800	3,000	2,000	2,000	800	2,400	1,130	1,200	560
7	-	800	1,020	800	2,800	1,880	1,760	1,060	1,960	800	860	650
8	-	770	920	860	2,650	2,050	1,560	770	1,800	1,130	1,160	575
9	-	860	660	770	2,650	1,960	1,840	920	1,060	1,100	990	545
10	-	830	590	740	2,700	1,720	1,960	955	1,800	920	920	500
11	-	770	695	485	2,700	1,720	2,100	1,060	2,000	860	955	725
12	-	830	665	800	2,750	1,840	2,050	800	1,840	955	920	1,060
13	-	890	725	920	2,950	1,720	1,920	920	1,880	860	955	1,240
14	-	890	860	770	2,650	1,640	1,640	1,100	1,680	1,060	990	860
15	-	1,020	860	860	2,550	1,680	1,920	890	1,020	1,100	830	1,060
16	-	860	860	860	2,250	1,720	1,840	1,100	1,240	830	955	830
17	-	1,060	920	650	2,250	1,720	1,480	1,200	1,410	1,130	920	1,200
18	-	890	1,200	860	2,750	1,800	1,380	890	1,200	860	990	990
19	-	990	860	740	2,800	1,760	1,380	1,440	1,200	860	830	695
20	-	1,060	990	830	2,600	2,300	1,600	1,520	690	955	860	860
21	-	990	955	740	2,250	1,800	955	1,520	830	860	1,300	890
22	-	725	770	665	2,550	2,100	1,300	1,410	1,200	830	1,100	920
23	-	955	920	830	2,450	1,920	1,130	1,410	860	800	1,240	770
24	860	770	860	955	2,450	2,000	1,270	1,410	695	1,060	1,380	710
25	890	1,020	920	1,340	2,350	2,100	1,130	1,560	1,160	800	1,200	1,060
26	890	800	710	1,600	2,150	1,800	1,060	1,760	1,100	920	1,240	770
27	1,060	830	770	1,380	2,050	1,640	1,480	1,680	920	770	1,060	725
28	1,410	1,020	990	1,270	1,410	1,840	990	1,800	1,130	1,020	1,340	830
29	860	955	740	1,100	-	1,640	1,020	2,200	1,060	620	1,060	740
30	920	1,270	740	1,720	-	2,050	1,060	2,550	1,060	635	1,270	545
31	830	-	990	1,880	-	1,680	-	2,550	-	890	1,520	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 24-31	7,720	1,410	830	965	0.627	0.19
November	26,445	1,270	575	882	.573	.64
December	28,130	1,300	590	907	.589	.68
Calendar year 1937						
January	30,505	1,880	485	984	.639	.74
February	66,190	3,000	1,410	2,364	1.54	1.60
March	57,730	2,300	1,640	1,862	1.21	1.39
April	47,745	2,350	955	1,592	1.03	1.15
May	40,525	2,550	770	1,307	.849	.98
June	46,895	2,850	695	1,563	1.01	1.13
July	29,585	1,270	620	954	.619	.71
August	32,185	1,520	680	1,038	.674	.78
September	24,435	1,680	470	814	.529	.59
Water year						

Peak discharge.- Feb. 6 (7 p.m.) 3,300 sec.-ft.; June 3 (8 a.m.) 3,050 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 1938.

Extremes.- Maximum discharge observed during year, 1,030 second-feet Feb. 9 (gage height, 2.20 feet); minimum observed, 45 second-feet Sept. 6 (gage height, 0.57 foot).
1930-31, 1932-38: 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, due to opening of gates at dam forming control.

Remarks.- Records good. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	69	140	124	302	236	332	115	940	128	69	63
2	69	75	140	128	338	258	398	107	850	145	72	63
3	69	75	119	119	338	291	428	107	660	140	66	57
4	63	75	124	107	302	314	379	107	491	124	66	60
5	75	75	132	100	314	361	314	100	379	115	60	57
6	75	82	119	89	460	326	286	93	297	97	66	54
7	75	89	107	100	770	338	274	89	274	89	82	72
8	72	89	100	93	940	428	252	86	252	79	111	66
9	69	97	79	86	985	422	242	100	263	72	119	63
10	75	93	100	79	810	373	263	100	263	69	158	82
11	63	89	100	79	660	320	297	100	252	63	176	79
12	69	89	93	79	523	291	349	93	221	69	176	75
13	72	89	86	86	428	269	379	86	200	69	158	89
14	69	89	82	86	491	274	349	86	176	69	115	89
15	66	93	86	82	660	280	297	111	153	63	82	86
16	69	97	79	79	625	291	252	115	136	63	75	79
17	72	100	86	86	625	291	226	115	128	63	79	72
18	75	100	93	82	555	338	200	140	124	63	75	75
19	89	97	97	86	555	422	172	172	111	60	72	66
20	104	97	93	79	732	428	172	205	104	57	66	72
21	104	89	93	79	695	385	162	210	100	57	111	79
22	104	86	100	79	660	349	153	195	97	60	119	75
23	97	86	93	79	491	320	136	186	89	57	128	75
24	97	86	93	128	422	302	136	205	89	63	111	75
25	89	86	93	195	343	320	145	221	107	60	97	66
26	86	86	93	167	297	367	140	280	111	66	82	60
27	82	97	93	291	286	355	140	308	104	72	69	51
28	86	111	93	338	247	320	128	379	97	69	69	60
29	82	153	100	326	-	286	128	428	89	69	57	54
30	82	149	100	332	-	274	128	555	89	72	66	57
31	79	-	107	302	-	297	-	810	-	75	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,447	104	63	78.9	0.327	0.38
November	2,788	153	69	92.9	.385	.43
December	3,113	140	79	100	.415	.48
Calendar year 1937	81,276	1,800	57	223	.925	12.55
January	4,165	338	79	134	.556	.64
February	14,854	985	247	530	2.20	2.29
March	10,126	428	236	327	1.35	1.57
April	7,257	428	128	242	1.00	1.12
May	6,004	810	86	194	.805	.93
June	7,246	940	89	242	1.00	1.12
July	2,417	145	57	78.0	.324	.37
August	2,921	176	57	94.2	.391	.45
September	2,071	89	51	69.0	.286	.32
Water year 1937-38	65,409	985	51	179	.743	10.10

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 1938.

Extremes.- Maximum discharge during year, 513 second-feet June 7 (gage height, 11.11 feet); minimum, 10 second-feet June 18 (gage height, 8.07 feet).
1935-38: 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 discharge, 12 second-feet Aug. 23, 1936.

Remarks.- Records good. Flow regulated by operation of power plant upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	59	73	175	140	232	274	92	254	114	77	60
2	43	60	73	129	125	260	215	94	310	85	76	59
3	39	56	64	105	181	232	260	92	257	82	83	54
4	42	51	71	112	181	212	278	89	319	82	89	49
5	53	62	88	66	229	232	269	86	294	88	101	48
6	44	57	82	68	310	216	183	78	136	86	121	56
7	43	54	101	115	319	208	220	72	203	85	89	62
8	43	65	112	60	310	214	218	80	332	87	89	49
9	46	55	123	59	269	202	242	76	187	85	88	47
10	43	39	165	62	294	199	242	61	187	80	151	50
11	47	60	177	60	286	191	232	127	218	85	107	45
12	48	59	158	61	294	131	232	112	230	78	95	51
13	48	57	156	60	328	124	260	107	224	77	90	50
14	46	53	65	60	366	126	278	122	269	73	88	74
15	45	65	58	56	366	129	251	129	260	70	94	56
16	43	73	61	59	337	178	189	126	222	66	100	54
17	41	79	61	60	328	169	163	134	51	67	94	50
18	65	62	67	53	337	165	162	181	62	70	85	51
19	61	58	64	57	337	173	158	186	209	67	88	56
20	61	56	49	59	294	214	173	191	93	66	80	54
21	57	54	43	59	278	226	145	181	83	67	88	54
22	56	57	44	61	286	226	127	179	76	67	82	52
23	54	54	70	65	269	251	119	218	68	64	79	50
24	52	65	73	205	269	286	114	228	69	62	75	47
25	51	71	75	269	251	294	114	226	74	65	72	43
26	60	70	73	107	251	286	115	232	75	74	72	46
27	61	70	73	101	242	278	106	200	69	122	67	45
28	62	97	55	202	202	278	100	261	65	70	62	44
29	61	71	48	212	-	278	98	310	61	66	65	43
30	60	62	47	269	-	278	92	278	64	65	62	42
31	58	-	116	242	-	302	-	251	-	69	60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,578	65	39	50.9	0.293	0.34
November	1,851	97	39	61.7	.355	.40
December	2,585	177	43	83.4	.479	.55
Calendar year 1937	45,294	926	36	124	.713	9.69
January	3,328	269	53	107	.615	.71
February	7,679	366	125	274	1.57	1.64
March	6,790	302	124	219	1.26	1.45
April	5,629	278	92	188	1.08	1.20
May	4,799	310	61	155	.891	1.03
June	5,021	332	51	167	.960	1.07
July	2,384	122	62	76.9	.442	.51
August	2,669	151	60	86.1	.495	.57
September	1,541	74	42	51.4	.295	.33
Water year 1937-38	45,854	366	39	126	.724	9.80

Peak discharge.- May 28 (8:30 p.m.) 513 sec.-ft.; June 7 (12:30 a.m.) 513 sec.-ft.; June 8 (9:30 a.m.) 419 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 1938. March 1901 to August 1906 at Seymour Street Bridge, 1¾ miles upstream.

Extremes.- Maximum discharge during year, 7,050 second-feet Feb. 14 (gage height, 10.42 feet); minimum, 29 second-feet May 8 (gage height, 0.49 foot).
1934-38: Maximum discharge, 7,170 second-feet June 27, 1937 (gage height, 10.47 feet); minimum, 22 second-feet July 19, 1936; minimum daily discharge, 25 second-feet Aug. 16, 1936.

Remarks.- Records good except those for periods of missing gage heights, Feb. 22 to Mar. 11, Apr. 17-18, June 13, July 22-26, which were computed on basis of weather records and records for stations at Jackson and Grand Rapids and are poor. No records Aug. 6 to 22, Aug. 25 to Sept. 19. Flow regulated by operation of power plant upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	231	281	508	355	900	1,000	2,490	420	1,960	528	330	-
2	185	325	414	384	770	1,000	2,330	402	1,540	450	315	-
3	218	247	413	458	720	1,400	1,960	386	1,230	475	279	-
4	255	283	579	453	700	1,100	1,610	520	1,110	377	230	-
5	240	275	461	383	1,500	1,000	1,470	290	846	508	223	-
6	259	265	431	363	2,700	1,050	1,340	421	787	437	-	-
7	232	289	404	309	3,000	1,200	1,200	337	996	386	-	-
8	242	286	329	259	2,600	1,700	1,230	194	1,110	361	-	-
9	223	314	264	279	2,100	1,400	1,200	398	1,020	355	-	-
10	201	313	293	241	1,900	1,300	2,230	339	1,270	317	-	-
11	204	330	280	219	1,900	1,250	1,890	343	1,280	234	-	-
12	198	287	404	209	2,300	1,200	1,500	272	992	265	-	-
13	310	276	415	196	4,410	1,180	1,320	334	900	396	-	-
14	353	321	382	228	6,810	1,210	1,170	415	823	399	-	-
15	246	324	390	267	5,720	1,400	1,050	368	928	311	-	-
16	217	343	331	222	4,180	1,530	912	476	624	340	-	-
17	215	346	254	206	3,300	2,240	920	546	860	391	-	-
18	273	331	272	192	3,660	3,080	938	621	500	303	-	-
19	253	342	260	167	4,210	2,720	950	963	463	230	-	-
20	383	338	266	160	3,660	2,280	684	1,000	548	228	-	256
21	320	327	281	143	2,970	2,030	669	757	419	269	-	231
22	365	300	290	127	2,300	1,820	678	648	412	267	-	175
23	329	287	264	137	1,800	1,640	616	698	575	262	354	176
24	313	284	280	250	1,450	1,960	501	939	368	255	328	194
25	289	279	293	800	1,250	2,030	681	1,050	400	252	-	273
26	287	282	243	650	1,150	1,960	563	1,040	282	250	-	302
27	317	278	270	550	1,100	1,610	487	1,350	326	250	-	315
28	282	523	282	500	1,050	1,410	518	1,620	235	278	-	264
29	282	407	319	520	-	1,410	475	2,810	304	304	-	201
30	257	532	295	800	-	1,540	495	2,380	352	333	-	171
31	260	-	349	1,250	-	2,030	-	2,170	-	302	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,239	383	185	266	0.216	0.25
November	9,615	532	247	320	.260	.29
December	10,516	579	243	339	.276	.32
Calendar year 1937	303,879	6,930	144	833	.677	9.19
January	11,277	1,250	127	364	.296	.34
February	70,110	6,810	700	2,504	2.04	2.12
March	49,680	3,080	1,000	1,603	1.30	1.50
April	34,097	2,490	475	1,137	.924	1.03
May	24,507	2,810	194	791	.643	.74
June	23,462	1,960	235	782	.636	.71
July	10,333	528	228	333	.271	.31
August	-	-	-	-	-	-
September 20-30	2,558	315	171	233	.189	.08
Water year						

Peak discharge.- Feb. 14 (10 a.m.) 7,050 sec.-ft.; Feb. 19 (9 a.m.) 4,310 sec.-ft.; Mar. 18 (6 a.m.) 3,210 sec.-ft.

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 city 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 1938. March 1901 to September 1918 at Fulton Street Bridge in Grand Rapids.

Extremes.- Maximum discharge during year, 36,300 second-feet Feb. 16 (gage height, 13.27 feet); minimum, 810 second-feet Oct. 16 (gage height, -3.94 feet), from gage reading made because stage was below intake.

1930-38: Maximum discharge, that of Feb. 16, 1938; minimum, 341 second-feet Aug. 17, 1936 from gage reading, stage below intake; minimum daily, 381 second-feet Aug. 17, 1936.

A stage of 19.3 feet occurred at Fulton Street gage on March 27, 1904 (discharge, 53,000 second-feet).

Remarks.- Records good. 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.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	1,370	1,560	1,720	6,030	6,140	7,870	2,640	6,380	1,960	1,430	1,620
2	1,310	1,430	1,720	1,690	5,700	6,260	8,260	2,570	6,260	2,240	1,560	1,560
3	1,130	1,490	1,780	1,780	5,300	7,220	8,520	2,440	5,920	2,240	1,560	1,400
4	1,310	1,430	1,920	1,690	5,030	6,740	8,130	2,500	5,120	2,110	1,520	1,280
5	1,250	1,310	1,850	1,620	5,400	6,380	7,480	2,500	4,400	2,040	1,400	1,280
6	1,250	1,370	1,690	1,690	10,100	5,700	6,860	2,640	4,080	1,980	1,310	1,310
7	1,190	1,280	1,620	1,620	12,300	5,810	5,810	2,440	3,690	1,920	1,250	1,520
8	1,190	1,370	1,220	1,620	14,000	6,740	5,500	2,300	3,480	1,720	1,520	1,780
9	1,190	1,430	1,100	1,780	17,400	7,480	5,300	2,180	3,410	1,780	1,490	1,620
10	1,130	1,310	1,560	1,620	17,200	7,480	5,300	2,240	3,270	1,520	2,180	1,400
11	1,130	1,430	1,720	1,520	15,500	6,860	5,500	2,040	3,410	1,370	3,060	1,560
12	1,190	1,190	1,850	1,460	13,400	6,380	6,030	2,100	3,410	1,310	3,410	1,850
13	1,720	1,370	1,720	1,620	16,600	6,030	6,500	1,980	3,550	1,370	2,920	1,920
14	1,280	1,620	1,920	1,400	20,300	5,920	6,380	1,980	3,200	1,310	2,570	1,780
15	965	1,520	1,780	1,340	24,700	5,700	5,810	2,040	2,780	1,400	2,500	1,780
16	835	1,560	1,780	1,370	27,900	5,920	5,500	2,180	2,710	1,190	2,300	1,980
17	886	1,780	1,780	1,250	27,500	6,140	5,030	2,110	2,570	1,400	2,710	1,590
18	1,490	1,520	1,690	1,370	24,700	6,620	4,670	2,240	2,440	1,400	2,500	1,490
19	1,560	1,590	1,590	1,430	22,000	7,350	4,490	3,090	2,240	1,460	2,300	1,780
20	1,980	1,460	1,590	1,280	19,700	8,000	4,080	4,760	2,110	1,460	2,370	1,850
21	2,180	1,520	1,520	1,190	18,400	7,870	4,000	5,120	1,980	1,490	3,270	1,690
22	1,780	1,310	1,520	1,280	16,900	7,480	3,760	4,670	1,850	1,370	4,320	1,660
23	1,720	1,520	1,560	1,220	15,500	7,350	3,620	4,320	1,780	1,340	4,240	1,520
24	1,720	1,400	1,490	1,740	13,600	7,610	3,480	4,000	1,620	1,370	3,840	1,400
25	1,720	1,310	1,370	2,850	11,700	7,480	3,340	3,690	1,720	1,220	3,410	1,460
26	1,720	1,400	1,430	3,690	9,930	7,350	3,270	4,080	1,850	1,400	3,060	1,340
27	1,590	1,310	1,400	4,320	8,260	7,220	3,130	4,160	1,850	1,340	2,780	1,340
28	1,400	1,520	1,430	4,240	6,980	6,860	3,200	4,400	1,780	1,850	2,640	1,220
29	1,370	1,620	1,430	4,000	-	6,620	2,850	5,210	1,560	1,980	2,440	1,280
30	1,490	1,590	1,430	4,400	-	6,620	2,850	6,140	1,620	1,850	2,040	1,400
31	1,340	-	1,520	5,500	-	7,100	-	6,380	-	1,520	1,850	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	43,236	2,180	835	1,395	0.285	0.33
November	43,330	1,780	1,190	1,444	.295	.33
December	49,540	1,920	1,100	1,598	.326	.36
Calendar year 1937	1,193,538	16,400	860	3,270	.667	9.05
January	65,300	5,500	1,190	2,106	.430	.50
February	412,030	27,900	5,030	14,720	3.00	3.12
March	210,430	8,000	5,700	6,788	1.39	1.60
April	156,520	8,520	2,850	5,217	1.06	1.18
May	101,140	6,380	1,980	3,263	.666	.77
June	92,040	6,380	1,560	3,068	.626	.70
July	49,930	2,240	1,190	1,611	.329	.38
August	75,750	4,320	1,250	2,444	.499	.58
September	46,660	1,980	1,220	1,555	.317	.35
Water year 1937-38	1,345,906	27,900	1,100	3,687	.752	10.22

Peak discharge.- Feb. 9 (6 p.m.) 17,600 sec.-ft.; Feb. 16 (12:10 p.m.) 36,300 sec.-ft.; Apr. 3 (7 p.m.) 8,520 sec.-ft.

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 1938. August 1902 to December 1903 at site three-quarters of a mile downstream.

Extremes.- Maximum discharge during year, 4,020 second-feet Feb. 14 (gage height, 9.20 feet); minimum discharge recorded, 6.2 second-feet July 26, 27 (gage height, 3.00 feet), but may have been less during period of missing gage heights, July 15-25.
1902-03, 1931-38: Maximum discharge, that of Feb. 14, 1938; minimum, 3 second-feet July 31, 1931.
Maximum stage known, about 14.5 feet during flood of 1921 (discharge not determined).

Remarks.- Records excellent. Gage-height record furnished by Michigan State College.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.0	6.2	4.0	272	7.0	2,240
3.2	41	4.2	350	8.0	3,040
3.4	86	4.5	482	9.0	3,840
3.6	140	5.0	740		
3.8	202	6.0	1,440		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	39	75	54	-	245	-	112	310	52	20	-
2	-	49	91	56	-	450	-	129	222	52	-	-
3	-	58	74	41	-	473	-	123	173	62	-	-
4	-	32	76	58	189	337	-	115	149	52	16	-
5	-	45	55	54	221	276	-	96	132	56	38	-
6	-	52	33	32	819	368	302	84	120	32	28	-
7	-	41	62	41	1,240	530	265	67	155	32	17	-
8	-	28	62	-	1,180	565	243	47	161	32	16	-
9	-	58	52	-	865	441	287	76	140	33	19	-
10	-	73	45	-	641	354	392	74	118	35	33	-
11	-	37	30	-	482	322	423	58	126	35	96	-
12	-	19	-	-	421	310	346	58	176	33	89	-
13	-	22	-	-	2,620	342	276	45	146	32	53	-
14	-	45	-	-	3,840	354	243	72	126	30	33	-
15	-	32	-	47	2,960	330	212	72	79	-	43	-
16	-	67	36	39	1,920	498	183	109	91	-	32	-
17	-	50	26	17	1,480	965	170	104	72	-	26	-
18	-	24	26	38	1,600	1,100	176	180	72	-	33	-
19	-	41	28	26	1,840	898	146	265	49	-	32	-
20	-	44	20	35	1,280	685	146	276	62	-	33	-
21	-	44	33	17	1,140	580	143	258	41	-	43	22
22	-	20	20	28	865	464	149	209	52	-	-	22
23	-	58	52	52	630	414	140	242	47	-	-	28
24	-	30	60	119	482	525	115	418	33	-	-	35
25	-	-	39	432	363	550	143	477	33	-	-	-
26	-	-	19	342	310	464	134	418	35	7.8	-	-
27	-	-	17	222	291	379	123	454	54	7.8	-	-
28	-	-	42	209	243	-	129	388	37	13	-	-
29	-	-	33	192	-	-	126	605	32	30	-	-
30	17	62	42	246	-	-	137	580	36	28	-	-
31	30	-	62	367	-	-	-	441	-	28	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Calendar year 1937						
January	-	-	-	-	-	-
February 4-28	27,922	3,840	189	1,117	3.15	2.93
March 1-27	13,219	1,100	245	490	1.38	1.39
April 6-30	5,149	423	115	206	.580	.54
May	6,652	605	45	215	.606	.70
June	3,079	310	32	103	.290	.32
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-

Peak discharge.- Feb. 7 (6 p.m.) 1,320 sec.-ft.; Feb. 14 (6 a.m.) 4,020 sec.-ft.; Feb. 19 (8 a.m.) 1,880 sec.-ft.

13[illegible]—39——5

Fish Creek near Carson City, Mich.

Location.- Chain gage, lat. 43°10', long. 84°51', on line between secs. 14 and 23, T. 9 N., R. 5 W., at highway bridge, 2 miles south of Carson City.

Drainage area.- 145 square miles.

Records available.- February 1936 to September 1938 (discontinued).

Extremes.- Maximum discharge observed during year, 1,670 second-feet Feb. 6 (gage height, 8.61 feet), from rating curve extended above 470 second-feet; minimum observed, 30 second-feet Oct. 10.

1936-38: Maximum discharge observed, that of Feb. 6, 1938; minimum discharge, 8.4 second-feet Aug. 7, 8, 1937; minimum daily discharge, 9.6 second-feet Aug. 9, 1936.

Remarks.- Records fair except those for periods of ice effect, Dec. 9-27, Jan. 6 to Feb. 4, which were computed from one discharge measurement, weather records, and records for Grand River at Lansing and at Grand Rapids and are poor. Flow slightly regulated by operation of power plants upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	43	66	62	95	207	333	81	137	91	46	28
2	38	42	79	76	100	244	256	84	160	101	39	34
3	32	43	136	82	120	244	207	88	148	81	36	33
4	42	42	54	102	200	207	183	84	148	58	30	21
5	38	42	56	72	485	126	172	77	115	53	32	30
6	39	41	48	80	1,560	207	148	75	109	46	31	36
7	38	41	109	70	1,070	195	137	74	101	48	26	43
8	39	42	60	60	756	183	137	64	86	47	86	43
9	39	43	60	55	624	195	148	77	81	47	63	40
10	32	46	65	55	472	195	172	71	82	27	79	51
11	42	46	65	55	360	195	195	79	95	51	113	58
12	41	42	55	55	307	183	207	58	90	37	91	54
13	37	48	50	55	1,000	207	183	61	81	34	71	51
14	38	62	50	55	895	183	160	69	77	29	51	47
15	38	76	55	55	561	172	137	61	69	36	58	51
16	35	66	55	50	415	172	137	77	61	28	54	51
17	32	60	55	50	387	195	126	67	61	28	77	46
18	42	58	55	50	472	183	115	74	60	46	84	48
19	74	56	50	50	360	183	115	77	55	42	66	50
20	66	54	40	50	207	219	111	137	54	35	82	48
21	64	46	35	50	219	207	99	160	61	41	172	48
22	54	48	35	50	195	195	99	126	42	33	148	46
23	46	44	50	70	172	219	91	115	48	42	101	42
24	42	43	60	90	172	281	95	103	64	24	74	39
25	40	44	65	120	148	268	107	93	84	57	72	39
26	43	46	65	130	160	219	101	88	67	42	57	39
27	42	44	65	110	148	195	99	86	58	31	58	37
28	43	60	46	110	113	160	88	97	50	50	39	36
29	41	50	79	110	-	195	91	137	45	51	57	35
30	41	66	46	120	-	244	81	172	47	39	48	36
31	38	-	58	110	-	387	-	160	-	18	43	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,314	74	32	42.4	0.292	0.34
November	1,484	76	41	49.5	.341	.38
December	1,867	136	35	60.2	.415	.48
Calendar year 1937	30,989	396	22	84.9	.586	7.95
January	2,309	130	50	74.5	.514	.59
February	11,773	1,560	95	420	2.90	3.02
March	6,465	387	126	209	1.44	1.66
April	4,330	333	81	144	.993	1.11
May	2,872	172	58	92.6	.639	.74
June	2,436	160	42	81.2	.560	.62
July	1,393	101	18	44.9	.310	.36
August	2,084	172	26	67.2	.463	.53
September	1,260	58	21	42.0	.290	.32
Water year 1937-38	39,587	1,560	21	108	.745	10.15

Thornapple River near Caledonia, Mich.

Location.- Staff gage, lat. 42°48'40", long. 85°29'00", in sec. 22, T. 5 N., R. 10 W., in tailrace of La Barge power plant, 2½ miles northeast of Caledonia. Zero of gage is at mean sea level.

Drainage area.- 773 square miles.

Records available.- October 1930 to September 1937, July to September 1938 (discontinued).

Extremes.- Maximum daily discharge during year not determined; minimum daily, 89 second-feet July 30 (gage height, 679.6 feet).
1930-38: Maximum daily discharge, 3,780 second-feet Apr. 22, 1937 (gage height, 684.7 feet), from rating curve extended above 2,600 second-feet; minimum daily, 5 second-feet (estimated) Oct. 27, 1934 (gage height, 678.5 feet).

Remarks.- Records fair. Flow regulated by operation of La Barge power plant. Gage-height record furnished by Consumers Power Co.

Rating table, water year 1937-38 (gage height, in feet, and discharge in second-feet)

679.6	89	0.4	283
9.8	123	.6	363
680.0	165	.7	408
.2	218		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	165	218
2										-	218	123
3										-	218	123
4										-	218	218
5										-	218	165
6										-	123	165
7										-	123	218
8										-	249	218
9										218	218	218
10										218	321	218
11										249	283	249
12										105	283	190
13										123	283	283
14										143	283	283
15										123	249	283
16										218	249	249
17										218	283	218
18										249	249	249
19										249	249	249
20										249	283	218
21										249	408	190
22										218	363	218
23										218	363	218
24										143	321	218
25										218	321	165
26										143	283	218
27										218	249	165
28										218	165	190
29										218	249	143
30										89	218	190
31										218	218	-

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 9-31	4,512	249	89	196	0.267	0.23
August	7,923	408	123	256	.349	.40
September	6,270	283	123	209	.285	.32
Water year						

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, 100 feet upstream from Pere Marquette Railroad bridge.

Drainage area.- 1,450 square miles.

Records available.- November 1930 to June 1931, January 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 5,110 second-feet Mar. 26 (gage height, 12.12 feet), from rating curve extended above 3,000 second-feet; minimum observed, 329 second-feet Aug. 9 (gage height, 6.82 feet).
1930-31, 1934-38: Maximum discharge observed, that of Mar. 26, 1938; minimum observed, 275 second-feet July 29, 1934 (gage height, 6.70 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 13 to Feb. 7, and those for periods of missing gage heights, Dec. 6, 8-10, 12, Feb. 14-27, which were computed on basis of weather records and records for Manistee River near Sherman and are poor. Discharge for Oct. 16, Nov. 24, Dec. 3, May 9, 16 interpolated. Gage read once daily.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

6.9	374	7.4	644	8.6	1,520	11.0	3,900
7.0	422	7.6	773	9.4	2,230	12.0	5,000
7.2	527	8.0	1,050	10.2	3,030	12.1	5,110

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	500	707	910	700	1,100	1,050	3,790	1,050	980	644	374	422
2	527	707	910	700	1,100	1,280	3,350	1,050	1,050	614	352	422
3	500	707	910	700	1,100	1,870	3,030	980	980	614	352	422
4	500	707	910	700	1,100	1,520	2,830	980	1,050	584	352	448
5	556	676	910	750	1,400	1,360	2,630	980	980	556	352	422
6	556	676	890	780	2,000	1,360	2,330	1,050	980	527	352	422
7	527	707	876	700	2,700	1,360	2,230	1,050	910	527	352	422
8	500	807	860	650	3,240	1,200	2,050	1,120	910	500	352	500
9	500	841	860	660	3,130	1,280	1,870	1,160	910	473	329	527
10	527	910	860	680	3,130	1,280	2,050	1,200	876	448	374	614
11	556	910	876	700	3,570	1,050	1,690	1,200	910	473	448	614
12	584	841	860	700	3,350	1,200	1,600	1,200	876	473	448	644
13	584	910	860	700	3,570	1,200	1,520	1,120	841	473	448	676
14	584	1,050	860	700	3,750	1,780	1,520	1,120	841	473	422	644
15	584	1,200	900	700	4,000	2,050	1,440	1,120	807	448	422	676
16	584	1,200	1,000	700	3,700	1,960	1,360	1,080	773	448	448	644
17	584	1,120	1,000	700	3,200	2,230	1,280	1,050	740	448	527	644
18	676	1,120	1,000	700	2,800	2,330	1,360	1,050	707	422	556	676
19	740	1,050	970	700	2,500	2,430	1,360	1,050	707	398	556	707
20	807	1,050	950	700	2,100	2,630	1,360	1,360	707	398	556	676
21	773	980	920	710	1,850	3,030	1,280	1,440	676	352	584	707
22	773	910	890	720	1,750	3,350	1,280	1,440	644	352	556	707
23	773	876	860	740	1,700	3,900	1,200	1,360	644	374	584	676
24	740	876	830	900	1,650	4,780	1,200	1,360	644	398	556	676
25	707	876	790	1,200	1,600	5,110	1,200	1,280	644	398	527	644
26	707	910	760	1,150	1,600	5,110	1,200	1,280	644	398	527	614
27	707	910	730	1,100	1,600	5,000	1,200	1,200	614	398	527	584
28	707	910	650	1,050	1,600	4,670	1,120	1,200	584	398	448	584
29	707	910	550	1,100	-	4,230	1,120	1,200	556	398	448	584
30	707	910	470	1,100	-	4,230	1,120	1,050	556	398	448	556
31	707	-	700	1,100	-	4,010	-	1,050	-	374	422	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	19,484	807	500	629	0.434	0.50
November	26,964	1,200	676	899	.620	.69
December	26,322	1,000	470	849	.586	.68
Calendar year 1937	329,743	3,030	374	903	.623	8.46
January	24,890	1,200	650	803	.554	.64
February	65,890	4,000	1,100	2,353	1.62	1.69
March	79,840	5,110	1,050	2,575	1.78	2.05
April	52,570	3,790	1,120	1,752	1.21	1.35
May	35,830	1,440	980	1,156	.797	.92
June	23,741	1,050	556	791	.546	.61
July	14,179	644	352	457	.315	.36
August	13,999	584	329	452	.312	.36
September	17,554	707	422	585	.403	.45
Water year 1937-38	401,263	5,110	329	1,099	.758	10.30

Muskegon River at Newaygo, Mich.

Location.- Staff gage, 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.

Drainage area.- 2,350 square miles.

Records available.- October 1930 to September 1938. June 1901 to December 1906 at site above Newaygo.

Extremes.- Maximum daily discharge during year, 11,600 second-feet Feb. 14 (gage height, 51.9 feet), from rating curve extended above 3,800 second-feet; minimum daily, 580 second-feet Aug. 10 (gage height, 46.5 feet).

1901-6, 1930-38: Maximum daily discharge, that of Feb. 14, 1938; minimum, 390 second-feet July 13, 1934 (gage height, 46.2 feet).

Remarks.- Records fair. Flow regulated at Croton Dam, 18 miles upstream, and by operation of power plant at Newaygo. Gage-height record furnished by Consumers Power Co.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

46.5	580	47.8	1,760	49.0	3,840	51.5	10,400
47.0	1,020	48.2	2,260	50.0	6,250	51.9	11,600
47.4	1,380	48.6	2,960	50.7	8,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	1,110	1,760	1,200	2,590	3,390	7,000	1,760	2,120	1,560	1,020	1,200
2	-	1,560	1,760	1,200	2,770	3,390	6,750	1,760	1,990	1,290	1,110	1,110
3	1,110	1,760	1,760	1,760	3,390	3,390	5,500	1,760	1,760	1,200	1,110	750
4	1,200	1,470	1,200	1,560	3,840	3,390	4,540	1,760	1,760	1,200	1,110	665
5	1,560	1,560	1,200	1,470	3,610	2,120	5,020	1,760	1,760	1,200	1,110	665
6	1,560	1,200	1,560	1,660	6,500	2,120	5,260	1,660	1,760	1,470	1,110	1,020
7	1,200	930	1,870	1,290	11,300	2,120	3,840	1,200	1,870	1,290	750	1,110
8	1,110	1,660	1,870	1,110	9,800	2,590	3,610	1,200	1,760	1,200	1,020	1,200
9	1,290	1,870	1,290	1,110	8,900	3,170	3,170	1,560	1,870	1,200	1,110	1,110
10	840	1,760	1,110	1,110	8,300	2,770	3,170	1,760	1,760	1,200	580	1,020
11	1,560	1,870	1,200	1,110	7,000	2,120	3,170	1,760	1,870	1,200	840	840
12	1,200	1,380	1,110	1,110	7,500	2,120	3,170	1,870	1,290	1,110	750	1,200
13	1,110	1,470	1,110	1,110	7,000	2,120	2,960	2,120	1,760	1,200	840	1,470
14	1,110	1,470	1,290	1,110	11,600	2,590	2,960	1,760	1,760	1,200	1,020	1,760
15	1,200	1,870	1,470	1,200	9,200	3,170	2,420	1,760	1,760	1,110	1,110	1,470
16	1,200	2,120	1,200	1,110	7,500	3,170	2,120	1,660	1,760	1,020	1,200	1,110
17	1,020	2,260	1,110	1,660	7,250	3,610	2,120	1,760	1,760	1,200	1,380	1,020
18	1,200	2,260	1,020	1,870	7,250	3,610	2,120	1,760	1,200	1,110	1,470	1,020
19	1,290	2,260	840	1,760	6,250	4,070	1,990	1,760	1,200	1,200	1,560	1,660
20	1,660	1,990	1,110	1,760	5,260	4,070	1,870	1,990	1,870	1,110	1,200	1,660
21	1,560	1,760	1,200	1,110	4,540	4,070	1,990	2,260	1,760	750	930	1,290
22	1,760	1,990	1,760	1,110	4,070	4,070	1,990	2,120	1,760	750	1,470	1,200
23	1,760	2,120	1,760	1,200	3,610	4,300	1,760	2,120	1,200	750	1,470	1,290
24	1,380	1,990	1,870	1,870	3,390	5,020	1,870	2,120	1,200	750	1,560	1,200
25	1,760	1,110	1,290	3,610	3,390	5,500	1,760	2,120	1,200	1,020	1,470	1,110
26	1,660	1,560	1,200	2,960	3,390	6,500	1,870	2,120	1,200	1,200	1,470	1,200
27	1,760	1,290	1,110	2,120	3,390	8,000	1,760	1,760	1,470	1,110	1,200	1,290
28	1,200	1,290	1,560	1,990	3,390	6,500	1,870	2,120	1,760	1,200	1,200	1,200
29	1,200	1,760	1,200	1,760	-	6,250	1,760	2,120	1,380	1,110	1,110	1,290
30	1,110	1,760	1,470	1,870	-	7,500	1,760	2,120	1,200	1,020	1,110	1,200
31	840	-	1,760	2,260	-	7,750	-	2,120	-	665	1,110	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 3-31	38,410	1,760	840	1,324	0.563	0.61
November	50,460	2,260	930	1,682	.716	.80
December	43,020	1,870	840	1,388	.591	.68
Calendar year 1937	630,170	4,540	580	1,736	.739	9.99
January	49,130	3,610	1,110	1,585	.674	.78
February	165,980	11,600	2,590	5,928	2.52	2.62
March	124,560	7,750	2,120	4,018	1.71	1.97
April	91,160	7,000	1,760	3,038	1.29	1.44
May	57,480	2,260	1,200	1,854	.789	.91
June	48,770	2,120	1,200	1,626	.692	.77
July	34,595	1,560	665	1,116	.475	.55
August	35,500	1,560	580	1,145	.487	.56
September	35,330	1,760	665	1,178	.501	.56
Water year 1937-38	774,385	11,600	580	2,133	0.908	12.25

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 1938.

Average discharge.- 16 years (1903-15, 1934-38), 1,102 second-feet.

Extremes.- Maximum discharge observed during year, 3,060 second-feet Mar. 24 (gage height, 13.65 feet); minimum observed, 805 second-feet Aug. 3 (gage height, 9.15 feet).

1903-16, 1930-31, 1934-38: Maximum discharge observed, 3,500 second-feet Mar. 25, 1913 (gage height, 7.0 feet, former datum); minimum observed, 540 second-feet Aug. 9, 1936 (gage height, 8.55 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 10-19, Jan. 5-21, Jan. 27 to Feb. 7, and period of missing gage heights, Aug. 19-25, which were computed on basis of weather records and records for Muskegon River at Evart and are poor. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	833	923	923	892	1,350	1,020	1,800	1,020	955	862	805	862
2	862	955	955	892	1,350	1,060	1,750	1,020	1,100	862	805	862
3	862	955	955	862	1,400	1,060	1,600	1,020	1,140	862	805	833
4	862	923	990	862	1,500	955	1,500	1,060	1,180	862	805	833
5	862	923	955	1,400	1,600	1,020	1,500	1,100	1,140	862	862	805
6	862	923	955	1,350	1,800	990	1,360	1,100	1,100	862	833	805
7	862	923	955	1,150	2,000	1,020	1,260	1,060	1,060	833	805	833
8	862	990	955	1,000	2,260	1,020	1,220	1,100	990	833	805	955
9	862	990	923	930	2,020	990	1,220	1,140	990	833	805	990
10	862	990	1,400	910	1,650	990	1,220	1,220	955	862	923	833
11	892	990	1,350	890	1,600	990	1,180	1,220	955	862	1,060	1,140
12	892	990	1,200	930	1,450	955	1,180	1,180	955	923	923	1,220
13	892	1,060	1,050	950	1,550	1,020	1,180	1,140	955	892	862	1,140
14	892	1,060	950	970	1,900	1,260	1,180	1,100	923	892	862	1,100
15	892	1,180	1,000	960	1,750	1,220	1,180	1,060	892	833	862	1,100
16	923	1,180	1,200	950	1,550	1,310	1,180	1,500	892	833	923	1,020
17	923	1,180	1,200	950	1,450	1,600	1,180	1,020	923	833	1,020	1,060
18	923	1,140	1,150	950	1,400	1,600	1,180	990	892	833	955	1,020
19	923	1,140	1,000	950	1,310	2,080	1,140	1,020	862	833	950	1,060
20	1,060	1,060	805	950	1,140	2,080	1,140	1,500	862	833	1,000	1,060
21	1,100	1,020	955	970	1,140	2,260	1,140	1,450	892	833	1,100	1,060
22	1,060	990	955	990	1,140	2,380	1,100	1,450	862	862	1,000	990
23	1,020	990	923	1,020	1,140	2,850	1,100	1,310	862	833	900	955
24	1,020	955	862	1,060	1,140	3,060	1,060	1,310	862	833	850	955
25	1,020	955	862	1,310	1,100	2,990	1,060	1,180	862	833	800	923
26	990	990	923	1,960	1,060	2,850	1,060	1,140	862	833	805	892
27	1,020	990	862	2,000	1,060	2,630	1,060	1,100	862	833	805	892
28	1,020	923	923	1,800	1,020	2,380	1,020	1,020	833	833	833	892
29	1,020	1,020	892	1,650	-	2,020	1,060	990	862	833	805	862
30	1,020	955	923	1,550	-	1,960	1,020	990	862	833	805	862
31	990	-	892	1,400	-	1,850	-	955	-	805	862	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	29,083	1,100	833	938	1.04	1.20
November	30,263	1,180	923	1,009	1.12	1.25
December	30,843	1,400	805	995	1.11	1.28
Calendar year 1937	359,886	2,080	778	986	1.10	14.89
January	35,408	2,000	862	1,142	1.27	1.46
February	40,830	2,260	1,020	1,458	1.62	1.69
March	51,470	3,060	955	1,660	1.84	2.12
April	36,830	1,800	1,020	1,228	1.36	1.52
May	35,465	1,500	955	1,144	1.27	1.46
June	28,342	1,180	833	945	1.05	1.17
July	26,264	923	805	847	.941	1.08
August	27,235	1,100	805	879	.977	1.13
September	28,814	1,220	805	960	1.07	1.19
Water year 1937-38	400,847	3,060	805	1,098	1.22	16.55

Rifle River at Michigan Highway 70, near Sterling, Mich.

Location.- Chain gage, lat. 44°04', long. 84°02', in sec. 5, T. 19 N., R. 4 E., at bridge on State Highway 70, 3 miles north of Sterling.

Drainage area.- 320 square miles.

Records available.- January 1937 to September 1938.

Extremes.- Maximum discharge observed during year, 2,760 second-feet Mar. 17 (gage height, 8.95 feet); minimum observed, 122 second-feet July 30 (gage height, 1.60 feet). 1937-38: Maximum discharge observed, that of Mar. 17, 1938; minimum observed, 110 second-feet Aug. 16, 17, 30, 1937 (gage height, 1.30 feet).

Remarks.- Records good except those for period of ice effect, Nov. 30 to Mar. 14, which were computed on basis of two discharge measurements, weather records, and records for Flint River at Genesee and near Flint and are poor. Gage read twice daily.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 27 to Sept. 30)

1.6	122	2.4	266	5.0	1,090
1.7	134	2.6	318	5.5	1,260
1.8	147	2.8	375	6.0	1,460
1.9	162	3.0	435	7.0	1.860
2.0	179	3.5	565	8.0	2,260
2.2	219	4.0	740	9.0	2,760

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	179	179	300	170	400	330	880	242	219	198	154	147
2	170	198	220	170	400	380	740	254	242	188	154	140
3	198	208	230	170	400	380	615	230	242	179	147	154
4	154	198	210	165	400	370	525	318	266	154	134	154
5	219	188	200	160	500	360	525	360	304	154	147	128
6	198	198	200	150	1,200	350	435	254	230	147	134	128
7	162	188	200	150	1,400	350	405	254	188	154	140	208
8	162	208	180	140	1,300	340	405	266	208	147	134	242
9	170	318	130	140	1,150	350	375	291	188	147	147	162
10	162	219	160	140	1,100	360	435	435	198	147	170	188
11	188	230	170	150	1,000	370	360	318	219	198	206	278
12	179	219	160	150	900	450	435	304	219	179	170	208
13	170	219	160	150	1,100	950	346	278	208	162	162	254
14	162	346	160	150	1,500	1,600	360	254	179	162	134	154
15	162	332	150	150	1,100	1,860	346	242	170	162	122	242
16	162	291	150	150	950	1,900	332	230	179	154	278	179
17	162	291	150	150	800	1,900	405	219	170	162	375	179
18	219	230	140	160	700	1,260	405	219	162	162	254	154
19	304	230	140	160	600	1,420	375	242	179	170	188	188
20	555	219	140	160	500	1,740	332	675	147	170	170	198
21	495	208	140	170	475	1,860	304	615	154	179	188	198
22	375	179	140	180	460	1,620	318	495	154	170	188	179
23	266	230	140	200	450	1,580	304	375	208	162	170	170
24	254	198	140	350	430	1,660	346	332	230	170	154	170
25	242	198	150	600	410	1,340	318	291	179	162	147	154
26	198	198	150	650	390	1,160	318	266	208	162	128	147
27	266	208	150	550	370	985	332	266	170	179	128	154
28	198	266	160	500	350	740	332	254	170	154	134	122
29	219	525	160	450	-	740	266	242	154	147	140	140
30	198	350	170	400	-	1,090	278	219	154	128	116	140
31	208	-	170	400	-	1,120	-	219	-	147	128	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,956	555	154	224	0.700	0.81
November	7,269	525	179	242	.756	.84
December	5,220	300	130	168	.525	.61
Calendar year 1937	93,739	1,940	116	257	.803	10.88
January	7,535	650	140	243	.759	.88
February	20,735	1,500	350	741	2.32	2.42
March	30,915	1,900	330	997	3.12	3.60
April	12,152	880	266	405	1.27	1.42
May	9,459	675	219	305	.953	1.10
June	5,898	304	147	197	.616	.69
July	5,056	198	128	163	.509	.59
August	5,143	375	116	166	.519	.60
September	5,259	278	122	175	.547	.61
Water year 1937-38	121,597	1,900	116	333	1.04	14.17

Shiawassee River at Owosso, Mich.

Location.- Water-stage recorder, lat. 43°00'45", long. 84°10'50", in sec. 15, T. 7 N., R. 2 E., at north city limits of Owosso. Zero of gage is 707.82 feet (revised) above mean sea level.

Drainage area.- 538 square miles.

Records available.- March 1931 to September 1938.

Extremes.- Maximum discharge during year, 3,670 second-feet Feb. 18 (gage height, 8.13 feet); minimum, 18 second-feet Sept. 8 (gage height, 1.67 feet).

1931-38: Maximum discharge, that of Feb. 18, 1938; minimum, 0.2 second-feet 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, Dec. 9-30, Jan. 7-22 and of missing gage heights, Oct. 22-25, Jan. 23-25, Jan. 27 to Feb. 5, Feb. 21-23, Sept. 26-30, which were computed on basis of two discharge measurements, weather records, gage heights, and records for Flint River at Genesee and at Flint and are poor. Flow regulated by operation of power plant at Shiawasseetown. Gage-height record furnished by city of Owosso.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	110	227	208	900	720	1,010	228	292	104	74	47
2	35	108	202	218	750	720	870	234	252	93	61	52
3	27	110	299	214	650	640	802	219	225	106	42	49
4	45	108	246	177	600	520	740	214	177	106	54	49
5	52	115	219	177	900	432	700	292	177	93	65	54
6	57	106	228	175	1,620	532	660	414	162	84	56	35
7	57	80	236	170	1,480	720	600	408	159	76	42	41
8	57	106	201	160	1,060	802	560	446	136	86	70	29
9	59	95	170	160	1,180	680	600	390	162	78	49	85
10	60	80	150	150	1,160	580	780	338	159	93	57	63
11	67	82	140	120	848	516	915	240	159	70	63	61
12	62	86	140	110	802	500	760	214	151	70	74	74
13	54	95	140	110	2,580	533	640	169	146	78	122	63
14	62	80	140	120	3,400	540	580	183	134	91	101	54
15	50	101	130	120	3,400	536	512	194	136	59	84	61
16	59	91	120	110	3,490	672	453	205	115	68	86	65
17	54	97	110	110	3,400	959	397	211	124	63	78	63
18	84	95	110	110	3,580	985	366	211	104	72	103	63
19	86	104	110	120	3,230	1,080	345	249	122	80	101	65
20	101	88	110	120	2,510	1,110	315	331	106	88	82	45
21	117	110	110	130	2,200	1,010	299	321	110	74	91	56
22	130	110	110	140	1,900	915	295	321	95	68	86	56
23	140	99	110	300	1,600	870	292	358	106	56	76	63
24	150	107	120	600	1,410	985	292	560	88	57	72	65
25	140	113	120	900	1,200	892	283	580	93	59	74	49
26	111	122	130	1,330	1,040	825	234	600	93	57	70	50
27	101	113	130	1,000	870	740	222	540	97	61	67	50
28	106	132	130	700	618	660	228	450	76	67	68	50
29	99	164	130	500	-	640	237	439	68	63	57	50
30	103	159	150	500	-	720	246	404	76	56	63	50
31	104	-	182	750	-	1,070	-	360	-	52	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,465	150	27	79.5	0.148	0.17
November	3,166	164	80	106	.197	.22
December	4,850	299	110	156	.290	.33
Calendar year 1937	98,273	2,030	26	269	.500	6.80
January	9,809	1,330	110	316	.587	.68
February	48,378	3,580	600	1,728	3.21	3.34
March	23,104	1,110	432	745	1.38	1.59
April	15,233	1,010	222	508	.944	1.05
May	10,323	600	169	333	.619	.71
June	4,100	292	68	137	.255	.28
July	2,328	106	52	75.1	.140	.16
August	2,237	122	42	72.2	.134	.15
September	1,657	85	29	55.2	.103	.11
Water year 1937-38	127,650	3,580	27	350	.651	8.79

Peak discharge.- Feb. 9 (2 p.m.) 1,540 sec.-ft.; Feb. 18 (8 p.m.) 3,670 sec.-ft.; Mar. 17 (1:30 a.m.) 1,360 sec.-ft.

Flint River at Genesee, Mich.

Location.- Wire 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 1938.

Extremes.- Maximum discharge observed during year, 3,540 second-feet Feb. 9 (gage height, 22.52 feet); minimum observed, 28 second-feet Oct. 6 (gage height, 12.66 feet).
1931-38: Maximum discharge observed, that of Feb. 9, 1938; minimum, about 10 second-feet Aug. 15, 1936.

Remarks.- Records fair except those for periods of ice effect, Dec. 3 to Jan. 1, Jan. 8-31, and of missing gage heights, Feb. 26, 27, Apr. 12-16, 27, June 24, Aug. 25-29, which were computed on basis of records for station near Flint and are poor. Gage read twice daily.

Rating table, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 2 to Sept. 30)

12.6	23	14.0	225	16.0	706	19.5	1,820
12.8	40	14.2	267	16.5	836	20.0	2,070
13.0	61	14.4	311	17.0	971	20.5	2,340
13.2	86	14.6	356	17.5	1,110	21.0	2,640
13.4	115	14.8	402	18.0	1,250	21.5	2,940
13.6	148	15.0	450	18.5	1,410	22.0	3,240
13.8	185	15.5	576	19.0	1,600	22.5	3,540

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	100	157	190	732	628	944	246	450	115	67	46
2	82	100	131	236	680	836	890	236	333	123	65	44
3	77	100	170	246	732	998	836	225	278	115	62	41
4	80	93	220	246	706	1,130	784	215	267	100	61	44
5	69	93	190	215	758	1,190	706	205	256	93	58	40
6	37	93	170	205	2,180	1,250	628	195	236	86	58	40
7	72	100	160	195	2,070	1,110	576	176	246	93	53	44
8	78	108	150	180	2,520	890	525	176	236	85	50	46
9	68	100	160	160	3,420	602	525	166	215	74	48	51
10	78	108	140	140	3,300	525	628	176	195	68	65	59
11	67	108	130	120	1,870	576	680	185	176	115	74	54
12	68	108	130	110	1,480	550	610	195	176	100	72	61
13	71	108	130	110	2,520	576	560	166	176	82	67	61
14	73	108	120	110	2,580	602	520	166	148	74	66	71
15	74	108	120	110	2,520	576	490	176	140	68	60	80
16	76	108	110	110	3,240	810	470	205	131	68	61	66
17	72	108	110	110	3,120	1,560	450	205	123	73	67	63
18	82	100	100	110	3,240	1,560	426	195	123	86	68	62
19	100	100	110	110	3,120	1,640	402	185	123	100	65	65
20	108	100	110	120	3,000	1,780	356	1,280	115	80	63	62
21	115	100	120	130	2,880	1,640	356	971	115	67	71	60
22	115	100	120	140	2,120	1,340	311	836	108	67	65	60
23	140	93	120	220	1,920	1,160	289	971	108	60	60	57
24	148	93	120	500	1,680	1,310	278	1,310	104	58	59	53
25	140	86	120	650	1,600	1,190	267	1,280	100	60	58	54
26	131	86	120	540	1,200	1,190	267	1,250	115	59	55	51
27	115	100	120	470	900	1,160	267	1,110	131	59	52	51
28	115	131	120	500	680	1,080	267	890	123	71	50	59
29	108	157	130	540	-	971	256	784	108	74	48	60
30	100	185	140	580	-	863	246	628	108	73	47	51
31	100	-	150	650	-	917	-	525	-	76	46	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,852	148	37	92.0	0.155	0.18
November	3,182	185	86	106	.179	.20
December	4,198	220	100	135	.228	.26
Calendar year 1937	96,686	1,460	37	265	.447	6.07
January	8,053	650	110	260	.438	.50
February	56,768	3,420	680	2,027	3.42	3.56
March	32,210	1,780	525	1,039	1.75	2.02
April	14,810	944	246	494	.833	.93
May	15,529	1,310	166	501	.845	.97
June	5,263	450	100	175	.295	.33
July	2,522	123	58	81.4	.137	.16
August	1,861	74	46	60.0	.101	.12
September	1,656	80	40	55.2	.093	.10
Water year 1937-38	148,904	3,420	37	408	.688	9.33

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 1938.

Extremes.- Maximum discharge during year, 6,970 second-feet Feb. 14 (gage height, 11.20 feet); minimum, 39 second-feet Sept. 6 (gage height, 2.11 feet).
1932-38: Maximum discharge, that of Feb. 14, 1938; minimum, 9.0 second-feet Aug. 7, 1934.

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

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	135	211	205	1,010	720	1,820	328	580	201	85	57
2	104	147	168	191	875	930	1,480	464	504	140	80	225
3	100	144	310	242	689	930	1,340	303	360	137	71	48
4	102	144	337	301	770	848	1,280	370	458	133	74	44
5	113	152	310	229	1,100	770	1,160	241	309	117	67	42
6	100	142	257	233	3,320	875	848	261	277	106	82	45
7	106	130	185	205	3,650	1,010	820	265	409	104	68	50
8	109	154	205	168	2,620	1,100	875	245	306	94	70	46
9	98	150	215	165	4,050	958	930	241	306	94	174	47
10	106	147	147	162	4,350	770	1,310	211	292	88	77	91
11	102	144	144	133	3,250	745	1,160	241	229	140	68	77
12	107	253	194	109	2,530	770	1,160	265	211	122	94	80
13	106	162	182	111	5,150	902	1,130	265	225	104	88	74
14	107	106	153	190	6,420	1,040	985	261	215	98	80	91
15	102	126	162	133	4,950	985	795	261	208	83	77	98
16	96	133	177	119	4,150	1,220	720	261	191	79	74	85
17	96	201	135	124	4,250	3,650	695	261	154	142	88	79
18	119	208	111	119	4,950	2,890	625	265	90	126	86	80
19	119	182	91	221	4,650	2,800	580	265	119	119	82	79
20	117	142	153	124	3,550	2,800	580	398	126	256	86	76
21	137	144	179	130	2,980	2,530	540	1,190	66	124	135	74
22	157	154	168	135	2,530	1,980	463	985	101	49	86	75
23	154	157	115	140	2,180	1,900	504	1,190	100	50	80	80
24	176	162	150	415	1,820	2,440	517	1,780	98	51	77	191
25	179	154	174	958	1,480	2,020	404	1,580	124	59	70	50
26	179	154	171	739	1,220	1,820	418	1,440	113	80	67	53
27	185	157	162	526	1,130	1,660	414	1,250	137	79	71	53
28	241	256	144	625	646	1,480	391	1,010	135	131	64	54
29	142	432	140	602	-	1,410	360	958	119	115	65	54
30	106	278	150	695	-	1,340	310	770	124	106	59	59
31	171	-	198	1,130	-	1,860	-	695	-	91	56	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,960	241	96	128	0.138	0.16
November	5,150	432	106	172	.186	.21
December	5,598	337	91	181	.195	.22
Calendar year 1937	143,457	3,220	58	393	.424	5.75
January	9,579	1,130	109	309	.333	.38
February	80,270	6,420	646	2,867	3.09	3.22
March	47,153	3,650	720	1,521	1.64	1.89
April	24,614	1,820	310	820	.885	.99
May	18,520	1,780	211	597	.644	.74
June	6,686	580	66	223	.241	.27
July	3,418	256	49	110	.119	.14
August	2,501	174	56	80.7	.087	.10
September	2,257	225	42	75.2	.081	.09
Water year 1937-38	209,706	6,420	42	575	.620	8.41

Peak discharge.- Feb. 9 (10 p.m.) 4,950 sec.-ft.; Feb. 14 (11 a.m.) 6,970 sec.-ft.; Feb. 18 (10 p.m.) 5,250 sec.-ft.

Farmers Creek near Lapeer, Mich.

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

Drainage area.- 57 square miles.

Records available.- March 1933 to September 1938.

Extremes.- Maximum discharge observed during year, 356 second-feet Feb. 16 (gage height, 18.10 feet), from rating curve extended above 170 second-feet; minimum observed, 1.0 second-foot Aug. 29, 30 (gage height, 14.22 feet).

1933-38: Maximum discharge observed, that of Feb. 16, 1938; minimum discharge not determined.

Remarks.- Records fair except those for periods of ice effect, Dec. 14-30, Jan. 24-27, and period of backwater effect, Sept. 26-30, which were computed on basis of one discharge measurement, weather records, and records for Flint River near Flint and are poor. Occasional regulation at dam above station. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	11	28	16	71	80	75	22	26	4.6	2.6	1.4
2	12	10	24	32	67	56	80	22	22	6.0	2.8	1.1
3	12	8.6	21	32	67	63	71	22	19	6.0	3.0	1.1
4	11	10	19	30	59	67	67	21	18	6.0	2.5	1.1
5	9.8	11	19	29	56	59	63	20	22	5.7	2.3	1.0
6	11	11	21	26	170	88	59	18	20	5.7	2.0	1.0
7	12	9.8	20	27	296	98	56	17	26	4.9	1.7	1.2
8	11	12	28	22	272	67	52	17	26	5.1	1.4	1.1
9	11	12	22	22	203	67	48	16	23	4.2	2.2	1.1
10	12	14	20	20	170	67	52	16	20	3.7	2.2	1.4
11	12	12	20	16	140	59	59	16	21	4.2	2.6	2.0
12	10	13	19	17	88	71	59	15	24	4.2	2.6	2.3
13	9.5	13	17	17	181	67	59	16	20	3.7	2.0	2.6
14	8.9	13	16	16	308	67	52	14	17	3.7	1.8	3.0
15	8.9	14	15	15	332	75	48	15	16	2.6	1.5	3.3
16	9.5	14	14	15	260	75	45	16	14	2.5	1.7	3.5
17	9.2	14	14	15	225	120	39	16	13	2.6	1.8	3.5
18	11	14	13	13	192	203	37	18	12	2.5	2.0	3.3
19	13	14	13	15	214	181	34	18	12	2.6	2.0	2.5
20	15	10	13	14	192	150	32	28	10	2.5	2.2	2.5
21	16	10	13	11	181	170	30	28	9.8	2.8	2.2	2.6
22	18	12	13	11	150	102	29	29	7.4	3.3	2.3	3.3
23	18	12	14	10	120	93	26	37	6.0	2.2	2.3	3.3
24	16	14	14	12	93	98	27	42	5.4	2.2	2.3	3.0
25	16	14	14	15	80	102	24	45	4.9	2.0	2.3	2.6
26	14	12	15	17	67	116	24	52	5.4	1.7	1.7	2.7
27	13	13	15	22	80	102	22	45	5.1	2.6	1.7	2.5
28	12	18	15	28	88	88	22	38	5.7	4.9	1.5	2.3
29	12	22	15	48	-	80	22	42	4.6	4.4	1.1	2.1
30	12	35	15	63	-	71	22	33	3.3	4.0	1.0	2.0
31	12	-	14	67	-	75	-	28	-	2.6	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	380.8	18	8.9	12.3	0.216	0.25
November	402.4	35	8.6	13.4	.235	.26
December	533	28	13	17.2	.302	.35
Calendar year 1937	11,004.4	175	4.2	30.1	.528	7.18
January	713	67	10	23.0	.404	.47
February	4,422	332	56	158	2.77	2.88
March	2,877	203	56	92.8	1.63	1.88
April	1,335	80	22	44.5	.781	.87
May	782	52	14	25.2	.442	.51
June	438.6	26	3.3	14.6	.256	.29
July	115.7	6.0	1.7	3.73	.065	.07
August	62.7	3.0	1.0	2.02	.035	.04
September	66.4	3.5	1.0	2.21	.039	.04
Water year 1937-38	12,128.6	332	1.0	33.2	.582	7.91

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 1938.

Extremes.- Maximum discharge during year 21,100 second-feet Feb. 7 (gage height, 15.72 feet); minimum, 196 second-feet July 18; minimum gage height, 0.34 foot Aug. 3.
1936-38: Maximum discharge, that of Feb. 7, 1938; minimum, 103 second-feet Aug. 14, 1936.

Remarks.- Records good. Water for industrial use diverted from river a short distance above gage; a small part is 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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	626	458	1,250	668	1,810	1,480	7,500	610	1,270	484	279	284
2	640	1,110	1,050	416	2,550	2,910	5,180	880	1,420	541	356	266
3	381	942	604	535	1,800	4,110	4,110	1,020	787	545	234	256
4	406	640	598	595	1,340	2,940	3,480	965	716	552	502	270
5	518	782	687	831	2,040	1,310	3,300	801	734	715	491	252
6	491	513	734	688	9,360	1,310	3,030	736	734	523	604	387
7	676	442	1,080	482	19,100	1,390	2,390	557	981	786	310	474
8	502	710	1,010	341	14,600	1,660	2,390	442	1,060	755	342	478
9	391	615	645	381	13,000	1,660	2,150	915	1,130	355	284	465
10	396	604	370	396	12,600	1,830	1,580	878	713	302	686	504
11	422	761	338	604	8,620	1,910	2,230	844	653	248	1,440	422
12	581	1,030	362	470	6,080	1,760	2,790	1,050	596	292	420	569
13	895	721	406	666	10,200	2,480	2,790	1,280	687	244	391	788
14	599	810	594	611	18,000	3,750	2,550	594	688	306	378	767
15	432	1,320	831	589	14,200	3,570	1,990	502	654	244	368	676
16	401	1,690	678	589	8,380	3,480	1,660	558	700	231	574	640
17	401	1,460	524	387	6,380	3,750	1,240	507	459	346	509	372
18	637	1,160	416	702	5,780	3,840	1,610	507	396	261	454	396
19	1,160	1,250	377	616	5,080	3,840	1,780	968	367	206	428	668
20	1,220	655	666	561	3,480	4,680	1,830	1,610	348	339	463	779
21	1,060	535	1,020	568	2,950	5,880	1,530	2,390	664	240	675	713
22	1,020	598	851	742	3,030	5,480	1,380	1,540	411	256	746	421
23	876	696	570	575	2,230	5,480	816	1,150	320	266	663	473
24	593	1,100	362	793	1,830	7,830	728	1,060	430	248	530	396
25	716	692	480	2,470	1,940	6,680	920	1,220	450	268	480	320
26	1,080	432	381	2,630	1,580	5,880	965	1,480	367	231	371	546
27	977	524	372	2,050	1,410	4,780	1,110	1,470	443	227	266	546
28	728	679	780	1,390	1,380	4,020	1,270	780	567	362	335	583
29	693	831	722	1,170	-	3,930	1,330	781	439	272	326	740
30	640	1,160	1,030	1,830	-	5,380	758	1,020	515	359	302	368
31	524	-	950	1,740	-	6,980	-	1,060	-	366	407	-

Month	Observed				Mean diversion	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	20,682	1,220	381	667	55	722	0.301	0.35
November	24,920	1,690	432	831	48	879	.366	.41
December	20,738	1,250	338	669	42	711	.296	.34
Calendar year 1937	409,063	10,400	227	1,121	53	1,174	.489	6.64
January	27,086	2,630	341	874	39	913	.380	.44
February	180,750	19,100	1,340	6,455	35	6,490	2.70	2.81
March	115,980	7,830	1,310	3,741	42	3,783	1.58	1.82
April	66,387	7,500	728	2,213	41	2,254	.939	1.05
May	30,175	2,390	442	973	48	1,021	.425	.49
June	19,699	1,420	320	657	50	707	.295	.33
July	11,370	786	206	367	57	424	.177	.20
August	14,614	1,440	234	471	60	531	.221	.25
September	14,319	788	252	494	57	551	.230	.26
Water year 1937-38	547,220	19,100	206	1,499	48	1,547	.645	8.75

Peak discharge.- Feb. 7 (2 p.m.) 21,100 sec.-ft.; Feb. 14 (6 p.m.) 19,500 sec.-ft.; Mar. 24 (7 a.m.) 8,050 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.

Drainage area.- 138 square miles.

Records available.- June 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 3,160 second-feet Feb. 7, 14, from rating curve extended above 1,000 second-feet; maximum gage height, 13.77 feet Feb. 6 (backwater from ice); minimum discharge observed, 3.5 second-feet Aug. 8, 9 (gage height, 0.26 foot).

1934-38: Maximum discharge observed, that of Feb. 7, 14, 1938; minimum observed, 1.9 second-feet July 24, 1934.

Remarks.- Records good except those for periods of ice effect, Nov. 30, Dec. 1, Dec. 13 to Feb. 6, and period of missing gage heights, Apr. 22 to May 8, which were computed on basis of weather records, gage heights, and records for Pine River at Alma and near Midland and Tittabawassee River at Midland and are poor. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	8.0	23	18	40	50	367	23	14	11	4.6	4.8
2	5.6	9.6	22	17	37	339	176	21	18	13	4.4	4.6
3	5.6	9.1	18	16	32	395	126	20	21	11	4.4	4.6
4	5.4	9.6	19	15	28	156	104	19	20	8.6	4.1	4.4
5	5.4	9.1	24	15	110	132	84	18	20	7.8	4.1	5.8
6	5.6	9.9	20	14	2,200	89	70	17	18	7.0	4.2	4.7
7	5.6	9.3	19	14	2,840	84	62	16	14	6.4	4.0	5.2
8	5.2	13	16	13	1,300	62	58	16	14	6.0	3.6	5.8
9	5.0	12	18	13	985	54	62	15	12	6.0	3.5	6.4
10	5.8	15	18	13	731	54	80	18	14	6.0	4.4	7.0
11	6.4	12	18	13	339	70	75	18	15	5.8	9.9	7.5
12	6.4	12	18	13	241	132	75	16	16	5.2	11	8.6
13	6.4	20	17	13	1,040	339	75	14	15	5.2	7.5	7.3
14	6.0	32	16	14	2,840	283	62	13	12	5.2	6.8	6.8
15	5.8	30	15	14	575	203	50	14	10	5.2	6.4	6.6
16	6.2	28	14	14	409	126	45	14	9.3	4.6	6.4	6.6
17	6.4	22	14	14	269	132	43	13	9.3	5.0	6.6	6.6
18	8.3	18	14	14	202	138	46	13	8.8	4.8	7.0	7.0
19	13	18	14	14	176	156	44	14	8.8	5.2	6.2	6.6
20	13	16	14	14	150	241	37	25	8.0	4.8	6.8	6.2
21	13	18	14	14	115	241	32	35	8.0	4.7	22	6.2
22	12	16	15	15	99	189	30	28	7.5	4.2	23	6.0
23	9.9	18	15	19	80	241	29	23	7.0	4.4	13	6.2
24	9.6	16	15	28	70	544	28	20	6.8	4.7	8.6	6.0
25	9.1	14	15	55	80	297	27	18	8.0	4.8	7.5	5.6
26	8.8	14	15	85	54	228	26	16	9.3	4.2	6.4	5.6
27	9.3	15	15	60	54	176	26	17	8.8	9.1	6.2	4.8
28	9.9	21	15	45	66	126	26	16	7.3	9.1	5.8	4.7
29	9.6	29	15	40	-	156	26	15	7.0	7.3	5.2	4.8
30	9.3	26	16	37	-	367	24	16	7.3	6.0	5.2	4.6
31	8.6	-	17	38	-	514	-	17	-	5.2	4.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	242.2	13	5.0	7.81	0.057	0.07
November	500.4	32	8.8	16.7	.121	.13
December	518	24	14	16.7	.121	.14
Calendar year 1937	16,676.0	985	2.7	45.7	.331	4.49
January	721	85	13	23.3	.169	.19
February	15,162	2,840	28	542	3.93	4.09
March	6,394	544	50	206	1.49	1.72
April	2,015	367	24	67.2	.487	.54
May	558	35	13	18.0	.130	.15
June	354.2	21	6.8	11.8	.086	.10
July	197.5	13	4.2	6.37	.046	.05
August	223.6	23	3.5	7.21	.052	.06
September	177.6	8.6	4.4	5.92	.043	.05
Water year 1937-38	27,063.5	2,840	3.5	74.1	.537	7.29

Chippewa River near Mount Pleasant, Mich.

Location.- Wire-weight gage, lat. 43°37'35", long. 84°42'30", on line between secs. 7 and 8, T. 14 N., R. 3 W., 4 miles northeast of Mount Pleasant.

Drainage area.- 416 square miles.

Records available.- October 1930 to July 1931, October 1932 to September 1938.

Extremes.- Maximum discharge observed during year, 3,120 second-feet Feb. 6 (gage height, 12.02 feet), from rating curve extended above 1,900 second-feet; minimum observed, 43 second-feet Aug. 1; minimum gage height, 3.02 feet June 29.

1930-31, 1932-38: Maximum discharge observed, that of Feb. 6, 1938; minimum observed, 19 second-feet Aug. 16, 1936 (gage height, 3.04 feet).

Remarks.- Records fair except those for period of ice effect, Dec. 9 to Feb. 5, and of missing gage heights, Nov. 17, 18, which were computed on basis of weather records and records for Pine River at Alma and near Midland and Tittabawassee River at Midland and are poor. Gage read twice daily. Regulation at low stages by operation of power plant upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	183	221	170	400	398	841	234	183	170	64	127
2	151	196	221	170	400	742	709	208	221	183	85	113
3	109	183	221	170	400	612	644	208	221	158	64	129
4	170	170	196	170	450	549	580	221	234	134	85	100
5	151	183	170	170	550	549	518	208	221	146	87	127
6	141	158	196	165	2,360	487	487	208	221	148	70	120
7	146	170	196	160	3,000	580	457	196	170	118	81	120
8	183	183	183	155	2,920	457	457	196	183	122	100	125
9	141	196	175	150	2,680	427	709	208	183	113	68	141
10	158	196	180	150	1,830	427	369	208	183	120	129	134
11	158	183	180	150	1,440	457	369	221	208	146	107	183
12	146	183	180	145	1,410	427	355	208	221	125	170	183
13	132	208	170	145	1,720	580	369	208	208	120	146	183
14	129	247	170	145	2,180	580	369	208	170	113	96	146
15	139	287	165	145	1,830	518	355	234	170	116	144	183
16	120	260	160	145	1,550	518	355	196	183	113	129	158
17	113	250	160	150	1,280	549	328	196	170	83	136	156
18	170	240	160	155	1,040	549	328	196	158	136	134	170
19	170	234	165	155	907	549	328	208	153	91	183	139
20	260	221	170	160	907	676	314	234	170	61	170	144
21	260	221	170	165	808	676	287	274	144	113	300	156
22	221	247	165	170	940	709	287	260	136	102	208	139
23	196	183	160	175	808	808	274	247	144	120	156	156
24	196	196	160	200	612	1,040	287	247	136	83	156	122
25	170	183	155	350	487	1,040	287	221	136	125	136	125
26	170	196	155	500	518	907	287	208	129	107	109	158
27	183	183	160	450	398	808	260	196	81	109	98	122
28	183	247	165	400	355	676	260	208	132	109	111	127
29	170	260	165	400	-	676	234	221	122	70	156	120
30	170	247	170	400	-	808	234	247	120	72	129	125
31	170	-	170	450	-	907	-	221	-	87	127	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,134	260	109	166	0.399	0.46
November	6,294	287	158	210	.505	.56
December	5,434	221	155	175	.421	.49
Calendar year 1937	89,919	1,010	72	246	.591	8.03
January	6,785	500	145	219	.526	.61
February	34,180	3,000	355	1,221	2.94	3.06
March	19,686	1,040	398	635	1.53	1.76
April	11,938	841	234	398	.957	1.07
May	6,754	274	196	218	.524	.60
June	5,111	234	81	170	.409	.46
July	3,633	183	70	117	.281	.32
August	3,934	300	64	127	.305	.35
September	4,231	183	100	141	.339	.38
Water year 1937-38	113,114	3,000	64	310	.745	10.12

Pine River at Alma, Mich.

Location.- Staff gage, lat. 43°23', long. 84°39', in sec. 34, T. 12 N., R. 3 W., 70 feet downstream from highway bridge in Alma. 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 1938.

Extremes.- Maximum discharge observed during year, 4,070 second-feet Feb. 6 (gage height, 10.43 feet), from rating curve extended above 2,000 second-feet; minimum observed, about 2 second-feet July 23 (gage height, -.80 foot).

1930-38: Maximum discharge observed, that of Feb. 6, 1938; minimum observed, that of July 23, 1938.

Remarks.- Records fair except those for periods of ice effect, Dec. 13-15, Jan. 3-6, 16-21, Jan. 30 to Feb. 5, and those for period of extreme low flow caused by coffer-dam upstream, July 23-26, which were computed on the basis of one discharge measurement, gage heights, weather records, and records for station near Midland and are poor. Gage read once daily. Gage-height record furnished by city of Alma.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	90	131	95	270	326	600	144	119	107	56	84
2	60	90	131	113	245	394	620	125	184	144	46	64
3	53	95	131	115	225	412	600	125	198	113	68	78
4	75	95	131	118	225	244	580	125	213	107	84	71
5	64	95	131	115	425	276	412	125	198	101	84	62
6	65	95	131	105	3,830	292	326	119	164	95	78	62
7	54	95	131	101	1,910	292	292	119	138	90	72	71
8	53	95	95	107	2,140	309	276	119	150	90	119	78
9	56	84	90	113	3,140	326	260	119	125	73	95	72
10	61	113	69	113	1,610	343	343	119	119	73	90	84
11	62	95	78	101	1,150	360	360	131	119	63	78	95
12	73	101	101	90	950	360	394	125	144	61	125	131
13	61	113	100	90	1,610	377	580	119	138	73	107	125
14	61	119	98	95	1,510	412	326	113	125	59	95	113
15	62	157	95	90	1,190	394	292	113	113	54	84	228
16	64	164	78	95	1,470	394	260	113	101	64	65	138
17	64	170	73	95	1,030	377	228	119	90	56	84	101
18	228	164	72	95	950	377	228	125	101	50	107	90
19	276	138	78	95	685	394	228	125	95	63	113	84
20	150	113	95	95	560	430	198	170	95	57	107	95
21	164	107	107	100	503	430	177	177	90	63	164	84
22	157	107	101	107	412	448	177	184	90	63	228	70
23	157	107	113	107	326	466	164	184	90	2	260	63
24	138	101	90	144	394	541	164	164	78	4	198	84
25	113	101	90	184	326	541	177	157	90	15	95	68
26	125	107	101	244	260	620	184	138	95	22	113	54
27	113	113	107	260	244	560	184	138	119	32	95	56
28	113	119	101	292	326	503	198	157	107	49	101	56
29	101	119	95	276	-	448	157	276	101	63	113	50
30	101	170	90	325	-	466	150	309	101	63	90	50
31	90	-	90	290	-	660	-	326	-	63	101	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,080	276	53	99.4	0.345	0.40
November	3,432	170	84	114	.396	.44
December	3,124	131	69	101	.351	.40
Calendar year 1937	55,065	720	29	151	.524	7.11
January	4,365	325	90	141	.490	.56
February	27,916	3,830	225	997	3.46	3.60
March	12,772	660	244	412	1.43	1.65
April	9,135	620	150	304	1.06	1.18
May	4,702	326	113	152	.528	.61
June	3,690	213	78	123	.427	.48
July	2,045	144	2	66.0	.229	.26
August	3,315	260	46	107	.372	.43
September	2,581	228	50	86.0	.299	.33
Water year 1937-38	80,157	3,830	2	220	.764	10.34

Pine River near Midland, Mich.

Location.- Wire-weight gage, lat. 43°36', long. 84°19', on line between secs. 25 and 26, T. 14 N., R. 1 E., at highway bridge, 3 miles southwest of Midland.

Drainage area.- 400 square miles.

Records available.- May 1934 to September 1938 (discontinued).

Extremes.- Maximum discharge observed during year, about 5,000 second-feet (estimated) Feb. 6 (gage height, 17.00 feet, caused by backwater from ice); minimum observed, 31 second-feet July 11, 13; minimum gage height, 7.78 feet May 4.
1934-38: Maximum discharge observed, that of Feb. 6, 1938; minimum observed, 9.0 second-feet June 29, 1934; minimum gage height, 7.60 feet Apr. 28, 1935.

Remarks.- Records fair except those for periods of ice effect, Dec. 1-8, Dec. 14 to Feb. 9, and period of missing gage heights, Nov. 13-19, which were computed on basis of weather records, gage heights, and records for station at Alma and are poor. Gage read twice daily. Low-water flow regulated by power plant upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	77	140	125	325	305	945	160	305	125	111	132
2	70	142	165	125	300	460	700	177	287	132	59	147
3	111	160	150	135	300	501	654	130	342	92	47	150
4	79	160	155	130	300	460	654	140	237	183	46	132
5	123	123	145	130	325	305	460	147	253	107	48	145
6	113	127	140	125	2,900	206	480	150	221	107	52	58
7	130	86	135	120	4,500	342	419	111	163	111	54	75
8	111	155	125	120	4,250	360	360	137	174	105	58	75
9	47	206	115	120	2,300	380	305	100	163	109	130	71
10	79	125	115	120	1,970	380	323	191	177	53	135	102
11	70	206	118	115	1,160	342	544	180	174	48	132	130
12	70	221	120	115	1,100	305	522	77	118	56	71	150
13	120	200	107	110	1,970	522	480	75	155	53	158	153
14	79	175	115	110	1,970	522	460	115	130	68	100	163
15	88	185	115	115	1,320	439	323	155	147	64	81	174
16	82	190	125	120	1,260	439	323	147	153	63	158	163
17	115	190	120	120	1,160	460	305	73	102	61	123	169
18	64	170	115	120	995	480	287	147	118	54	105	177
19	287	150	120	120	895	501	287	166	107	58	153	147
20	191	81	125	120	654	544	360	191	127	58	132	113
21	158	137	130	120	654	609	206	253	132	71	142	111
22	120	147	125	125	522	544	174	237	147	70	253	135
23	174	183	125	130	480	565	253	221	46	71	323	61
24	183	188	120	160	480	700	270	221	96	48	270	56
25	163	81	120	250	399	654	237	177	140	54	253	52
26	130	145	125	300	253	654	253	191	127	52	90	86
27	107	120	135	340	323	654	253	155	191	40	137	59
28	135	142	130	375	380	609	270	171	123	41	135	42
29	142	237	125	350	-	565	253	380	135	40	163	82
30	145	132	120	350	-	654	253	380	94	46	163	71
31	130	-	120	325	-	1,100	-	360	-	42	82	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,751	287	47	121	0.302	0.35
November	4,641	237	77	155	.388	.43
December	3,940	165	107	127	.318	.37
Calendar year						
January	5,240	375	110	169	.422	.49
February	33,445	4,500	253	1,194	2.93	3.10
March	15,561	1,100	206	502	1.23	1.45
April	11,613	945	174	387	.938	1.08
May	5,515	380	73	178	.445	.51
June	4,884	342	46	163	.408	.46
July	2,282	183	40	73.6	.184	.21
August	3,964	323	46	128	.320	.37
September	3,381	177	42	113	.282	.31
Water year 1937-38	98,217	4,500	40	269	.672	9.13

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.

Drainage area.- 634 square miles.

Records available.- April to June 1931, October 1932 to September 1938.

Extremes.- Maximum discharge observed during year, 6,980 second-feet Feb. 7 (gage height, 19.29 feet), from rating curve extended above 5,000 second-feet; minimum observed, 12 second-feet Sept. 20 (gage height, 4.80 feet).

1931, 1932-38: Maximum discharge observed, that of Feb. 7, 1938; minimum observed, 4.0 second-feet June 22, 1931 (gage height, 4.48 feet).

Remarks.- Records good except those for periods of ice effect Dec. 15-27, Jan. 10-17, Jan. 29 to Feb. 5, which were computed on basis of weather records and records for Clinton River at Pontiac and Mount Clemens and are poor. No record Aug. 13-21, 23-29. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	25	50	34	375	272	1,850	112	203	90	96	17
2	18	22	53	34	225	386	1,180	111	178	69	49	17
3	17	21	53	36	225	795	673	101	161	55	*43	17
4	14	20	53	32	300	836	477	101	124	52	37	17
5	17	22	50	24	350	919	422	98	*112	43	28	17
6	21	22	43	26	*3,660	593	386	109	99	33	27	17
7	30	24	41	30	6,980	515	319	109	109	33	*23	17
8	15	26	36	28	5,780	554	303	*102	94	32	19	17
9	14	28	28	*29	5,360	386	303	96	90	28	22	17
10	18	26	22	30	6,440	352	335	98	90	26	21	23
11	20	26	30	29	4,060	116	713	77	92	33	26	21
12	20	26	*29	29	3,960	404	1,180	87	87	29	22	23
13	18	32	28	28	4,560	404	836	87	83	23	-	23
14	17	31	24	28	5,600	477	554	77	74	31	-	17
15	14	33	28	27	3,680	440	386	*80	59	28	-	23
16	15	31	30	26	2,100	754	319	83	66	53	-	17
17	17	33	32	25	1,950	2,250	272	96	42	66	-	15
18	26	31	33	22	3,960	2,300	230	101	28	68	-	15
19	39	29	32	32	3,300	1,900	216	89	32	61	-	16
20	35	25	32	45	2,000	1.670	216	109	32	65	-	12
21	33	23	33	36	1,540	1,490	190	116	31	66	-	12
22	37	37	34	38	1,310	1,090	166	1,620	31	64	22	23
23	31	44	32	41	919	1,850	152	1,130	28	53	-	20
24	31	29	31	45	673	4,280	148	2,100	33	52	-	17
25	30	23	31	75	477	3,000	130	1,850	*66	49	-	21
26	25	30	30	122	422	2,250	135	1,040	99	52	-	23
27	23	28	30	61	*404	1,580	126	673	111	62	-	14
28	23	*38	30	92	386	1,000	122	458	101	31	-	16
29	22	48	28	105	-	1,040	122	404	101	28	-	13
30	25	45	30	135	-	1,040	118	288	92	27	17	16
31	27	-	32	175	-	1,360	-	230	-	22	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	712	39	14	23.0	0.036	0.04
November	878	48	20	29.3	.046	.05
December	1,068	53	22	34.5	.054	.06
Calendar year						
January	1,519	175	22	49.0	.077	.09
February	70,996	6,980	225	2,536	4.00	4.17
March	36,303	4,280	116	1,171	1.85	2.13
April	12,579	1,850	118	419	.661	.74
May	11,832	2,100	77	382	.603	.70
June	2,548	203	28	84.9	.134	.15
July	1,424	90	22	45.9	.072	.08
August	-	-	-	-	-	-
September	533	23	12	17.8	.028	.03
Water year						

*Discharge interpolated.

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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 city limits of Pontiac. Zero of gage is 876.01 feet above mean sea level.

Drainage area.- 123 square miles.

Records available.- May 1935 to September 1938.

Extremes.- Maximum discharge observed during year, 716 second-feet Feb. 12 (gage height, 5.10 feet), from rating curve extended above 150 second-feet; minimum observed, 6.0 second-feet July 9, 16 (gage height, 0.60 foot).

1935-38: Maximum discharge observed, that of Feb. 12, 1938; minimum observed, 4.8 second-feet Sept. 4, 1936.

Remarks.- Records good except those for periods of ice effect, Dec. 9-28, Jan. 6-20, Jan. 26 to Feb. 2, which were computed on basis of one discharge measurement, weather records and records for station at Mt. Clemens and are poor. Gage read twice daily. Gage-height record furnished by city of Pontiac.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-28)

Oct. 1 to Mar. 31

0.8	10	1.8	89	3.0	266
.9	14	2.0	114	3.5	362
1.0	18	2.2	140	4.0	467
1.2	29	2.4	168	4.5	578
1.4	45	2.6	198	5.1	716
1.6	66	2.8	231		

Apr. 1 to Sept. 30

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

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	25	66	43	65	248	210	87	81	25	22	30
2	20	28	55	36	105	248	193	87	87	20	19	28
3	19	30	53	35	72	231	185	87	81	20	19	24
4	20	32	54	46	49	231	193	87	80	19	19	22
5	22	33	51	35	56	231	193	81	79	20	18	20
6	20	24	49	36	114	231	170	81	77	18	20	30
7	19	23	49	35	95	231	147	81	106	16	18	43
8	19	28	58	34	89	214	154	81	93	16	19	36
9	18	28	47	34	95	214	154	81	87	8	19	33
10	17	27	37	33	95	183	154	81	87	9	126	32
11	17	28	25	32	95	134	154	79	81	30	50	19
12	17	27	24	31	266	168	154	77	87	22	33	27
13	18	30	24	31	382	168	147	74	81	18	29	23
14	18	28	25	30	303	161	147	100	77	16	26	36
15	17	30	27	29	266	127	133	106	75	9	25	35
16	15	30	28	29	248	140	133	81	73	10	210	32
17	14	31	29	28	266	154	133	87	71	18	61	31
18	41	30	30	28	342	147	126	93	69	15	44	29
19	22	32	30	28	266	140	126	87	66	17	40	29
20	22	33	30	29	266	147	133	93	67	17	37	29
21	20	31	29	30	266	147	126	87	60	17	39	29
22	20	30	28	30	266	147	119	87	58	20	37	28
23	25	32	28	30	248	231	119	126	58	20	34	27
24	21	32	28	108	248	214	112	106	56	20	33	25
25	21	30	27	59	231	198	106	100	56	19	31	24
26	20	30	26	52	248	198	93	93	54	34	29	24
27	20	30	27	55	248	190	87	93	52	22	30	23
28	22	42	28	65	248	190	93	87	44	50	44	22
29	26	35	33	77	-	198	87	87	26	20	46	22
30	25	37	33	60	-	214	87	87	23	19	44	22
31	23	-	35	48	-	231	-	87	-	29	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	640	41	14	20.6	0.167	0.19
November	906	42	23	30.2	.246	.27
December	1,113	66	24	35.9	.292	.34
Calendar year 1937	24,919	214	14	68.3	.555	7.53
January	1,276	108	28	41.2	.335	.39
February	5,538	382	49	198	1.61	1.68
March	5,906	248	127	191	1.55	1.79
April	4,168	210	87	139	1.13	1.26
May	2,751	126	74	88.7	.721	.83
June	2,092	106	23	69.7	.567	.63
July	613	50	8	20.0	.163	.19
August	1,263	210	18	40.7	.331	.38
September	834	43	19	27.8	.226	.25
Water year 1937-38	27,100	382	8	74.3	.604	8.20

Clinton River at Mount Clemens, Mich.

Location.- Wire-weight gage, 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. Beginning Mar. 15, 1938 a gage 8,500 feet downstream on Gratiot Avenue Bridge was also used to determine slope. Zero of gage is 570.92 feet above mean sea level.

Drainage area.- 733 square miles.

Records available.- May 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 11,100 second-feet Feb. 14 (gage height, 19.64 feet); minimum observed, 67 second-feet Oct. 13-16; minimum gage height observed, 3.44 feet Oct. 14.

1934-38: Maximum discharge observed, that of Feb. 14, 1938; minimum observed, 24 second-feet July 31, 1934; minimum gage height, 2.90 feet Oct. 15, 1934.

Remarks.- Records good except those for period of ice effect, Dec. 4 to Feb. 5, and period of missing gage heights Aug. 2-6, which were computed on basis of weather records, records for Clinton River at Pontiac and Black River near Port Huron, and are poor. Discharge for Mar. 15 to Sept. 30 computed by slope method. Discharge for Nov.28, Aug. 13, 21 interpolated. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	118	214	230	700	587	2,780	351	346	148	229	137
2	77	112	214	215	600	664	1,330	322	288	144	180	116
3	72	112	214	205	700	664	937	325	260	144	155	127
4	77	112	200	195	950	587	885	352	252	145	140	117
5	82	118	190	185	1,300	1,450	877	386	247	97	135	112
6	88	118	175	180	5,250	1,360	820	319	279	106	135	120
7	72	125	165	175	6,050	1,080	647	284	487	112	134	103
8	72	139	155	170	2,150	1,080	654	262	404	94	163	130
9	72	139	150	165	1,450	704	1,360	268	295	92	151	117
10	72	146	150	160	1,360	625	1,670	284	257	112	104	113
11	72	139	155	160	870	550	1,280	366	244	155	341	168
12	72	139	155	165	745	445	769	272	245	174	457	181
13	67	139	160	165	7,170	550	693	278	239	144	325	165
14	67	146	165	160	11,000	625	623	263	203	112	193	144
15	67	139	170	160	5,570	709	561	517	224	137	147	152
16	67	139	175	165	2,150	797	523	679	182	130	162	152
17	82	139	180	170	1,850	2,960	518	647	182	94	1,070	120
18	118	139	185	165	1,700	2,800	479	618	175	105	692	185
19	187	132	190	160	3,450	1,710	444	647	186	128	350	102
20	224	139	190	165	2,490	1,450	531	807	158	140	206	111
21	234	146	195	170	1,550	1,220	528	589	154	124	223	126
22	125	162	195	175	1,220	1,040	462	450	142	130	240	126
23	118	196	190	200	1,040	1,650	400	427	158	115	217	129
24	112	234	180	650	996	6,020	364	1,150	153	134	159	120
25	112	224	175	2,200	870	6,070	363	733	171	147	144	120
26	112	214	175	1,200	828	1,820	381	501	167	142	189	110
27	118	214	170	740	828	1,130	332	450	120	212	137	108
28	118	214	170	600	664	903	309	416	144	162	144	89
29	118	214	170	550	-	919	416	392	166	197	148	114
30	112	214	185	600	-	1,700	411	352	126	167	141	104
31	112	-	215	800	-	2,270	-	316	-	159	155	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,175	234	67	102	0.139	0.16
November	4,661	234	112	155	.211	.24
December	5,572	215	150	180	.246	.28
Calendar year 1937	189,601	5,890	67	519	.708	9.62
January	11,400	2,200	160	368	.502	.58
February	65,501	11,000	600	2,339	3.19	3.32
March	46,139	6,070	445	1,488	2.03	2.34
April	22,347	2,780	309	745	1.02	1.14
May	14,023	1,150	262	452	.617	.71
June	6,654	487	120	222	.303	.34
July	4,202	212	92	136	.186	.21
August	7,366	1,070	104	238	.325	.37
September	3,818	185	89	127	.173	.19
Water year 1937-38	194,958	11,000	67	534	.729	9.88

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 1938.

Extremes.- Maximum discharge observed during year, 2,340 second-feet Feb. 14 (gage height, 15.72 feet), from rating curve extended above 1,000 second-feet; minimum observed, 12 second-feet Sept. 10 (gage height, 3.90 feet).

1930-38: Maximum discharge observed, 3,300 second-feet May 1, 1933 (gage height, 18.10 feet), from rating curve extended above 1,000 second-feet; minimum observed, 2.7 second-feet Aug. 11, 1934 (gage height, 3.50 feet).

Remarks.- Records good except those for period of ice effect, Dec. 7 to Feb. 5, and periods of missing gage heights, Oct. 1-3, 9, 10, 16, 17, 23, 24, Nov. 6, 7, 13, 14, 20, 21, 27, 28, Feb. 6, 12, 13, 20-23, 25-28, Mar. 5, 6, 12, 13, 19, 20, 26, 27, which were computed on basis of weather records and records for stations on Black and Clinton Rivers and are poor. Discharge for Oct. 31, Dec. 5 interpolated. Gage read twice daily Oct. 1 to Mar. 31, once daily Apr. 1 to Sept. 30.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

3.9	12	5.0	74	6.0	179	10.0	781	12.5	1,320
4.1	20	5.2	91	6.5	245	10.5	874	13.5	1,620
4.3	28	5.4	110	7.5	385	11.0	975	14.5	1,920
4.5	39	5.6	131	8.5	535	11.3	1,040	15.1	2,100
4.8	59	5.8	154	9.5	695	11.9	1,170	16.0	2,460

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*17	25	120	62	250	179	490	70	82	48	23	14
2	*18	25	115	65	200	179	357	66	70	32	33	14
3	*18	24	105	75	200	179	287	59	59	32	24	15
4	18	22	100	70	200	179	231	66	52	32	16	16
5	25	22	80	65	350	*175	218	66	52	32	16	15
6	22	*25	59	60	*600	*175	192	52	52	21	15	14
7	22	*28	50	58	975	179	166	45	115	19	16	12
8	20	33	45	55	583	179	179	48	287	18	17	15
9	*20	38	37	52	460	154	415	52	120	17	15	16
10	*21	32	32	50	315	148	301	59	82	23	30	17
11	22	28	32	48	192	142	301	52	82	30	91	22
12	21	25	35	45	*500	*145	205	48	82	56	86	27
13	20	*26	35	45	*1,250	*145	166	45	82	32	35	29
14	20	*26	38	45	2,070	142	148	42	59	22	26	30
15	18	26	40	45	679	136	126	100	45	17	19	31
16	*17	27	40	45	505	315	105	179	42	16	16	32
17	*24	28	42	45	371	520	105	131	39	24	415	27
18	32	30	42	45	679	445	110	259	38	34	281	25
19	39	31	42	45	1,080	*375	105	315	36	26	86	23
20	37	*31	45	45	*750	*300	115	599	35	21	86	21
21	32	*30	45	45	*550	259	142	287	32	19	82	19
22	29	30	45	45	*450	231	115	218	26	17	78	22
23	*30	28	48	75	*325	567	96	154	22	16	48	24
24	*29	26	48	150	231	1,320	91	615	22	14	33	22
25	28	26	48	400	*200	615	91	245	23	13	25	19
26	27	*26	50	200	*190	*350	86	166	24	13	25	17
27	28	*40	50	150	*185	*250	78	131	24	25	20	17
28	28	80	52	175	*180	205	70	115	24	21	18	16
29	27	142	55	175	-	245	86	115	21	17	17	14
30	26	131	58	200	-	315	78	115	28	15	17	14
31	26	-	60	225	-	855	-	100	-	14	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	761	39	17	24.5	0.126	0.15
November	1,111	142	22	37.0	.191	.21
December	1,693	120	32	54.6	.281	.32
Calendar year						
January	2,905	400	45	93.7	.483	.56
February	14,520	2,070	180	519	2.68	2.79
March	9,603	1,320	136	310	1.60	1.84
April	5,255	490	70	175	.902	1.01
May	4,614	615	42	149	.768	.89
June	1,757	287	21	58.6	.302	.34
July	736	56	13	23.7	.122	.14
August	1,673	415	14	54.0	.278	.32
September	599	32	12	20.0	.103	.11
Water year 1937-38	45,227	2,070	12	124	.639	8.68

*Gage height missing.

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, Washtenaw County, near Ann Arbor.

Drainage area.- 723 square miles.

Records available.- January 1914 to September 1938.

Average discharge.- 24 years, 385 second-feet.

Extremes.- Maximum daily discharge during year, 2,160 second-feet Feb. 18; minimum, 113 second-feet July 28.
1914-38: Maximum daily discharge, 5,840 second-feet Mar. 14, 1918; minimum, 4 second-feet Sept. 11, 1931.

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.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	143	192	308	281	538	967	1,420	481	489	27[illegible]	119	197
2	147	196	306	319	475	1,040	1,140	492	477	190	175	114
3	136	191	314	235	599	1,010	1,120	430	127	218	159	179
4	139	181	377	212	530	892	999	446	371	238	168	149
5	158	209	348	238	918	891	1,000	479	366	191	194	147
6	157	205	321	223	1,550	866	928	313	336	226	176	138
7	141	204	327	230	1,390	831	921	277	574	219	187	127
8	140	226	286	178	1,200	816	1,030	438	620	17[illegible]	184	229
9	160	218	175	216	1,450	814	1,140	569	545	167	186	123
10	134	203	235	242	1,470	771	990	295	554	219	216	178
11	147	306	256	235	1,200	762	882	285	546	145	174	179
12	141	143	232	189	1,240	743	842	346	553	177	191	195
13	145	217	228	249	1,420	785	808	288	445	219	228	186
14	140	227	217	166	1,490	779	788	255	460	156	134	228
15	138	254	273	211	1,290	748	668	360	423	144	189	211
16	137	224	222	196	1,270	1,140	721	322	416	140	173	200
17	144	260	239	224	1,430	1,340	636	333	402	151	176	190
18	181	230	238	190	2,160	1,240	695	323	346	17[illegible]	190	223
19	237	226	243	206	2,080	1,140	618	535	291	14[illegible]	184	186
20	173	238	239	205	1,670	1,140	545	612	286	15[illegible]	132	191
21	200	215	237	212	1,800	1,090	617	451	326	12[illegible]	152	205
22	212	227	234	195	1,600	1,120	624	553	338	15[illegible]	188	231
23	202	222	186	189	1,450	1,320	571	609	330	13[illegible]	187	219
24	204	227	204	733	1,440	1,540	552	627	205	11[illegible]	167	214
25	209	209	200	877	1,190	1,270	551	703	238	16[illegible]	184	203
26	267	216	240	740	1,230	1,260	528	550	166	16[illegible]	193	216
27	127	221	213	438	961	952	484	562	192	14[illegible]	174	201
28	207	320	236	356	945	988	467	603	212	11[illegible]	159	235
29	198	403	223	475	-	1,260	480	639	207	19[illegible]	205	192
30	191	342	175	705	-	1,180	485	615	235	14[illegible]	205	192
31	175	-	233	553	-	1,570	-	583	-	11[illegible]	131	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,230	267	127	169	0.234	0.27
November	6,952	403	143	232	.321	.36
December	7,765	377	175	250	.346	.40
Calendar year 1937	156,658	1,960	73	429	.593	8.08
January	9,918	877	166	320	.443	.51
February	35,986	2,160	475	1,285	1.78	1.85
March	32,265	1,570	743	1,041	1.44	1.66
April	23,250	1,420	467	775	1.07	1.19
May	14,374	703	255	464	.642	.74
June	11,076	620	127	369	.510	.57
July	5,290	273	113	171	.237	.27
August	5,480	228	119	177	.245	.28
September	5,678	235	114	189	.261	.29
Water year 1937-38	163,264	2,160	113	447	.618	8.39

Raisin River near Adrian, Mich.

Location.- Chain gage, lat. 41°55', long. 83°59', on line between secs. 29 and 32, T. 6 S., R. 4 E., half a mile downstream from South Branch of Raisin River and 3 miles northeast of Adrian.

Drainage area.- 416 square miles.

Records available.- October 1930 to August 1931, October 1932 to April 1938 (discontinued).

Extremes.- Maximum discharge observed during year, 1,740 second-feet Feb. 7 (gage height, 13.60 feet); minimum not determined.
1930-31, 1932-38: Maximum discharge observed, 2,950 second-feet June 22, 1937 (gage height, 16.98 feet); minimum observed, 16 second-feet July 21, 1936.

Remarks.- Records good for February to April. Discharge for remainder of year not determined because of regulation. Records below 300 second-feet published for previous years may be in error because of effect of regulation. Gage usually read once daily, at times twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					720	341	1,680					
2					561	561	1,140					
3					542	700	845					
4					660	660	620					
5					542	600	523					
6					1,040	660	542					
7					1,650	580	523					
8					1,120	620	800					
9					1,020	580	1,470					
10					1,220	660	1,680					
11					820	720	1,320					
12					660	720	995					
13					680	720	680					
14					620	660	620					
15					660	542	466					
16					504	820	466					
17					542	1,380	447					
18					920	1,200	393					
19					1,270	870	375					
20					945	740	393					
21					780	523	375					
22					660	466	324					
23					580	970	324					
24					466	1,350	308					
25					447	1,140	324					
26					447	1,040	292					
27					466	920	308					
28					393	542	308					
29					-	760	308					
30					-	895	292					
31					-	1,410	-					

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	20,935	1,650	393	748	1.80	1.87
March	24,350	1,410	341	785	1.89	2.18
April	19,141	1,680	292	638	1.53	1.71
May						
June						
July						
August						
September						
Water year						

Raisin River at Monroe, Mich.

Location.- Water stage recorder, lat. 41°54'50", long. 83°23'15", at municipal water-supply plant in Monroe, 4 miles upstream from mouth. Zero of gage is 570,000 feet above mean sea level.
Drainage area.- 1,020 square miles.
Records available.- September 1937 to September 1938.
Extremes.- Maximum discharge during period, 4,020 second-feet Apr. 10 (gage height, 8.15 feet); minimum, 22 second-feet Sept. 4, 1938; minimum gage height, 3.73 feet June 23 (gates in dam open).
Remarks.- Records good, except those for periods when gates in dam below gage were open, Sept. 1, Oct. 22 to Nov. 10, 1937, May 27 to June 24, 1938, and those for period of missing gage heights, May 7-26, 1938, which were computed on basis of one discharge measurement and records for River Rouge at Detroit and Clinton River at Pontiac, and are fair.

Rating table, Sept. 1, 1937 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

5.6	53	6.4	795	7.4	2,400
5.8	167	6.6	1,070	7.8	3,210
6.0	332	6.8	1,370	8.2	4,150
6.2	545	7.0	1,690		

Discharge, in second-feet, Sept. 1-30, 1937

Sept. 1	240	Sept. 6	135	Sept. 11	167	Sept. 16	135	Sept. 21	135	Sept. 26	78
2	167	7	167	12	129	17	135	22	135	27	129
3	190	8	182	13	148	18	122	23	103	28	154
4	161	9	122	14	190	19	88	24	83	29	122
5	135	10	122	15	161	20	129	25	93	30	122

Note.- Mean discharge Sept. 1-30, 139 second-feet (0.136 second-feet per square mile); run-off, 0.15 inch.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	135	228	807	1,100	890	3,430	393	1,400	235	190	93
2	129	200	342	769	1,180	1,120	3,000	372	1,350	270	167	122
3	135	125	288	876	1,010	1,670	2,790	342	1,100	314	154	116
4	161	105	314	808	958	1,720	2,500	332	830	352	109	58
5	197	110	314	617	1,070	1,590	1,780	305	730	342	116	98
6	154	110	261	467	1,830	1,590	1,340	270	640	296	129	93
7	135	105	205	382	2,670	1,450	1,080	275	605	235	116	129
8	190	105	182	290	2,590	1,530	1,390	270	605	205	129	73
9	167	120	175	270	2,790	1,560	3,100	260	640	190	148	88
10	103	150	228	252	2,790	1,640	3,900	250	680	197	109	116
11	141	148	235	213	2,340	1,790	3,660	245	780	213	131	63
12	190	175	205	190	1,940	1,940	3,540	240	830	197	175	93
13	141	182	243	182	1,630	1,960	3,000	240	820	167	228	148
14	129	122	220	213	1,500	1,860	2,300	235	750	116	197	122
15	154	161	205	213	1,500	1,560	1,590	240	620	154	161	135
16	148	190	182	213	1,310	1,870	1,160	245	550	148	175	167
17	98	182	161	220	1,120	3,100	986	270	470	135	175	161
18	175	182	161	220	1,170	3,100	876	320	395	161	314	148
19	220	167	161	205	2,140	3,000	756	450	400	167	342	154
20	213	161	205	205	2,120	2,590	704	600	375	141	279	175
21	270	141	213	190	2,120	1,980	704	800	315	147	228	154
22	300	141	197	197	1,890	1,470	665	925	180	161	182	98
23	330	167	190	197	1,580	1,600	605	850	125	161	175	116
24	260	161	182	442	1,320	3,430	545	750	180	161	135	129
25	380	161	175	1,860	1,140	3,000	511	800	182	161	116	73
26	320	116	167	1,390	1,040	3,000	489	1,000	175	154	116	103
27	250	141	190	1,790	986	2,590	444	1,300	213	98	129	129
28	170	148	190	1,760	903	2,030	433	1,050	235	103	83	88
29	190	154	197	1,450	-	1,710	423	1,000	182	141	109	73
30	120	182	243	1,120	-	2,100	403	1,050	205	213	161	73
31	110	-	354	1,030	-	2,750	-	1,300	-	205	109	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,773	380	93	186	0.182	0.21
November	4,447	200	105	148	.145	.16
December	6,813	354	161	220	.216	.25
Calendar year						
January	19,044	1,860	182	614	.602	.69
February	45,737	2,790	903	1,633	1.60	1.67
March	63,190	3,430	890	2,038	2.00	2.31
April	48,104	3,900	403	1,603	1.57	1.75
May	16,979	1,300	235	548	.537	.62
June	16,562	1,400	125	552	.541	.60
July	5,940	352	98	192	.188	.22
August	5,087	342	83	164	.161	.19
September	3,388	175	58	113	.111	.12
Water year 1937-38	241,064	3,900	58	660	.647	8.79

Peak discharge.- Mar. 24 (11 a.m.) 3,780 sec.ft.; Apr. 1 (2 a.m.) 3,900 sec.ft.; Apr. 10 (11 a.m.) 4,020 sec.ft.

St. Marys River near Fort Wayne, Ind.

Location.- Chain gage, lat. 41°00', long. 85°08', in sec. 35, T. 30 N., R. 12 E., at highway bridge, 12 miles upstream from mouth of river and 4 miles south of Fort Wayne.
Drainage area.- 753 square miles.
Records available.- November 1930 to September 1938 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 observed during year, 7,400 second-feet Apr. 11 (gage height, 14.92 feet), from rating curve extended above 4,000 second-feet; minimum observed, 12 second-feet Sept. 23-25 (gage height, 0.62 foot).
1930-38: 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 doubtful gage heights, Jan. 27 to Feb. 2, which were computed on basis of weather records and records for Wabash River at Bluffton and are poor. Gage read once daily during entire year and twice daily Mar. 31, Apr. 1, 10, 11.

Rating tables, water year 1937-38 except periods of doubtful gage heights (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 10

0.4	6	1.8	148	6.0	1,230
.6	15	2.0	181	7.0	1,670
.8	28	2.5	272	8.0	2,190
1.0	45	3.0	374	10.0	3,390
1.2	66	3.5	484	12.0	4,830
1.4	91	4.0	605	14.0	6,530
1.6	118	5.0	880	15.0	7,500

Apr. 11 to Sept. 30

0.4	6	1.4	99	3.0	388
.6	11	1.6	129	3.5	500
.8	21	1.8	160	4.0	617
1.0	42	2.0	192	5.0	880
1.2	70	2.5	283		

Note.- Same as preceding table above gage height 4.7 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	84	312	1,040	260	417	6,710	176	144	1,150	477	35
2	42	77	332	850	260	417	6,080	168	122	820	275	32
3	39	60	353	820	253	417	4,990	160	98	765	345	35
4	32	58	417	680	253	507	3,460	144	86	641	366	35
5	23	63	417	605	253	1,270	1,820	99	86	500	388	35
6	24	60	292	395	253	2,550	1,310	92	83	263	209	32
7	22	67	253	395	253	2,430	1,430	88	86	176	200	30
8	22	65	181	395	253	1,670	5,470	92	83	99	99	32
9	23	60	164	353	253	1,430	6,710	92	86	46	98	35
10	67	60	104	253	272	1,430	7,100	88	86	55	92	40
11	70	56	104	225	353	1,350	7,400	77	83	63	86	35
12	67	58	181	216	461	910	6,440	69	715	80	80	37
13	78	58	198	216	580	790	3,390	66	209	83	77	37
14	72	56	332	216	1,430	820	2,070	57	144	99	71	144
15	72	54	1,010	216	1,390	2,250	910	57	129	98	71	136
16	74	56	1,350	216	1,150	4,510	820	60	114	88	160	129
17	77	54	1,570	198	880	4,910	523	57	106	83	168	114
18	198	54	2,610	190	3,030	5,230	477	63	98	74	160	76
19	272	54	3,090	148	3,950	5,150	388	209	92	71	122	56
20	484	54	3,210	156	4,020	4,910	366	218	71	66	86	35
21	580	52	3,150	140	3,390	3,210	303	209	71	63	83	21
22	580	56	2,850	133	3,090	1,270	263	184	69	57	77	13
23	555	58	2,670	133	2,850	1,570	263	176	69	55	66	12
24	1,010	56	1,920	148	1,820	3,390	263	152	71	57	62	12
25	820	65	1,010	181	820	2,910	244	144	209	55	45	12
26	580	70	760	216	630	2,550	209	136	2,550	69	42	14
27	332	67	555	225	461	1,670	209	144	2,310	263	42	19
28	164	190	353	210	439	1,670	209	218	1,010	477	37	21
29	111	253	353	200	-	880	176	218	765	523	32	23
30	111	292	374	240	-	1,120	176	209	569	345	35	20
31	91	-	395	270	-	6,080	-	200	-	388	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,732	1,010	22	217	0.288	0.33
November	2,367	292	52	78.9	.105	.12
December	30,870	3,210	104	996	1.32	1.52
Calendar year 1937	295,259	9,100	22	809	1.07	14.57
January	9,879	1,040	133	319	.424	.49
February	33,307	4,020	253	1,190	1.58	1.65
March	69,688	6,080	417	2,248	2.99	3.45
April	70,179	7,400	176	2,339	3.11	3.47
May	4,122	218	57	133	.177	.20
June	10,414	2,550	69	347	.461	.51
July	7,672	1,150	55	247	.328	.38
August	4,186	477	32	135	.179	.21
September	1,307	144	12	43.6	.058	.06
Water year 1937-38	250,723	7,400	12	687	.912	12.39

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 to September 1938.

Extremes.- Maximum discharge observed during period, 1,220 second-feet Aug. 8 (gage height, 5.57 feet); minimum observed, 0.9 second-foot Sept. 12 (gage height, 0.69 foot).

1925-35, 1938: 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.

Remarks.- Records good. Collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, July 20 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

0.7	1.0	1.5	30	3.2	306
.8	2.3	1.7	43	3.5	389
.9	4.4	2.0	69	4.0	547
1.0	7.0	2.3	106	4.5	730
1.1	10	2.6	160	5.3	1,070
1.3	19	2.9	229		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	69	6.2
2										-	45	3.7
3										-	20	2.7
4										-	13	1.4
5										-	9.2	1.3
6										-	54	1.6
7										-	1,020	1.3
8										-	1,070	1.3
9										-	229	1.3
10										-	80	1.8
11										-	68	1.2
12										-	59	22
13										-	31	24
14										-	20	29
15										-	16	31
16										-	14	10
17										-	9.5	12
18										4.9	7.9	7.6
19										4.9	7.3	6.2
20										5.9	6.2	5.1
21										4.4	4.6	6.2
22										28	7.9	9.5
23										16	6.2	5.7
24										9.9	7.0	5.1
25										5.9	6.7	4.6
26										4.4	7.6	4.2
27										4.2	7.0	3.3
28										3.1	6.2	2.9
29										4.4	7.3	2.5
30										2.9	7.3	2.1
31										8.2	5.7	-

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 18-31	107.1	28	2.9	7.65	0.085	0.04
August	2,923.6	1,070	4.6	94.3	1.05	1.21
September	224.8	31	1.2	7.49	.083	.09
Water year						

Sandusky River near Upper Sandusky, Ohio

Location.- Water-stage recorder, lat. 40°51'02", long. 83°15'23", in sec. 21, T. 2 S., R. 14 E., at highway bridge, three-quarters of a mile upstream from Rock Run and 2 miles northeast of Upper Sandusky.

Drainage area.- 299 square miles.

Records available.- October 1921 to December 1935; January to September 1938.

Average discharge.- 14 years (1921-35), 257 second-feet.

Extremes.- Maximum discharge during period, 4,370 second-feet Apr. 9 (gage height, 8.28 feet); minimum, 3.2 second-feet Sept. 10 (gage height, 1.01 feet).
1921-35, 1938: Maximum discharge, 6,750 second-feet Dec. 15, 1927 (gage height, 10.5 feet); minimum, 1.0 second-foot Sept. 6, 7, 1934 (gage height, 0.67 foot).

Remarks.- Records fair except those for periods of ice effect, Jan. 18-21, 26-31, Feb. 28 to Mar. 4, which were computed on basis of weather records and records for Olentangy River at Stratford and other nearby stations, and are fair. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, Jan. 18 to Sept. 30, 1938, except periods of ice-effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 21 to May 21)

1.0	3.0	2.3	248	5.0	1,680
1.1	6.0	2.6	367	5.5	2,020
1.2	13	2.9	505	6.0	2,380
1.4	38	3.2	656	6.5	2,770
1.6	70	3.5	814	7.0	3,180
1.8	108	4.0	1,080	7.5	3,610
2.0	155	4.5	1,370	8.2	4,270

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				-	969	190	1,480	46	46	81	38	12
2				-	430	170	640	42	42	91	84	11
3				-	327	160	324	40	35	84	75	9.3
4				-	662	150	234	37	31	72	41	9.3
5				-	538	404	186	34	32	53	27	7.4
6				-	448	2,360	180	31	30	41	28	5.2
7				-	530	1,630	927	30	23	31	351	4.9
8				-	373	621	2,990	25	20	28	1,060	4.3
9				-	250	416	4,220	30	18	31	788	4.3
10				-	211	241	1,930	27	22	27	263	3.7
11				-	180	263	833	24	38	18	970	4.9
12				-	175	221	548	19	103	14	456	6.6
13				-	210	362	286	18	119	15	208	22
14				-	288	2,620	278	20	102	17	113	112
15				-	336	3,910	217	27	62	15	73	106
16				-	202	2,690	180	44	44	12	50	67
17				56	148	2,390	152	32	34	11	38	47
18				51	504	1,180	135	41	30	10	30	30
19				48	2,520	719	121	50	30	13	24	22
20				45	3,080	500	110	78	24	17	18	16
21				43	1,920	370	100	136	20	16	15	13
22				41	945	286	86	270	19	28	15	13
23				42	1,490	504	77	154	17	49	12	13
24				61	1,040	1,440	70	115	16	30	12	20
25				214	560	829	63	131	18	28	13	19
26				500	394	470	60	116	74	19	13	13
27				150	305	342	55	75	605	12	10	8.6
28				100	230	259	47	76	596	11	12	8.6
29				80	-	217	48	92	203	15	13	6.9
30				120	-	221	48	65	104	15	12	6.4
31				1,200	-	895	-	53	-	24	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January 17-31	2,751	1,200	41	183	0.612	0.34
February	19,265	3,080	148	688	2.30	2.40
March	27,030	3,910	150	872	2.92	3.37
April	16,625	4,220	47	554	1.85	2.06
May	1,978	270	18	63.8	.213	.25
June	2,557	605	16	85.2	.285	.32
July	928	91	10	29.9	.100	.12
August	4,875	1,060	10	157	.525	.61
September	626.4	112	3.7	20.9	.070	.08
Water year						

Peak discharge.- Mar. 6 (8 p.m.) 2,770 sec.-ft.; Mar. 17 (2 a.m.) 2,770 sec.-ft.; Apr. 1 (3 a.m.) 1,810 sec.-ft.; Apr. 9 (m.) 4,370 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 to September 1938.

Average discharge.- 12 years (1923-35), 580 second-feet.

Extremes.- Maximum discharge during period, 2,340 second-feet Aug. 12 (gage height, 7.90 feet); minimum, 15 second-feet Sept. 10 (gage height, 1.64 feet).
1923-35, 1938: Maximum discharge observed, 13,900 second-feet Mar. 22, 1927 (gage height, 19.9 feet); minimum observed, 4 second-feet Aug. 25, 1928.

Remarks.- Records good. Collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, July 20 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

1.6	12	2.4	120	4.5	699
1.7	20	2.7	176	5.0	895
1.8	30	3.0	240	6.0	1,340
2.0	56	3.5	364	7.0	1,830
2.2	86	4.0	520	8.0	2,400

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	99	21
2										-	111	20
3										-	152	20
4										-	136	19
5										-	84	18
6										-	57	16
7										-	278	16
8										-	1,560	17
9										-	1,380	16
10										-	699	16
11										-	947	16
12										-	1,980	34
13										-	935	139
14										-	407	94
15										-	229	207
16										-	147	154
17										-	106	99
18										-	83	76
19										-	66	57
20										25	56	43
21										25	48	38
22										28	40	36
23										27	37	35
24										46	32	31
25										48	30	29
26										46	29	28
27										48	28	27
28										42	27	25
29										32	24	21
30										30	23	18
31										67	23	-

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 20-31	464	67	25	38.7	0.050	0.02
August	9,853	1,980	23	318	.410	.47
September	1,386	207	16	46.2	.060	.07
Water year						

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 to September 1938; November 1898 to March 1901 at site 4 miles downstream.

Average discharge.- 12 years (1923-35), 887 second-feet.

Extremes.- Maximum discharge during period, 2,710 second-feet Aug. 12 (gage height, 3.01 feet); minimum, 30 second-feet Sept. 6, 12 (gage height, 0.95 foot).
1923-35, 1938: Maximum discharge, 21,000 second-feet Mar. 14, 1933 (gage height, 9.73 feet); minimum, 7 second-feet (estimated) Dec. 24, 1934 (gage height, 0.85 foot), caused by ice jam above gage.

Remarks.- Records good. Collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, July 20 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

0.9	22	1.5	240	2.6	1,580
1.0	40	1.7	367	2.9	2,360
1.1	65	2.0	634		
1.3	138	2.3	1,030		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	164	40
2										-	162	40
3										-	138	38
4										-	172	38
5										-	143	34
6										-	105	32
7										-	174	38
8										-	1,990	38
9										-	2,000	36
10										-	1,070	36
11										-	624	36
12										-	2,280	36
13										-	1,460	203
14										-	615	288
15										-	338	377
16										-	218	330
17										-	148	214
18										-	109	143
19										54	83	87
20										54	80	77
21										72	68	71
22										83	65	74
23										68	62	68
24										71	54	62
25										62	51	56
26										68	49	46
27										68	51	46
28										65	46	49
29										62	42	42
30										59	42	44
31										65	44	-

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 19-31	851	83	54	65.5	0.052	0.03
August	12,647	2,260	42	408	.327	.38
September	2,719	377	32	90.6	.073	.08
Water year						

Grand River near Madison, Ohio

Location.- Chain gage, 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. Zero of gage is 674.47 feet above mean sea level.

Drainage area.- 587 square miles.

Records available.- July 1922 to December 1935, February to September 1938.

Average discharge.- 13 years (1922-35), 624 second-feet.

Extremes.- Maximum discharge during period, 9,490 second-feet Apr. 9 (gage height, 9.40 feet, from graph based on gage readings); minimum discharge observed, 3.0 second-feet Sept. 7 (gage height, 0.66 foot).

1922-35, 1938: 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 fair. Some regulation at low water by mill dam above gage. Records collected in cooperation with Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					-	382	2,130	100	61	164	312	4.9
2					-	438	1,400	36	44	138	295	4.9
3					-	1,100	1,040	67	24	114	249	4.3
4					-	757	757	65	46	111	205	4.9
5					-	1,400	478	74	58	70	174	3.9
6					-	5,080	312	45	48	65	116	4.1
7					-	3,020	312	42	39	70	177	3.2
8					1,640	2,020	2,130	38	35	37	220	3.9
9					2,740	1,730	8,490	54	32	32	166	4.1
10					6,600	1,180	6,150	39	29	25	125	3.9
11					3,160	610	4,490	39	27	28	205	9.0
12					1,920	346	3,310	35	158	23	220	120
13					4,880	295	1,920	35	205	24	109	280
14					6,830	346	1,100	37	138	21	96	1,100
15					2,610	458	458	51	88	21	74	2,880
16					1,180	1,100	295	42	205	20	65	809
17					706	3,780	234	41	382	20	50	295
18					1,100	3,160	234	70	191	19	24	177
19					6,150	2,130	520	114	140	20	18	191
20					4,300	1,640	706	757	88	20	18	191
21					2,610	1,040	542	657	75	16	18	205
22					1,920	542	382	458	27	15	19	1,920
23					2,740	458	264	328	33	14	14	3,160
24					2,130	975	205	542	25	16	12	1,040
25					1,400	1,180	169	419	26	16	11	419
26					1,040	1,320	142	280	59	14	9.7	249
27					757	1,240	125	328	220	15	4.3	153
28					419	757	104	249	234	18	3.9	100
29					-	542	98	172	328	19	5.2	90
30					-	862	84	100	249	18	5.2	47
31					-	1,480	-	58	-	52	5.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February 8-28	56,832	6,830	419	2,706	4.61	3.60
March	41,368	5,080	295	1,334	2.27	2.62
April	38,581	8,490	84	1,286	2.19	2.44
May	5,372	757	35	173	.295	.34
June	3,314	382	24	110	.188	.21
July	1,255	164	14	40.5	.069	.08
August	3,026.1	312	3.9	97.6	.166	.19
September	13,477.1	3,160	3.2	449	.765	.85
Water year						

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 1938.
Average discharge.- 25 years (1912-19, 1920-38), 26.8 second-feet.
Extremes.- Maximum discharge observed during year, 990 second-feet Mar. 5 (gage height, 8.1 feet), from rating curve extended logarithmically above 1,500 second-feet; minimum, 0.7 second-foot Sept. 6 (gage height, 0.29 foot, estimated).

1912-38: Maximum discharge, about 2,400 second-feet Apr. 22, 1916 (gage height, 14.6 feet), from rating curve extended logarithmically 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 days of rapidly changing stage and those for extremely low stages, which are fair, those for periods of ice effect, Dec. 9-20, Jan. 4-5, 9-14, 24-26, 30-31, Feb. 3-4, Feb. 28 to Mar. 2 (computed on basis of weather records and gage heights corrected for ice effect on basis of observer's and engineers' notes), and those for periods of missing gage heights, May 11-18, Aug. 9 to Sept. 17 (computed on basis of records for Genesee River at Scio), 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 on gage readings.

Rating table, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.2	0.23	0.7	6.63	1.6	44	3.6	223
.3	.77	.8	9.13	2.0	69	4.0	274
.4	1.73	.9	12	2.4	99	5.0	420
.5	2.95	1.0	15	2.8	135	6.0	584
.6	4.61	1.2	23	3.2	177		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	6.2	11	29	46	24	19	11	4.8	2.0	9.1	1.1
2	1.7	5.8	8.6	29	38	66	17	9.7	5.0	2.2	6.6	1.1
3	1.7	5.6	7.8	18	76	81	17	12	5.8	1.8	3.9	1.0
4	1.8	5.4	7.1	15	72	45	19	14	4.6	1.7	3.2	1.1
5	1.7	5.2	7.6	13	56	277	20	13	4.6	1.5	2.8	.8
6	2.0	5.2	8.6	12	353	266	21	42	4.2	1.5	2.6	.7
7	1.7	5.0	7.3	12	211	99	19	21	4.4	1.3	2.4	1.7
8	1.7	5.2	6.2	9.4	72	62	22	14	5.0	1.3	2.0	1.4
9	1.7	9.4	6.2	9.2	107	41	43	14	3.9	1.5	2.2	1.1
10	1.7	7.3	6.0	8.8	121	34	56	17	3.2	1.1	2.0	.9
11	1.7	6.2	6.0	8.6	44	37	250	16	4.1	3.4	9.0	1.0
12	1.7	5.4	5.8	8.6	36	44	203	13	5.4	3.2	5.0	.9
13	1.8	71	5.8	8.6	357	132	95	9.0	8.1	2.0	3.6	2.2
14	1.7	45	5.6	8.6	471	99	62	7.5	5.2	23	3.0	8.0
15	1.7	26	5.6	8.6	76	48	44	24	3.9	6.9	3.0	16
16	1.7	21	9.2	8.6	51	89	35	20	3.2	3.2	3.0	6.0
17	1.5	16	14	8.6	42	134	29	10	3.0	2.3	2.2	2.4
18	2.2	14	66	8.1	233	70	27	8.5	3.0	2.7	2.6	2.1
19	3.9	12	44	8.1	127	50	26	11	2.7	2.4	3.6	1.8
20	5.3	12	28	7.6	48	45	20	21	2.7	3.4	3.0	1.6
21	4.2	11	23	7.6	50	40	18	16	2.4	11	2.4	1.5
22	4.1	11	22	8.1	44	36	22	13	2.2	18	2.2	8.4
23	17	9.4	25	8.6	41	33	19	11	2.1	66	1.5	40
24	14	9.1	20	52	38	49	16	18	1.8	17	1.3	14
25	8.8	9.1	22	180	32	34	15	15	2.0	8.1	1.2	7.8
26	8.3	16	19	47	34	30	14	12	2.6	5.8	1.2	5.8
27	8.8	19	15	29	30	28	12	9.1	2.2	4.4	1.3	5.4
28	16	17	14	22	22	25	11	8.1	2.0	3.9	1.1	5.8
29	16	28	14	21	-	23	11	7.1	1.8	4.2	1.1	4.2
30	11	15	12	72	-	22	11	5.8	1.7	3.7	1.0	3.7
31	7.6	-	10	70	-	21	-	5.4	-	3.2	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	156.5	17	1.5	5.05	0.230	0.27
November	433.5	71	5.0	14.4	.655	.73
December	462.4	66	5.6	14.9	.677	.78
Calendar year 1937	10,716.1	532	1.5	29.4	1.34	18.12
January	756.7	180	7.6	24.4	1.11	1.28
February	2,928	471	22	105	4.77	4.97
March	2,084	277	21	67.2	3.05	3.52
April	1,193	250	11	39.8	1.81	2.02
May	428.2	42	5.4	13.8	.627	.72
June	107.6	8.1	1.7	3.59	.163	.18
July	213.7	66	1.1	6.89	.313	.36
August	90.2	9.1	1.0	2.91	.132	.15
September	149.5	40	.7	4.98	.226	.25
Water year 1937-38	9,003.3	471	.7	24.7	1.12	15.23

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. Prior to Aug. 11, 1938, staff gage at same site and datum.
Drainage area.- 309 square miles.
Records available.- June 1916 to September 1938.
Average discharge.- 22 years, 374 second-feet.
Extremes.- Maximum discharge observed during year, 7,120 second-feet Mar. 6 (gage height, 7.8 feet), from rating curve extended logarithmically above 3,600 second-feet; minimum discharge, 19 second-feet Sept. 6 (gage height, 0.01 foot).
1916-38: Maximum discharge observed, about 10,600 second-feet May 22, 1919 (gage height, 9.1 feet), from rating curve extended logarithmically above 3,600 second-feet; minimum, 13 second-feet (estimated) Sept. 12, 13, 22-26, 1932.
Remarks.- Records good. Discharge for periods of ice effect, Dec. 3-13, Jan. 17, 25-29, Feb. 2, 27, computed on basis of gage heights, observer's notes, and weather records; that for period of backwater from trash on control, Oct. 10-19, computed on basis of two discharge measurements and gage heights; that for days of partial gage heights, Jan. 9, Mar. 13, July 4, computed on basis of record for Allegheny River at Larabee, Pa. Gage read twice daily prior to installation of recorder. Observations on tape gage used Sept. 5-9.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 10-19)

Oct. 1 to Apr. 13						Apr. 14 to Aug. 10						Aug. 11 to Sept. 30			
0.1	27	1.2	218	4.0	2,040	0.2	32	1.0	156	2.5	710	0	18	1.0	164
.2	35	1.6	360	5.0	3,100	.3	42	1.2	204	3.0	1,005	.1	24	1.2	218
.4	55	2.0	550	6.0	4,400	.4	54	1.4	260	3.5	1,360	.2	32	1.6	360
.6	83	2.5	845	7.0	5,870	.6	82	1.6	324	4.0	1,800	.4	54	2.0	550
.8	119	3.0	1,200			.8	116	2.0	476	4.5	2,330	.6	83	2.5	845
1.0	164	3.5	1,600									.8	119	3.0	1,200

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	372	204	340	294	204	474	260	218	204	59	25
2	32	320	147	320	260	320	426	231	218	204	59	23
3	32	266	160	249	310	320	403	231	284	168	47	22
4	30	234	165	190	587	197	382	291	198	139	41	20
5	30	204	170	157	438	970	360	231	179	129	41	20
6	33	190	170	123	694	4,890	320	218	168	120	36	19
7	31	177	140	164	1,150	1,150	302	179	150	109	34	26
8	43	164	118	145	643	690	320	168	179	92	32	36
9	38	177	114	83	618	524	403	179	146	96	36	34
10	37	164	108	111	836	403	449	204	118	92	32	24
11	35	152	104	110	524	360	569	192	116	96	138	23
12	33	147	102	115	392	360	1,790	168	129	120	86	23
13	33	724	100	113	3,520	550	2,540	156	218	88	53	78
14	33	873	98	108	3,530	660	2,190	143	218	74	44	152
15	33	605	100	102	1,260	426	1,360	276	141	76	40	961
16	33	578	140	97	892	449	1,000	308	118	70	39	258
17	32	498	225	92	641	690	796	276	105	59	41	157
18	32	449	1,850	65	892	1,050	850	211	103	68	94	159
19	35	382	1,310	76	1,380	690	909	192	93	67	52	134
20	56	340	812	80	910	645	660	281	87	59	40	198
21	68	320	660	78	498	910	600	276	80	53	35	147
22	78	283	550	74	426	910	794	291	74	49	32	219
23	559	249	524	83	449	986	629	260	68	47	32	1,070
24	424	218	320	144	382	2,010	519	537	63	119	29	430
25	249	204	360	1,950	302	1,300	498	416	58	67	27	300
26	204	234	283	1,090	218	980	435	324	180	55	26	227
27	204	283	218	410	205	812	378	285	975	52	25	187
28	409	283	234	290	164	720	342	565	780	50	23	159
29	1,190	362	204	260	-	605	324	476	434	57	23	136
30	659	266	164	687	-	550	291	308	246	52	23	119
31	461	-	190	808	-	498	-	246	-	47	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,199	1,190	30	168	0.544	0.63
November	9,738	873	147	325	1.05	1.17
December	10,044	1,850	98	324	1.05	1.21
Calendar year 1937	156,993	4,700	29	430	1.39	18.90
January	8,704	1,950	65	281	.909	1.05
February	22,465	3,530	164	802	2.60	2.71
March	26,029	4,890	197	840	2.72	3.14
April	21,313	2,540	291	710	2.30	2.57
May	8,379	565	143	270	.874	1.01
June	6,144	975	58	205	.663	.74
July	2,771	204	47	89.4	.289	.33
August	1,343	138	23	43.3	.140	.16
September	5,386	1,070	19	180	.583	.65
Water year 1937-38	127,515	4,890	19	349	1.13	15.37

Genesee River at St. Helena, N. Y.

Location.- Water-stage recorder, lat. 42°37'20", long. 77°59'20", at highway bridge in St. Helena, Wyoming County, 1½ miles downstream from Wolf Creek.

Drainage area.- 1,017 square miles.

Records available.- August 1908 to September 1938.

Average discharge.- 30 years, 1,199 second-feet.

Extremes.- Maximum discharge during year, 17,200 second-feet Mar. 6 (gage height, 9.34 feet); minimum, 70 second-feet Sept. 6 (gage height, 2.05 feet).
1908-38: 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 Dec. 8-16, 18-19, Jan. 8-10, 15-25, Feb. 15, 16, 21, 22, Feb. 28 to Mar. 5 (computed on basis of four discharge measurements, gage heights, observer's notes, weather records, and records for other stations in Genesee River Basin), and those for period of missing gage heights July 16-27 (computed on basis of records for other stations in Genesee River 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).

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.1	79	2.6	265	4.0	1,300	6.0	4,500
2.2	103	2.8	365	4.5	1,900	7.0	7,150
2.3	135	3.0	475	5.0	2,600	8.0	10,900
2.4	174	3.5	825	5.5	3,450	9.0	15,500

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	750	658	672	1,450	750	1,100	862	620	434	320	191
2	172	652	562	1,520	813	1,200	1,230	816	524	407	380	101
3	302	577	471	872	818	1,100	1,180	792	564	374	280	91
4	310	530	501	670	1,440	850	1,150	972	609	338	200	93
5	312	461	584	575	1,230	1,900	1,130	844	488	301	190	86
6	230	434	622	518	2,220	15,000	997	772	446	272	176	80
7	100	396	620	518	7,030	6,800	785	745	428	240	166	106
8	92	393	500	440	2,690	2,720	896	722	473	212	146	204
9	204	558	320	280	1,950	1,730	2,060	680	469	220	148	175
10	318	640	300	400	3,720	1,330	2,120	688	390	210	158	120
11	322	466	280	580	1,700	1,220	2,560	710	350	470	2,390	115
12	347	378	440	624	1,120	1,100	7,280	682	374	637	930	100
13	345	964	420	571	4,100	2,490	8,570	605	552	411	598	760
14	172	2,910	420	553	14,000	4,350	6,470	548	753	281	570	515
15	100	1,490	460	500	4,600	1,920	4,020	644	598	237	484	1,770
16	177	1,170	460	480	2,000	1,990	2,870	1,390	420	260	446	1,410
17	334	1,080	479	460	1,550	2,660	2,450	1,040	356	360	429	711
18	335	954	1,800	360	1,750	2,860	2,170	790	318	380	292	542
19	328	794	4,400	260	4,630	2,530	2,830	692	288	320	184	754
20	224	714	2,280	340	2,330	2,320	1,940	886	275	220	191	550
21	159	710	1,500	360	1,500	2,350	1,500	1,060	262	190	166	396
22	190	648	1,230	550	1,400	2,040	1,480	796	239	180	147	438
23	301	588	1,190	600	1,260	1,860	2,050	734	216	460	145	2,600
24	778	528	915	650	1,120	3,970	1,670	910	203	550	146	1,600
25	672	486	783	3,200	1,020	3,040	1,380	1,740	192	300	122	892
26	466	514	728	4,350	1,170	2,070	1,150	984	238	220	113	688
27	432	676	662	1,220	1,170	1,820	956	764	502	180	238	565
28	740	714	597	778	850	1,460	824	702	1,230	192	339	463
29	3,020	958	546	646	-	1,230	772	1,260	678	412	326	440
30	1,770	868	506	753	-	1,140	876	1,210	528	364	320	405
31	992	-	458	2,190	-	1,060	-	904	-	241	320	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	14,345	3,020	92	463	0.455	0.52
November	23,001	2,910	378	767	.754	.84
December	25,692	4,400	280	829	.815	.94
Calendar year 1937	493,879	14,000	92	1,353	1.33	18.04
January	26,490	4,350	260	855	.841	.97
February	70,631	14,000	813	2,523	2.48	2.58
March	78,860	15,000	750	2,544	2.50	2.88
April	66,466	8,570	772	2,216	2.18	2.43
May	26,944	1,740	548	869	.854	.98
June	13,583	1,230	192	453	.445	.50
July	9,873	637	180	318	.313	.36
August	11,060	2,390	113	357	.351	.40
September	16,961	2,600	80	565	.556	.62
Water year 1937-38	383,906	15,000	80	1,052	1.03	14.02

Peak discharge.- Feb. 14 (8:15 a.m.) 16,400 sec.-ft.; Mar. 6 (3 p.m.) 17,200 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.

Drainage area.- 1,419 square miles.

Records available.- May 1903 to April 1906, August 1908 to April 1914, and July 1915 to September 1938.

Average discharge.- 28 years (1908-13, 1915-38), 1,564 second-feet.

Extremes.- Maximum discharge during year, about 18,000 second-feet Mar. 6 (gage height, 21.41 feet); minimum, 40 second-feet Sept. 4 (gage height, 0.25 foot); minimum daily discharge, 85 second-feet Sept. 4.

1903-6, 1908-14, 1915-38: Maximum discharge, 55,100 second-feet May 17, 1916 (gage height, 25.44 feet), from rating curve extended above 53,400 second-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. 9-27, Jan. 4, 5, Jan. 8 to Feb. 9, Feb. 17, 22-25, Feb. 28 to Mar. 5 (computed on basis of five discharge measurements, gage heights, weather records, and records for Genesee River at St. Helena, and Canaseraga Creek near Dansville), those for Mar. 27 to Apr. 1, Apr. 21, 22, Apr. 24 to May 14 (computed from gage heights corrected for partly plugged intake), and those for period of missing gage-height record, Apr. 2-9 (computed from records for Genesee River at St. Helena and Canaseraga Creek near Dansville), all of which are fair. Diurnal fluctuation at low stages caused by operation of power plants. Slight seasonal regulation caused by storage in Caneadea Reservoir (capacity, 1,106,000,000 cubic feet).

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	196	1,020	869	705	2,000	1,100	1,450	1,140	886	575	326	325
2	146	847	710	2,160	1,100	1,700	1,650	1,060	646	520	439	224
3	324	728	550	1,590	1,200	1,600	1,600	1,020	674	475	416	157
4	345	680	509	900	1,900	1,200	1,550	1,120	808	444	284	85
5	367	595	640	750	1,700	2,800	1,550	1,200	675	378	259	117
6	366	555	720	672	3,000	14,100	1,400	1,020	600	340	220	143
7	222	515	760	694	9,000	10,700	1,100	980	575	310	212	202
8	126	466	610	600	6,000	4,880	1,250	920	620	280	210	180
9	165	514	460	440	2,600	3,030	2,800	860	645	285	236	214
10	334	750	420	550	4,770	2,310	3,170	880	575	266	210	166
11	346	656	400	750	2,800	2,030	3,510	940	535	336	2,080	157
12	388	475	550	800	1,760	1,830	8,950	880	535	898	1,650	154
13	398	779	550	700	3,720	2,470	9,660	800	671	570	796	1,310
14	354	3,400	550	650	15,000	5,340	7,510	680	942	416	704	1,020
15	180	2,170	550	600	8,810	2,920	5,330	762	876	328	540	2,080
16	135	1,600	600	600	3,990	2,580	3,890	1,750	619	345	530	2,370
17	322	1,480	600	550	2,400	3,540	3,340	1,520	550	433	485	1,190
18	368	1,300	2,200	460	2,740	3,670	2,890	1,210	495	520	452	796
19	421	1,110	6,000	380	5,390	3,430	3,280	906	439	501	292	868
20	330	935	3,400	440	3,600	3,010	2,720	1,230	370	303	230	878
21	276	874	2,200	460	2,530	3,030	2,050	1,660	376	272	169	582
22	234	815	1,700	700	1,900	2,700	1,850	1,230	346	253	210	673
23	393	735	1,500	750	1,700	2,460	2,500	1,070	236	394	194	3,070
24	729	670	1,300	800	1,500	3,850	1,850	1,040	300	756	170	2,850
25	931	610	1,100	3,600	1,400	3,970	1,550	2,280	290	476	195	1,530
26	620	580	950	6,000	1,530	2,680	1,350	1,510	319	360	169	1,070
27	535	730	850	1,900	1,750	2,350	1,180	1,120	422	315	162	805
28	728	874	778	1,200	1,200	1,950	1,040	968	1,420	340	332	675
29	2,990	1,040	736	950	-	1,650	960	1,470	916	368	348	575
30	2,680	1,250	635	1,100	-	1,550	1,000	1,790	668	534	350	565
31	1,460	-	605	2,800	-	1,450	-	1,290	-	452	361	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	17,409	2,990	126	562	0.396	0.46
November	28,753	3,400	466	958	.675	.75
December	34,002	6,000	400	1,097	.773	.89
Calendar year 1937	641,627	14,400	126	1,758	1.24	16.82
January	35,251	6,000	380	1,137	.801	.92
February	96,990	15,000	1,100	3,464	2.44	2.54
March	101,880	14,100	1,100	3,286	2.32	2.68
April	83,930	9,660	960	2,798	1.97	2.20
May	36,306	2,280	680	1,171	.825	.95
June	18,029	1,420	236	601	.424	.47
July	13,043	898	253	421	.297	.34
August	13,233	2,080	162	427	.301	.35
September	25,031	3,070	85	834	.588	.66
Water year 1937-38	503,857	15,000	85	1,380	.973	13.21

Peak discharge.- Feb. 14 (3:30 p.m.) about 17,600 sec.-ft.; Mar. 6 (8 p.m.) about 18,000 sec.-ft.

158990 O—39——7

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 1938.
Average discharge.- 18 years (1920-38), 2,666 second-feet.
Extremes.- Maximum discharge during year, 19,000 second-feet Mar. 7 (gage height, 9.92 feet); minimum, about 27 second-feet (regulated) Sept. 13 (gage height, -2.20 feet); minimum daily discharge, 628 second-feet Oct. 17.
1919-38: Maximum discharge, about 29,600 second-feet Dec. 2, 1927 (gage height, 13.5 feet); minimum, less than 10 second-feet occurred frequently during low-water periods when power plant was shut down; minimum daily discharge, 219 second-feet Aug. 14, 1927.
Maximum discharge known, about 54,000 second-feet sometime in March 1865.
Remarks.- Records good. 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. Some additional regulation is provided by headwater storage in Caneadea Reservoir.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 15

0.8	616	2.2	1,600	5.5	7,550
.9	666	2.4	1,810	6.0	8,550
1.0	720	2.6	2,030	7.0	10,990
1.2	835	3.0	2,540	8.0	13,400
1.4	955	3.5	3,350	9.0	16,200
1.6	1,090	4.0	4,310	10.0	19,200
1.8	1,240	4.5	5,350		
2.0	1,410	5.0	6,450		

Feb. 16 to Sept. 30

0.9	605	2.2	1,540	5.0	6,360
1.0	655	2.4	1,750	6.0	8,460
1.2	760	2.6	1,970	7.0	10,700
1.4	885	3.0	2,500	8.0	13,400
1.6	1,020	3.5	3,310	9.0	16,300
1.8	1,170	4.0	4,280	10.0	19,300
2.0	1,340	4.5	5,310		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	999	2,200	2,110	1,260	3,550	1,520	2,450	2,380	2,110	1,360	1,310	970
2	840	1,930	1,750	1,520	3,780	2,410	2,420	2,440	1,820	1,220	1,100	905
3	700	1,750	1,460	3,010	3,040	5,920	2,030	2,210	1,590	1,160	1,270	889
4	831	1,540	1,380	2,480	3,010	3,380	2,190	2,170	1,620	1,170	1,210	873
5	950	1,470	1,330	1,860	3,170	3,020	2,000	2,250	1,650	1,170	940	668
6	1,050	1,370	1,550	1,680	3,650	10,800	1,970	2,500	1,550	1,080	872	638
7	1,060	1,200	1,750	1,620	5,990	16,800	2,010	2,210	1,520	987	867	790
8	934	1,220	1,860	1,450	10,200	14,300	2,270	1,940	1,470	970	874	758
9	805	1,280	1,740	1,240	7,560	7,320	1,840	1,930	1,450	1,020	886	715
10	727	1,220	1,330	1,450	6,780	4,210	5,630	1,890	1,470	850	1,090	738
11	918	1,490	951	1,140	7,090	3,580	6,130	1,930	*1,410	1,020	2,620	711
12	1,010	1,380	678	1,330	4,420	3,430	11,600	2,040	1,360	1,110	3,250	825
13	986	1,640	951	1,450	3,770	3,610	13,200	1,920	1,430	1,590	2,540	826
14	1,030	2,520	1,220	1,520	12,300	6,560	12,200	1,730	1,620	1,320	1,690	2,180
15	1,060	4,170	1,190	1,330	16,600	6,600	9,470	1,670	1,760	1,150	1,570	1,870
16	818	3,250	1,210	1,330	12,000	4,100	6,980	2,250	1,700	914	1,340	2,790
17	628	2,800	1,310	1,380	5,830	4,530	5,510	3,160	1,480	941	1,270	2,650
18	1,070	2,540	2,000	1,280	4,690	5,460	4,680	2,620	1,370	1,300	1,210	1,610
19	1,030	2,260	3,680	1,220	7,620	5,550	4,280	2,270	1,200	1,260	1,140	1,420
20	1,230	2,050	5,950	1,130	8,540	4,800	4,620	2,170	1,190	1,230	986	1,600
21	1,050	1,870	4,430	1,220	4,990	4,220	3,800	2,670	1,200	1,030	781	1,540
22	992	1,760	3,470	1,320	3,910	3,840	3,430	2,700	1,100	968	825	1,510
23	1,220	1,740	3,220	1,010	3,710	3,630	3,440	2,330	1,060	1,110	825	2,050
24	1,230	1,650	2,650	1,300	3,570	3,510	3,520	2,420	1,040	1,220	872	3,980
25	1,640	1,530	2,770	3,600	3,330	5,520	3,340	2,420	1,000	1,660	776	3,050
26	1,680	1,490	2,280	6,340	3,150	4,280	2,950	3,230	870	1,250	818	2,400
27	1,510	1,450	2,050	6,750	2,530	3,290	2,830	2,580	943	1,060	854	1,950
28	1,480	1,600	1,910	3,970	2,370	3,410	2,630	2,210	1,320	1,050	702	1,570
29	1,890	1,930	1,740	2,760	-	3,260	2,420	1,900	2,190	1,100	977	1,350
30	3,760	2,080	1,650	2,240	-	2,650	2,280	2,660	1,590	1,130	868	1,310
31	2,870	-	1,620	3,150	-	2,230	-	2,810	-	1,240	960	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	37,998	3,760	628	1,226	0.497	0.57
November	56,380	4,170	1,200	1,879	.762	.85
December	63,390	5,950	678	2,045	.829	.95
Calendar year 1937	1,069,223	15,400	465	2,929	1.19	16.13
January	64,340	6,750	1,010	2,075	.841	.97
February	161,150	16,600	2,370	5,755	2.33	2.43
March	157,740	16,800	1,520	5,088	2.06	2.38
April	134,120	13,200	1,840	4,471	1.81	2.02
May	71,610	3,230	1,670	2,310	.936	1.08
June	43,083	2,190	870	1,436	.582	.65
July	35,640	1,660	850	1,150	.466	.54
August	37,293	3,250	702	1,203	.488	.56
September	45,136	3,980	638	1,505	.610	.68
Water year 1937-38	907,880	16,800	628	2,487	1.01	13.69

Peak discharge.- Mar. 7 (12 m.) 19,000 sec.-ft.
*Partial record; discharge computed from hourly staff gage readings.

Canaseraga Creek near Dansville, N. Y.

Location.- Water-stage recorder, lat. 42°33'40", long. 77°42'55", at highway bridge, 1 mile West of Dansville. Livingston County.

Drainage area.- 153 square miles.

Records available.- July 1910 to December 1912, July 1915 to June 1917, and March 1919 to September 1938.

Average discharge.- 18 years (1920-38), 142 second-feet.

Extremes.- Maximum discharge during year, 4,420 second-feet Mar. 5 (gage height, 10.92 feet), from rating curve extended logarithmically above 1,000 second-feet; minimum, 15 second-feet Sept. 6 and 7 (gage height, 6.05 feet).

1910-12, 1915-17, 1919-38: Maximum discharge, about 9,920 second-feet July 8, 1935 (gage height, 13.71 feet), from rating curve extended logarithmically above 2,300 second-feet; minimum, 10 second-feet Aug. 9, 1934; minimum gage height, 5.50 feet Sept. 25, 1935.

Remarks.- Records good except those for periods of ice effect, Dec. 8-18, Jan. 9-11, 17-24, and Mar. 2-5 (computed on basis of four discharge measurements, gage heights, weather records, and records for other stations in Genesee River Basin), those for periods of backwater from debris on control, Oct. 1 to Dec. 7 (computed on basis of four discharge measurements, engineers' notes, and records for other stations in Genesee River Basin), and those for periods of missing gage heights, Dec. 19-25, May 13, July 3-8, 24, Sept. 13-17 (computed on basis of engineers' notes, and records for other stations in Genesee River Basin), all of which are fair. Slight diurnal fluctuations at low stages from operation of power plants upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	38	54	91	130	156	176	127	78	38	29	17
2	20	35	46	105	110	220	163	118	76	38	29	17
3	20	33	60	74	127	200	160	118	88	36	28	17
4	20	32	52	66	153	150	153	127	76	34	26	18
5	20	29	44	57	105	900	146	121	69	33	24	16
6	21	29	46	57	257	1,730	140	112	62	32	23	16
7	24	26	41	60	595	574	137	104	80	31	23	31
8	24	33	46	53	242	331	160	104	103	30	22	26
9	21	32	44	48	239	244	210	107	74	36	21	19
10	23	33	42	44	376	216	228	112	62	34	23	21
11	21	30	44	46	159	198	490	110	54	70	114	19
12	21	30	40	47	152	194	1,110	102	69	56	55	24
13	24	245	36	44	667	331	904	96	107	39	34	600
14	23	160	34	41	1,210	380	606	88	107	36	29	150
15	23	98	38	39	432	236	386	160	78	33	27	400
16	21	84	44	43	275	277	285	192	62	30	26	150
17	21	74	65	40	229	360	238	136	58	28	24	120
18	24	70	400	34	335	360	234	110	54	40	24	108
19	29	62	261	30	462	288	238	102	53	33	24	98
20	36	54	150	32	234	270	200	139	51	29	22	95
21	28	50	120	38	204	248	176	127	49	28	21	90
22	36	44	90	40	170	224	226	118	44	27	21	131
23	68	43	85	42	170	223	186	110	40	28	21	406
24	50	39	80	65	152	319	173	152	39	32	24	270
25	35	39	81	745	139	236	162	148	40	30	21	184
26	30	44	68	228	139	201	156	118	53	28	18	158
27	44	50	60	124	148	187	145	104	78	32	19	141
28	70	66	60	105	118	173	136	129	58	32	17	98
29	125	80	53	98	-	163	133	170	47	34	16	80
30	62	64	55	118	-	169	133	112	39	28	17	74
31	46	-	53	272	-	169	-	91	-	28	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,070	125	20	34.5	0.225	0.26
November	1,746	245	26	58.2	.380	.42
December	2,392	400	34	77.2	.505	.56
Calendar year 1937	54,311	1,620	20	149	.974	13.18
January	2,926	745	30	94.4	.617	.71
February	7,731	1,210	105	276	1.80	1.87
March	9,927	1,730	150	320	2.09	2.41
April	7,992	1,110	133	266	1.74	1.94
May	3,764	192	88	121	.791	.91
June	1,946	107	39	64.9	.424	.47
July	1,063	70	27	34.3	.224	.26
August	841	114	17	27.1	.177	.20
September	3,594	600	16	120	.784	.87
Water year 1937-38	44,994	1,730	16	123	.804	10.90

Peak discharge.- Feb. 14 (5 a.m.) 2,020 sec.-ft.; Mar. 5 (11:45 p.m.) 4,420 sec.-ft.

Canadice Lake outlet near Hemlock, N. Y.

Location.- Hook gage, lat. 42°44'25", long. 77°34'15", above weir at foot of Canadice Lake, Ontario County, 4 miles southeast of Hemlock, Livingston County.

Drainage area.- 12.6 square miles.

Records available.- April 1903 to September 1938.

Average discharge.- 35 years, 11.4 second-feet.

Remarks.- Data collected and computed by Department of Public Works, Division of Water, City of Rochester, N. Y.

Monthly discharge, water year October 1937 to September 1938

Month	Mean elevation of lake above low-water mark (feet)	Discharge in second-feet		Run-off in inches
		Mean	Per square mile	
October	+0.821	4.916	0.390	0.450
November	+.398	12.448	.988	1.102
December	-.172	2.506	.199	.229
Calendar year 1937	+1.140	13.317	1.057	14.350
January	+.436	.226	.018	.021
February	+2.264	9.239	.733	.763
March	+3.456	24.707	1.961	2.261
April	+3.474	24.055	1.909	2.130
May	+3.273	16.661	1.322	1.524
June	+2.885	9.464	.751	.838
July	+2.154	7.125	.565	.651
August	+1.512	5.646	.448	.516
September	+.868	6.255	.496	.553
Water year 1937-38	+1.781	10.249	.813	11.038

Note.- Terminal water-surface elevation on Dec. 31, 1937, was 0.98 foot higher than on Dec. 31, 1936, corresponding to an increase in storage of 27,321,537 cubic feet or a discharge of 0.866 second-foot for the year. This correction applied to the figure for the calendar year gives a mean discharge for the year of 14.183 second-feet, or 1.126 second-feet per square mile, and run-off of 15.285 inches from the drainage area.

Terminal water surface elevation on Sept. 30, 1938, was 0.18 foot lower than on Sept. 30, 1937, corresponding to a decrease in storage of 5,259,611 cubic feet, or a discharge of 0.167 second-foot for the year. This correction applied to the figure for the water year gives a mean discharge for the year of 10.082 second-feet, or 0.800 second-foot per square mile, and run-off of 10.859 inches from the 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 State Barge Canal datum).

Drainage area.- 5,121 square miles.

Records available.- November 1933 to September 1938. April 1897 to December 1901, October 1927 to September 1928 (accuracy doubtful) at High Dam, about three-quarters of a mile upstream.

Extremes.- Maximum discharge during year, 18,000 second-feet Mar. 1 (gage height, 8.55 feet), including mean daily discharge of canals; minimum (river only), 77 second-feet Oct. 22 (gage height, 1.16 feet); minimum daily discharge, 811 second-feet Oct. 16.
1933-38: Maximum discharge, 37,500 second-feet Mar. 28, 1936 (gage height, 13.10 feet), including mean daily discharge of canals); minimum (river only), 42 second-feet Oct. 23, 1935 (gage height, 1.01 feet); minimum daily discharge, 465 second-feet Aug. 12, 1934.

Remarks.- Records good except those for periods of missing river gage heights, Jan. 8, May 13-15, which were computed on basis of records of Oswego River Watershed Corporation at Fulton and are fair. Discharge here recorded represents total flow at Oswego, which includes flow of Hydraulic and Barge Canals. Discharge of Hydraulic Canal for Jan. 20, Mar. 1, 11, 18, 19, 26, Apr. 2, 8, 9, 13, 29, 30, May 21-22, June 15, July 30-31, Sept. 18 estimated. A large amount of natural storage and some artificial regulation is afforded in the river basin by the many large lakes and the Barge Canal system. Large diurnal fluctuations caused by operation of power plants upstream. Oswego River receives water from the Erie division of Barge Canal at Three Rivers. A small amount is occasionally diverted from tributary streams of the Oswego and is added to the summit level of the Barge Canal at New London.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	8,070	9,070	6,040	9,530	13,900	10,100	6,680	4,990	2,420	2,280	2,720
2	1,500	7,950	8,610	7,960	9,170	14,500	9,260	6,820	5,000	2,090	2,410	2,600
3	1,530	6,810	8,330	7,340	8,660	13,500	8,450	6,200	4,520	1,600	2,100	2,540
4	1,640	6,010	8,250	8,030	9,080	14,800	9,430	5,930	4,350	1,620	1,460	1,930
5	2,360	6,380	6,380	7,760	9,370	13,800	9,280	5,660	3,350	2,400	1,830	2,600
6	2,170	6,380	8,230	8,210	9,680	13,700	9,190	4,790	3,780	2,900	1,480	3,040
7	1,870	6,140	8,160	7,800	12,000	15,200	8,970	4,500	4,110	2,720	992	2,910
8	1,470	6,620	7,250	6,700	14,200	15,400	8,840	4,500	3,990	2,440	2,030	2,600
9	1,580	7,010	6,540	6,090	13,100	15,200	8,430	5,000	4,110	1,930	1,890	2,450
10	1,540	6,790	5,840	6,820	12,600	14,600	7,730	5,240	3,820	1,040	1,990	2,560
11	975	7,240	6,740	7,200	12,700	14,500	8,740	5,040	3,560	2,330	2,290	2,090
12	1,750	6,840	5,550	7,140	12,400	14,100	9,500	4,990	3,380	2,770	2,690	2,840
13	1,190	7,290	6,810	6,810	11,200	14,200	9,990	4,990	4,310	2,140	2,780	2,830
14	1,540	6,640	6,700	6,640	13,500	14,900	10,600	5,000	4,230	1,910	2,640	3,050
15	1,410	8,480	6,370	6,600	14,100	15,200	12,000	4,600	3,710	1,890	3,440	2,820
16	811	8,960	5,900	5,900	13,600	15,200	11,900	5,280	3,640	2,090	2,920	3,120
17	1,720	9,240	5,940	6,370	13,700	15,400	10,500	6,470	3,330	1,320	2,640	3,010
18	1,610	8,990	7,580	7,230	13,600	15,100	11,200	6,290	3,110	1,970	2,770	2,460
19	1,850	8,780	10,700	6,680	14,500	15,400	9,690	5,770	2,930	2,020	2,780	3,590
20	1,660	8,420	13,400	6,510	12,900	15,300	8,860	5,380	3,180	2,020	2,450	3,350
21	1,330	6,590	13,400	6,300	14,100	15,600	8,730	4,350	3,340	1,610	1,680	3,540
22	1,170	8,380	12,500	5,900	15,500	15,800	8,640	4,370	3,330	1,660	2,620	4,220
23	2,470	8,490	12,000	5,540	15,300	15,400	8,670	5,000	3,030	2,490	2,800	4,270
24	3,310	8,100	11,200	5,920	14,800	14,600	8,240	5,130	3,080	2,950	2,520	5,360
25	4,020	6,530	10,300	7,720	14,700	14,300	9,600	4,760	2,990	3,170	2,230	5,670
26	4,000	8,010	9,940	8,910	14,300	13,800	9,170	4,310	2,040	2,950	1,840	5,800
27	5,000	7,390	10,300	9,450	13,600	13,100	9,070	4,910	3,120	2,180	2,300	5,900
28	5,210	6,950	9,770	9,530	13,400	14,100	8,610	4,480	2,630	2,220	2,440	5,520
29	7,040	8,860	8,730	9,240	-	13,300	7,560	4,400	2,780	1,780	2,930	5,010
30	8,480	9,330	8,760	8,850	-	11,800	6,810	4,650	2,580	2,370	3,080	4,930
31	7,780	-	8,140	8,980	-	11,100	-	4,690	-	1,870	3,010	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	81,586	8,480	811	2,632	0.514	0.59
November	227,670	9,330	6,010	7,589	1.48	1.65
December	267,390	13,400	5,550	8,625	1.68	1.94
Calendar year 1937	2,598,986	18,400	811	7,121	1.39	18.86
January	226,370	9,530	5,540	7,302	1.43	1.65
February	355,490	15,500	8,660	12,700	2.48	2.58
March	446,800	15,800	11,100	14,410	2.81	3.24
April	277,960	12,000	6,810	9,265	1.81	2.02
May	160,780	6,820	4,310	5,186	1.01	1.16
June	106,320	5,000	2,040	3,544	.692	.77
July	66,870	3,170	1,040	2,157	.421	.49
August	73,312	3,440	992	2,365	.462	.53
September	105,330	5,900	1,930	3,511	.686	.77
Water year 1937-38	2,395,878	15,800	811	6,564	1.28	17.39

Peak discharge (including mean daily discharge of canals).- Mar. 1 (8:45 a.m.) 18,000 sec.-ft.; Mar. 4 (7 a.m.) 16,400 sec.-ft.

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 five miles south of Ithaca, Tompkins County. Zero of gage is 437.16 feet above mean sea level (general adjustment of 1912).
Drainage area.- 36.7 square miles.
Records available.- March 1937 to September 1938.
Extremes.- Maximum discharge during year, 1,550 second-feet Mar. 6 (gage height, 4.61 feet), from rating curve extended logarithmically above 350 second-feet; minimum, 2.2 second-feet Aug. 4, 5 (gage height, 0.45 foot).
1937-38: Maximum discharge, 2,100 second-feet Aug. 27, 1937 (gage height, 5.30 feet), from rating curve extended logarithmically above 350 second-feet; minimum, that of Aug. 4, 5, 1938.
Remarks.- Records good except those for periods of ice effect, Dec. 10, 11, Jan. 10, 11, 16-29 (computed on basis of one discharge measurement, gage heights, weather records, and records for Fall Creek near Ithaca and Owego Creek near Owego), and those for period of backwater from tree on control, Sept. 22-24 (computed on basis of one discharge measurement, weather records, and records for Fall Creek near Ithaca and Owego Creek near Owego), all of which are fair.

Rating tables, water year 1937-38 except periods of ice effect and backwater from tree on control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 24

0.7	10	1.6	116
.8	15	1.8	157
.9	22	2.0	205
1.0	31	2.2	258
1.2	52	2.5	350
1.4	80	2.8	460

Jan. 25 to Sept. 30

0.45	2.2	1.0	32
.5	3.1	1.2	54
.6	6.0	1.4	82
.7	10.3	1.6	117
.8	16	1.8	157

Note.- Same as preceding table above 1.7 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	71	44	47	31	43	42	30	12	7.5	4	3.1
2	12	67	39	41	36	84	38	27	12	8.9	3.3	2.9
3	12	61	35	33	65	73	37	27	15	6.8	2.7	2.9
4	12	51	34	29	52	46	34	26	12	6.4	2.5	2.9
5	11	48	36	29	37	106	33	27	11	5.2	2.5	2.5
6	12	43	37	26	58	386	31	24	12	5.1	3.2	2.5
7	11	40	35	49	123	100	39	22	12	5.4	3	4.8
8	10	39	30	39	60	76	44	21	14	4.8	2.7	4.7
9	10	37	29	20	88	63	56	26	11	3.7	3.4	3.4
10	13	33	27	27	84	56	60	25	9.5	3.7	3.8	3.5
11	12	31	26	29	51	52	98	23	10	6.5	20	3.4
12	11	29	24	25	53	62	98	21	11	6.7	5.5	3.7
13	10	285	22	26	168	164	78	20	14	4.9	5	11
14	10	162	21	24	159	118	67	19	9.3	4	3.4	20
15	10	106	21	21	74	81	63	73	9.2	4	3.6	45
16	10	82	34	20	61	95	60	43	6.8	3.7	2.9	15
17	10	74	55	18	61	147	50	28	7.2	3.4	2.9	10
18	10	65	271	17	79	139	53	23	7.2	4.9	3.5	9.3
19	12	57	139	16	80	112	55	22	6.8	4.8	3.6	8
20	21	53	94	16	57	108	47	28	6.8	4.1	2.9	12
21	18	50	74	17	51	94	43	23	6	4.3	2.7	67
22	13	44	70	20	50	80	97	23	6	5.7	8.4	102
23	218	40	62	24	48	78	63	20	6	4.2	4.8	98
24	103	40	45	33	45	87	52	31	6	4	4	44
25	57	39	48	260	40	66	48	24	5.4	5.5	4	27
26	46	42	44	82	42	62	42	19	9.3	4.6	3.9	20
27	53	41	38	43	40	57	39	18	18	7.2	3.6	18
28	265	61	38	27	29	52	34	16	13	4.5	2.9	14
29	320	64	35	35	-	47	32	15	7.2	5.3	3	14
30	136	49	33	51	-	44	32	14	6.8	4.2	3.1	12
31	90	-	32	50	-	43	-	13	-	3.4	3.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,550	320	10	50.0	1.36	1.57
November	1,904	285	29	63.5	1.73	1.93
December	1,572	271	21	50.7	1.38	1.59
Calendar year						
January	1,194	260	16	38.5	1.05	1.21
February	1,822	168	29	65.1	1.77	1.84
March	2,821	386	43	91.0	2.48	2.86
April	1,555	98	31	51.8	1.41	1.57
May	771	73	13	24.9	.678	.78
June	292.5	18	5.4	9.75	.266	.30
July	157.4	8.9	3.4	5.08	.138	.16
August	127.9	20	2.5	4.13	.113	.13
September	586.6	102	2.5	19.6	.534	.60
Water year 1937-38	14,353.4	386	2.5	39.3	1.07	14.54

Peak discharge.- March 6 (1:15 a.m.) 1,550 sec.-ft.

Fall Creek near Ithaca, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°27'20", long. 76°26'30", in Forest Home, Tompkins County, half a mile above Cornell University dam and 1½ miles northwest 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 1938. July 1908 to June 1909 at site 1¼ miles downstream.

Average discharge.- 13 years (1925-38), 188 second-feet.

Extremes.- Maximum discharge during year, 3,070 second-feet Oct. 29 (gage height, 4.17 feet); minimum daily discharge, 13 second-feet Aug. 7.

1925-38: 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).

Remarks.- Records good except those for periods of ice effect, Dec. 7-18, Jan. 3-29, Feb. 1-3, Feb. 26 to Mar. 5 (computed on basis of two discharge measurements, gage heights, and weather records), and those for periods of missing gage heights, Oct. 7-9, 14-19, June 22-27, June 30 to July 17, July 29 to Aug. 2, Aug. 4-8, 15-24, Aug. 26 to Sept. 24 (computed on basis of records for Owego Creek near Owego, Cayuga Inlet near Ithaca, and Tioughnioga River near Itaska), all of which are fair. During the year Cornell University diverted 219,448,000 gallons about a mile above gage for its water supply, thus reducing the mean discharge at the station 0.93 second-foot for the year.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1-28

0.5	24	1.6	239
.6	32	1.8	339
.8	51	2.0	463
1.0	75	2.2	598
1.2	110	3.0	1,270
1.4	163	4.0	2,760

Oct. 29 to Sept. 30

0.3	12	.8	48	1.6	238
.4	17.5	1.0	71	1.8	339
.5	24	1.2	103		
.6	31	1.4	158		

Note.- Same as preceding table above 1.7 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	286	191	174	180	160	252	133	48	29	19	37
2	27	252	155	180	140	220	191	115	47	34	18	36
3	26	262	126	140	220	320	180	103	60	30	17	38
4	27	212	123	110	422	190	173	99	58	27	16	36
5	28	180	127	110	252	180	158	96	50	24	15	35
6	30	173	149	100	354	981	146	99	44	22	14	33
7	29	162	140	190	1,020	522	152	87	44	21	13	37
8	29	152	100	200	466	342	191	81	47	20	14	108
9	33	155	120	100	461	257	232	88	46	19	14	80
10	39	139	110	95	868	218	314	105	44	19	16	50
11	41	122	100	90	315	213	410	101	39	28	982	46
12	42	110	95	95	276	238	668	94	49	35	279	50
13	31	576	90	90	470	685	471	85	76	25	88	400
14	32	641	85	85	1,170	937	328	81	62	22	56	300
15	31	335	90	75	497	460	267	334	45	25	44	1,300
16	30	286	160	70	325	468	252	309	37	28	37	390
17	29	238	280	65	272	772	199	142	33	21	34	215
18	28	277	1,400	60	389	1,110	208	101	32	22	350	270
19	31	221	962	55	699	588	298	82	31	22	175	230
20	49	216	444	60	383	515	246	148	31	21	100	500
21	91	199	312	65	253	476	238	183	29	22	78	960
22	65	176	276	70	226	386	546	125	28	38	640	2,050
23	1,240	169	292	80	243	323	423	99	26	34	195	1,150
24	1,040	169	189	110	221	378	243	112	25	27	125	680
25	364	162	199	1,700	212	297	204	142	23	23	110	406
26	239	188	180	700	160	252	176	96	26	20	82	292
27	266	271	150	260	180	248	158	82	44	16	68	234
28	476	299	142	190	100	243	142	75	37	18	60	229
29	2,280	423	130	160	-	257	127	69	30	21	52	180
30	743	252	115	211	-	229	136	60	28	17	46	158
31	394	-	117	288	-	238	-	54	-	20	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,840	2,280	26	253	2.05	2.35
November	7,303	641	110	243	1.96	2.19
December	7,149	1,400	85	231	1.86	2.14
Calendar year 1937	83,390	2,280	23	228	1.84	25.01
January	5,978	1,700	55	193	1.56	1.80
February	10,774	1,170	100	385	3.10	3.23
March	12,703	1,110	160	410	3.31	3.82
April	7,729	668	127	258	2.03	2.32
May	3,580	334	54	115	.927	1.07
June	1,219	76	23	40.6	.327	.36
July	750	38	16	24.2	.195	.22
August	3,798	982	13	123	.992	1.14
September	10,530	2,050	33	351	2.83	3.16
Water year 1937-38	79,353	2,280	13	217	1.75	23.80

Peak discharge.- Oct. 29 (8:15 a.m.) 3,070 sec.-ft.; Dec. 18 (6 p.m.) 2,080 sec.-ft.; Jan. 25 (4:15 p.m.) 2,850 sec.-ft.; Sept. 22 (about 4 a.m.) 3,040 sec.-ft.

Owasco Lake outlet near Auburn, N. Y.

Location.- Water-stage recorder and concrete control, lat. 42°56'45", long. 76°36'05", 22 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 1938.

Average discharge.- 25 years (1913-38), 285 second-feet.

Extremes.- Maximum discharge during year, 1,850 second-feet (regulated) May 29 (gage height, 3.72 feet); minimum, about 14 second-feet several times in July, August, and September; minimum gage height, 1.53 feet July 20 (backwater from weeds); minimum daily discharge, 40 second-feet July 21.

1912-32: Maximum discharge (regulated), 2,090 second-feet Mar. 19, 1936 (gage height, 4.38 feet); minimum, about 2 second-feet Dec. 5, 1933 (gage height, 1.38 feet); minimum daily discharge, 5 second-feet Nov. 11, 1934.

Remarks.- Records excellent except those for periods of backwater from weeds, Oct. 1 to Nov. 15, Nov. 19, 20, Nov. 24-27, Dec. 4, 5-19, Dec. 22 to Jan. 10, Jan. 12 to Feb. 6, June 8-11, and June 15 to Sept. 30, which were computed on basis of five discharge measurements, gage heights, and the 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 to outlet above gaging station as sewage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	205	421	370	370	587	368	401	266	145	88	82
2	135	280	414	320	370	579	380	401	282	130	80	78
3	130	260	408	370	360	555	373	394	274	125	82	78
4	125	260	370	380	360	539	375	387	278	124	80	76
5	124	260	401	380	340	531	385	392	269	125	80	76
6	124	260	414	380	360	571	381	390	278	118	80	70
7	118	245	414	400	485	612	378	368	235	122	84	80
8	116	260	390	390	560	620	369	368	180	124	78	64
9	110	260	320	300	564	620	384	387	165	125	78	64
10	118	260	260	330	691	595	385	401	165	122	104	54
11	116	260	260	414	711	587	418	401	160	125	116	56
12	104	260	260	390	692	579	410	333	230	118	80	76
13	102	290	260	300	708	587	397	285	160	118	78	90
14	102	260	260	260	791	646	395	273	170	122	78	112
15	102	330	260	245	828	663	389	363	170	124	78	106
16	112	414	260	220	819	615	382	408	165	122	80	110
17	102	408	260	245	778	670	374	394	165	122	80	112
18	110	401	310	260	788	697	385	394	160	116	82	106
19	112	390	330	260	819	748	384	322	155	125	80	112
20	112	380	411	250	819	774	371	282	165	102	76	122
21	104	401	411	260	801	765	374	316	155	40	82	160
22	96	428	390	240	783	731	476	344	160	88	82	155
23	145	421	360	235	748	688	508	374	165	118	80	140
24	122	390	370	250	706	646	500	400	155	88	84	124
25	122	390	370	290	680	604	531	403	150	90	88	145
26	135	390	370	250	663	638	547	334	145	80	80	155
27	140	390	390	260	646	654	508	283	140	82	82	170
28	150	414	380	330	612	612	434	272	145	82	80	175
29	170	414	320	360	-	524	401	412	145	92	80	175
30	124	414	370	370	-	429	408	268	145	84	80	170
31	135	-	370	390	-	372	-	250	-	78	84	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,757	170	96	121	0.582	0.67
November	9,995	428	205	333	1.60	1.78
December	10,864	421	260	350	1.68	1.94
Calendar year 1937	124,154	850	96	340	1.63	22.17
January	9,739	414	220	314	1.51	1.74
February	17,872	828	340	638	3.07	3.20
March	19,038	774	372	614	2.95	3.40
April	12,370	547	368	412	1.98	2.21
May	11,000	412	250	355	1.71	1.97
June	5,597	282	140	187	.899	1.00
July	3,376	145	40	109	.524	.60
August	2,564	116	76	82.7	.398	.46
September	3,293	175	54	110	.529	.59
Water year 1937-38	109,465	828	40	300	1.44	19.56

Note.- Increase in storage in Owasco Lake during calendar year 1937 was approximately 155,060,000 cubic feet (equivalent mean discharge of 4.92 second-feet); increase during water year 1937-38 was approximately 479,536,000 cubic feet (equivalent mean discharge of 15.2 second-feet).

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 1938.
Average discharge.- 15 years, 558 second-feet.
Extremes.- Maximum discharge during year, 6,800 second-feet Mar. 24 (gage height, 6.80 feet, backwater from ice), from rating curve extended logarithmically above 4,400 second-feet; minimum, 20 second-feet (regulated) Sept. 11 (gage height, 0.26 foot).
1923-38: 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. 7-16, Dec. 25 to Jan. 3, Jan. 15-24, Jan. 27 to Feb. 4, Mar. 3, 4, 24, (computed on basis of three discharge measurements and gage heights except Dec. 26-31, Jan. 20, 30, 31), and those for periods of faulty or missing gage-height record, Dec. 17-20, Jan. 4, 25, Feb. 8, 9, Aug. 23, 24 (computed on basis of occasional gage readings and recorded range in stage), which are fair.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 8 to Mar. 23)

Oct. 1-23

0.1	12	1.0	135	3.0	1,230
.2	17	1.2	193	3.5	1,730
.3	23	1.4	262	4.0	2,320
.4	30	1.6	343	4.5	3,010
.5	39	1.8	433	5.0	3,820
.6	51	2.0	531	5.5	4,810
.8	86	2.5	835		

Oct. 23 to Sept. 30

0.2	16.5	1.2	162	3.5	1,630
.3	22	1.4	226	4.0	2,240
.4	29	1.6	300	4.5	2,980
.5	38	1.8	385	5.0	3,820
.6	48	2.0	480	5.5	4,800
.8	74	2.5	760	6.0	6,000
1.0	110	3.0	1,140	7.0	8,900

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	490	560	220	550	354	2,280	333	129	60	139	139
2	30	413	418	200	650	385	1,650	273	120	133	184	82
3	29	520	264	200	750	360	1,060	244	159	91	132	88
4	27	520	285	200	800	340	851	226	161	67	88	74
5	34	461	289	206	700	399	718	210	151	56	76	68
6	138	558	285	178	1,210	802	574	219	129	49	85	81
7	262	618	240	266	2,900	858	552	230	147	42	60	139
8	219	664	150	270	2,410	724	568	216	270	40	46	366
9	140	1,590	180	230	1,870	602	675	216	218	44	38	222
10	122	1,270	170	237	1,650	520	774	233	134	107	45	154
11	117	737	160	219	1,160	466	741	219	150	97	640	90
12	104	510	150	210	956	432	948	216	262	82	502	109
13	152	1,100	140	210	816	536	932	248	251	158	228	984
14	128	2,980	130	200	2,300	879	1,120	262	148	107	136	549
15	102	1,550	130	170	1,750	872	1,830	616	100	464	93	1,120
16	86	986	160	200	1,200	886	2,150	957	77	276	66	840
17	80	781	281	190	900	1,120	1,650	560	70	144	97	464
18	73	742	865	180	1,050	2,160	1,550	363	87	143	1,050	385
19	1,010	624	1,140	160	1,370	1,980	1,560	270	70	142	581	329
20	1,300	520	816	170	1,090	2,030	1,140	282	63	102	294	311
21	1,020	461	618	160	795	3,420	893	404	56	104	190	928
22	634	390	536	160	658	3,680	1,610	320	59	124	462	3,960
23	3,130	333	437	180	596	3,860	1,630	273	45	230	244	3,100
24	3,260	333	312	190	536	6,000	925	588	41	704	193	1,620
25	1,210	295	320	408	470	3,260	664	712	43	485	139	896
26	736	338	300	640	413	2,310	552	442	99	242	97	580
27	788	515	280	600	427	1,780	466	312	100	130	67	501
28	706	928	240	550	341	1,280	390	290	73	88	81	540
29	1,490	1,280	240	600	-	1,120	341	270	55	195	61	399
30	1,090	848	220	650	-	1,410	337	200	46	213	76	308
31	688	-	190	700	-	2,260	-	165	-	144	141	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	18,930	3,260	25	611	3.23	3.72
November	23,355	2,980	295	778	4.12	4.60
December	10,506	1,140	130	339	1.79	2.06
Calendar year 1937	203,807	4,400	16	558	2.95	40.09
January	8,954	700	160	289	1.53	1.76
February	30,318	2,900	341	1,083	5.73	5.97
March	47,085	6,000	340	1,519	8.04	9.27
April	31,131	2,280	337	1,038	5.49	6.12
May	10,369	957	165	334	1.77	2.04
June	3,513	270	41	117	.619	.69
July	5,063	704	40	163	.862	.99
August	6,331	1,050	38	204	1.08	1.24
September	19,426	3,960	68	648	3.43	3.83
Water year 1937-38	214,981	6,000	25	589	3.12	42.29

Peak discharge.- Mar. 24 (10 a.m.) 6,800 sec.-ft.; Sept. 22 (4:30 a.m.) 4,700 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 1938.
Average discharge.- 27 years, 661 second-feet.
Extremes.- Maximum discharge during year, 6,240 second-feet Mar. 25 (gage height, 9.45 feet); maximum gage height, 11.43 feet Feb. 7 (ice jam); minimum discharge, 96 second-feet Sept. 6 (gage height, 3.61 feet).
1911-38: Maximum discharge, about 10,000 second-feet Mar. 28, 1913 (gage height, about 12.5 feet); minimum, about 5 second-feet Aug. 26, 1918 (gage height, 2.40 feet).
Remarks.- Records good except those for periods of ice effect, Nov. 24-25, Dec. 4 to Feb. 12, Feb. 14-18, 22, Mar. 1-16 (computed on basis of three discharge measurements, gage heights except those for Dec. 10-25, Dec. 27 to Jan. 1, Jan. 8-9, Mar. 13-16, weather records, and records for stations on nearby streams), and those for periods of missing gage heights, Mar. 17-21, Apr. 4-5, 10-18, May 2-6, May 24 to June 3, Aug. 16-20 (computed on basis of records for Moose River at McKeever and stations on nearby streams, and operation of Forestport feeder dam), which are fair. Flow partially regulated by several headwater reservoirs. Forestport feeder diverts from State Pond at Foresport. That portion of the diverted water which does not pass down Black River Canal (flowing south) returns to Black River downstream from station through Mill Creek sluiceway.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.6	95	4.1	186	5.0	505	7.5	2,470
3.7	110	4.2	211	5.5	770	8.0	3,160
3.8	126	4.4	270	6.0	1,100	8.5	4,030
3.9	144	4.6	339	6.5	1,470	9.0	5,100
4.0	164	4.8	417	7.0	1,910		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	560	770	280	650	460	2,280	550	296	150	206	177
2	131	505	605	280	650	440	2,050	560	283	265	296	164
3	133	560	463	260	700	420	1,550	469	270	362	303	144
4	130	580	440	260	700	400	1,260	421	267	314	228	135
5	135	535	420	260	750	380	1,140	401	325	245	166	120
6	186	545	400	260	900	460	1,070	438	347	182	140	108
7	264	585	380	280	2,000	600	1,050	443	314	140	133	135
8	245	595	360	320	2,600	700	1,020	417	381	128	126	335
9	214	812	360	360	2,000	600	1,060	385	350	135	148	315
10	206	918	340	380	1,700	500	940	389	293	179	146	214
11	201	737	320	300	1,200	480	1,000	397	296	188	316	164
12	179	649	320	280	1,000	480	1,000	385	420	268	409	150
13	164	845	320	260	788	500	1,040	385	510	653	271	577
14	156	1,820	300	260	1,400	550	1,100	385	413	446	188	840
15	152	1,960	300	240	1,900	650	1,400	507	321	515	152	902
16	146	1,470	300	240	1,500	750	2,030	794	251	403	139	974
17	144	1,250	340	220	1,100	900	1,600	622	214	277	126	689
18	146	1,210	500	220	1,000	1,100	1,450	482	194	225	380	540
19	357	967	1,100	200	1,100	1,300	1,700	413	184	222	438	492
20	641	806	1,200	200	1,060	1,400	1,470	421	177	191	328	487
21	770	676	950	200	890	1,930	1,160	634	158	164	242	967
22	543	545	750	190	800	2,690	1,220	676	142	166	440	4,190
23	931	447	650	200	737	3,340	1,540	555	137	171	487	4,700
24	1,680	420	550	240	671	4,980	1,180	616	131	351	343	2,620
25	1,070	400	480	420	622	4,860	846	794	135	355	270	1,580
26	654	417	440	950	545	3,080	726	748	242	239	228	1,100
27	550	447	400	1,200	565	2,300	710	555	267	179	196	866
28	560	675	360	1,100	482	1,750	638	474	214	184	179	782
29	989	1,120	340	900	-	1,390	590	409	166	259	168	649
30	952	1,070	320	750	-	1,410	560	354	146	245	175	540
31	702	-	280	700	-	1,760	-	321	-	206	191	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,464	1,680	130	434	1.47	1.70
November	24,126	1,960	400	804	2.73	3.05
December	15,058	1,200	280	486	1.65	1.90
Calendar year 1937	256,439	3,500	130	703	2.38	32.34
January	12,210	1,200	190	394	1.34	1.54
February	30,010	2,600	482	1,072	3.63	3.78
March	42,560	4,980	380	1,373	4.65	5.36
April	36,380	2,280	560	1,213	4.11	4.59
May	15,400	794	321	497	1.68	1.94
June	7,844	510	131	261	.885	.99
July	8,007	653	128	258	.875	1.01
August	7,558	487	126	244	.827	.95
September	25,656	4,700	108	855	2.90	3.24
Water year 1937-38	238,273	4,980	108	653	2.21	30.05

Peak discharge.- Mar. 25 (12:15 a.m.) 6,240 sec.-ft.; Sept. 22 (10 p.m.) 6,080 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 1938.
Average discharge.- 18 years, 3,913 second-feet.
Extremes.- Maximum discharge during year, 23,800 second-feet Mar. 25 (gage height, 8.54 feet); minimum, 48 second-feet Aug. 14 (gage height, -0.03 foot); minimum daily discharge, 864 second-feet July 4.
1920-38: 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 discharge, 410 second-feet Aug. 13, 1923.
Maximum discharge known, about 39,700 second-feet sometime in April 1869.
Remarks.- Records excellent except those for period of missing gage heights, Jan. 18-22, which were estimated and are good. Flow partly regulated by Stillwater Reservoir, Fulton Chain of Lakes, and other reservoirs in upper river basin. During canal season water is diverted out of river basin through Forestport feeder and Black River canal (flowing south). Large diurnal fluctuation caused by operation of mills and power plants in and upstream from Watertown.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1-23

1.3	880	2.2	2,120
1.4	990	2.4	2,490
1.6	1,220	2.6	2,890
1.8	1,490	2.8	3,320
2.0	1,790	3.0	3,780

Oct. 24 to Sept. 30

1.2	777	2.4	2,490	5.0	9,070
1.3	880	2.6	2,880	6.0	12,600
1.4	990	2.8	3,280	7.0	16,600
1.6	1,220	3.0	3,700	8.0	21,100
1.8	1,490	3.5	4,840	9.0	26,100
2.0	1,790	4.0	6,080		
2.2	2,120	4.5	7,480		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	4,420	5,470	2,700	5,490	2,890	8,310	3,550	1,770	1,350	1,790	1,840
2	1,130	3,830	4,820	2,200	5,010	3,230	8,580	3,210	1,530	1,160	2,060	1,480
3	968	3,330	3,930	2,120	4,510	3,200	8,740	3,440	1,430	1,040	2,190	1,880
4	1,230	3,550	3,030	2,120	4,670	3,580	8,260	2,870	1,610	864	1,860	1,370
5	1,280	3,400	2,920	2,280	5,250	3,380	7,390	2,570	1,270	1,180	1,760	974
6	1,380	3,200	2,490	2,500	6,540	3,340	6,500	2,620	1,240	1,440	1,650	1,250
7	1,500	3,410	2,830	2,250	11,100	3,950	5,500	2,550	1,560	1,360	1,370	1,640
8	1,840	3,160	2,500	2,360	11,000	4,410	4,720	2,340	1,560	1,240	995	1,770
9	1,870	3,940	1,720	2,660	11,300	4,590	4,370	2,100	1,570	1,230	1,060	1,870
10	1,690	5,270	2,080	2,650	11,700	4,420	4,260	2,250	1,830	1,010	1,440	2,250
11	1,670	4,890	2,460	2,670	11,200	4,040	4,320	2,450	1,480	874	1,530	1,620
12	1,590	4,420	2,380	2,720	9,370	3,620	6,090	2,370	1,450	1,060	1,980	1,390
13	1,730	4,180	2,240	2,480	7,770	4,080	6,720	2,470	1,520	1,570	2,510	1,920
14	1,710	6,940	2,300	2,450	8,710	5,230	6,240	2,350	2,170	1,910	966	2,830
15	1,590	7,240	2,240	2,490	8,960	5,700	6,000	1,980	1,940	1,900	1,220	3,420
16	1,330	7,480	2,020	2,520	8,670	5,890	6,610	3,130	1,860	2,090	1,540	3,650
17	1,320	7,510	2,130	2,230	8,290	6,590	7,200	4,080	1,550	1,640	1,450	4,010
18	1,000	7,060	2,530	2,200	7,970	8,020	7,510	3,990	1,290	1,530	2,570	3,620
19	1,520	6,310	3,310	2,150	8,260	9,040	7,670	3,190	1,300	1,740	2,650	2,770
20	2,170	5,440	4,760	2,100	7,730	10,400	7,480	2,840	1,210	1,680	2,890	2,820
21	3,080	4,480	5,130	2,050	7,060	13,200	7,270	2,570	1,200	1,850	2,210	3,020
22	3,340	3,730	4,620	2,000	6,430	16,200	7,360	3,010	1,290	1,620	1,780	8,120
23	3,880	3,400	4,420	1,970	5,900	16,300	7,850	3,350	1,360	1,970	2,080	10,100
24	7,320	3,100	3,990	1,890	5,380	19,300	7,730	3,210	1,300	3,030	2,610	14,200
25	6,860	2,790	3,230	2,740	4,910	22,000	7,240	3,740	1,330	3,200	2,230	14,600
26	6,830	2,740	2,920	3,920	4,370	22,700	6,720	3,810	1,070	3,390	2,180	12,000
27	5,520	3,160	3,000	4,700	3,810	18,300	5,860	3,370	1,060	2,740	2,160	9,410
28	4,420	3,140	2,570	5,350	3,000	14,800	4,880	2,740	1,630	2,520	1,770	7,640
29	5,570	4,190	2,580	5,130	-	12,200	4,290	2,450	1,670	2,680	1,680	5,980
30	6,210	5,520	2,220	4,940	-	10,500	3,900	1,820	1,460	2,510	1,820	4,860
31	5,300	-	2,920	5,100	-	9,140	-	1,890	-	2,100	2,020	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	88,228	7,320	968	2,846	1.52	1.75
November	135,230	7,510	2,740	4,508	2.40	2.68
December	95,760	5,470	1,720	3,089	1.65	1.90
Calendar year 1937	1,465,238	17,400	480	4,014	2.14	29.06
January	87,640	5,350	1,890	2,827	1.51	1.74
February	204,360	11,700	3,000	7,299	3.89	4.05
March	274,240	22,700	2,890	8,846	4.72	5.44
April	195,570	8,740	3,900	6,519	3.47	3.87
May	88,310	4,080	1,820	2,849	1.52	1.75
June	44,510	2,170	1,060	1,484	.791	.88
July	55,478	3,390	864	1,790	.954	1.10
August	58,021	2,890	966	1,872	.998	1.15
September	134,304	14,600	974	4,477	2.39	2.67
Water year 1937-38	1,461,651	22,700	864	4,005	2.13	28.98

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 in Boonville, Oneida County, and a quarter of a mile upstream from confluence with Mill Creek.

Records available.- October 1933 to September 1938.

Extremes.- Maximum discharge during year, 72 second-feet Oct. 23 (gage height, 1.01 feet); minimum, less than 0.1 second-foot during periods of no diversion.
1933-38: Maximum discharge, 146 second-feet Oct. 3, 1934; maximum gage height, 2.86 feet sometime during period Dec. 11-16, 1933; no flow during periods of no diversion.

Remarks.- Records good except those below 1 second-foot, which are fair, those for period of ice effect, Dec. 9 to Mar. 18 (computed on basis of three discharge measurements, gage heights Dec. 9-17, Dec. 28 to Jan. 14, Feb. 9-10, and weather records), some of which are fair and some poor, and those for Oct. 8-9, 13-22, Oct. 29 to Nov. 6, Mar. 19-22, which were estimated and are poor. The discharge at this station represents the amount of water returned to Black River after diversion. The sum of this discharge and that of Black River Canal (flowing south) represents the total amount diverted 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.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	13	1.1	0.7	1.1	0.6	4.0	0.3	0.3	0.5	4.0	3.7
2	10	14	.7	.8	.8	.6	2.0	.2	.2	.5	4.0	3.7
3	7.3	15	.6	.8	.6	.5	1.0	.2	.1	.5	4.0	3.7
4	12	15	.5	.7	.6	.4	1.0	.2	.1	.5	4.0	3.7
5	12	15	.5	.6	.8	.4	1.0	.3	.1	.5	4.0	3.7
6	12	16	.7	.6	1.0	1.0	.9	.3	.1	4.2	4.0	3.7
7	12	16	.8	.7	2.0	2.7	.8	.2	.1	7.9	4.0	3.7
8	11	16	.4	.9	5.4	1.6	.8	.1	.1	4.0	4.0	3.7
9	12	16	.8	.9	3.7	1.1	2.4	.3	.1	4.2	4.0	3.7
10	6.9	15	.6	.8	2.7	.9	1.7	.5	.1	4.3	4.0	3.4
11	12	6.9	.4	.8	2.0	.8	3.0	.4	.1	4.3	4.5	3.4
12	12	5.5	.3	.7	1.6	1.1	2.3	.3	.1	4.5	4.3	3.6
13	12	12	.3	.7	1.8	2.0	2.5	.3	.1	4.0	4.3	3.6
14	12	15	.3	.6	2.1	3.7	1.6	.3	.1	3.9	4.3	3.6
15	12	13	.3	.5	3.2	2.9	1.3	.5	.1	3.7	4.3	3.6
16	11	12	.3	.4	2.3	2.5	1.2	.3	.1	3.7	4.3	3.4
17	7.8	10	.6	.4	2.0	2.7	.8	.3	.1	3.7	4.6	3.4
18	12	9.3	7.8	.3	2.1	5.2	1.0	.3	.1	3.7	4.4	3.4
19	12	7.3	6.2	.3	2.5	8.3	1.1	.3	.1	3.7	3.7	3.6
20	11	6.5	5.4	.3	2.0	6.5	.9	.3	.1	3.7	3.7	3.6
21	11	4.4	3.7	.3	1.6	5.8	.8	.2	.1	3.7	3.7	10
22	12	4.0	2.5	.3	1.3	6.9	5.4	.2	.1	3.7	4.0	36
23	42	3.4	1.8	.4	1.1	9.4	1.6	.2	.1	3.7	4.0	8.7
24	20	3.4	1.3	.7	.9	17	.9	.3	.7	4.0	4.0	2.5
25	10	2.9	1.0	1.1	.8	4.7	.8	.3	.9	3.7	4.0	3.4
26	12	3.7	.9	1.6	.7	4.6	.6	.3	.8	3.7	3.7	5.0
27	13	4.0	.8	1.6	.6	6.0	.5	.3	.7	3.7	3.7	4.3
28	18	6.4	.8	1.3	.6	2.9	.4	.3	.6	3.9	3.7	2.7
29	17	5.2	.7	1.0	-	2.3	.3	.3	.6	4.0	3.7	2.5
30	8.9	2.0	.7	.9	-	4.2	.3	.3	.6	3.7	3.7	2.3
31	5.2	-	.6	1.0	-	7.8	-	.3	-	3.7	3.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	391.1	42	5.2	12.6		
November	287.9	16	2.0	9.60		
December	45.4	8.2	.3	1.46		
Calendar year 1937	2,644.7	43	0	7.25		
January	22.7	1.6	.3	.73		
February	47.9	5.4	.6	1.71		
March	117.1	17	.4	3.78		
April	42.9	5.4	.3	1.43		
May	8.9	.5	.1	.29		
June	7.5	.9	.1	.25		
July	107.5	7.9	.5	3.47		
August	124.3	4.6	3.7	4.01		
September	149.3	36	2.3	4.98		
Water year 1937-38	1,352.5	42	.1	3.71		

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; No. 2 on Lansingkill spillway, 100 feet downstream from head gates in summit level of canal and 600 feet upstream from lock 70--2 miles south of Boonville, Oneida County.

Records available.- September 1915 to September 1938 (during canal seasons).

Remarks.- Records excellent. They show the combined flow at gages 1 and 2, and this flow represents the total diversion from Black River at Forestport, through Forestport feeder, into Mohawk River Basin. Discharge at gage No. 1 for days of incomplete gage-height record, May 21, July 22, 23, and that at gage No. 2 for period of missing gage heights, Oct. 24-29, estimated. During period Nov. 1 to June 1, when no water was diverted, the canal carried a small flow made up of leakage through the head gates and run-off from the area draining into the canal above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	16						-	18	44	42	41
2	71	10						-	27	49	46	40
3	76	11						-	17	48	43	44
4	72	12						-	16	47	41	45
5	74	11						-	18	47	40	45
6	79	16						-	21	44	40	44
7	82	16						-	18	37	40	48
8	77	15						-	24	41	40	53
9	76	20						-	24	41	39	49
10	78	7						-	19	42	39	47
11	74	5						-	18	41	49	47
12	73	4						-	20	48	48	46
13	74	13						-	25	37	46	58
14	72	35						-	22	36	44	59
15	73	15						-	17	45	42	58
16	75	7						-	16	42	41	62
17	77	6						-	12	44	38	59
18	74	6						-	16	45	45	55
19	85	5						-	28	41	37	54
20	46	5						-	32	40	45	55
21	41	4						22	35	40	44	77
22	64	-						20	42	40	54	64
23	107	-						16	42	42	50	31
24	49	-						22	41	45	42	19
25	57	-						23	42	44	39	38
26	72	-						18	50	43	36	61
27	75	-						15	48	43	42	64
28	74	-						14	44	43	44	68
29	76	-						12	44	40	43	64
30	46	-						11	43	31	41	61
31	28	-						3	-	41	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,168	107	28	69.9		
November 1-21	239	35	4	11.4		
December	-	-	-	-		
Calendar year						
January						
February						
March						
April						
May 21-31	176	23	3	16.0		
June	841	50	12	28.0		
July	1,311	49	31	42.3		
August	1,322	54	36	42.6		
September	1,556	77	19	51.9		
Water year						

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 1938. June 1900 to December 1922 at site at Village of Moose River, 2½ miles downstream.

Average discharge.- 30 years (1907-13, 1914-38), 845 second-feet.

Extremes.- Maximum discharge during year, 10,400 second-feet Mar. 24 (gage height, 12.65 feet); minimum, 132 second-feet Aug. 6 (gage height, 1.69 feet).
1900-38: Maximum discharge recorded, about 16,500 second-feet Mar. 27, 1913 (gage height, 16.2 feet former site and datum, from floodmarks); minimum, about 42 second-feet July 21, 23, 25-27, 1913.

Remarks.- Records excellent except those for periods of ice effect, Nov. 23-27, Dec. 7-16, Dec. 21 to Mar. 19, which were computed on basis of four discharge measurements, gage heights, and weather records and are fair. Flow regulated to some extent by storage in Fulton Chain of Lakes. Occasional slight diurnal fluctuation during medium and low stages caused by operation of paper mill in McKeever.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 24						Mar. 25 to Sept. 30					
2.4	345	5.0	1,780	10.0	6,830	1.7	134	3.5	835	8.0	4,470
2.6	420	6.0	2,560	11.0	8,130	2.0	212	4.0	1,120	9.0	5,600
3.0	590	7.0	3,450	11.2	8,390	2.3	305	4.5	1,430	10.0	6,830
3.5	835	8.0	4,470			2.6	413	5.0	1,780	10.7	7,740
4.0	1,120	9.0	5,600			2.9	539	6.0	2,560		
						3.2	685	7.0	3,450		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	775	948	500	700	600	3,030	915	282	164	470	367
2	359	640	710	380	700	550	2,650	1,120	275	196	453	221
3	352	665	538	550	750	550	1,890	870	269	282	482	185
4	348	690	504	500	750	500	1,460	866	269	285	405	185
5	359	608	504	460	700	550	1,380	790	285	253	350	193
6	448	572	476	480	850	700	1,170	752	295	221	226	193
7	436	568	440	500	2,200	800	1,030	616	260	172	204	230
8	492	550	400	500	3,000	850	978	436	298	162	221	379
9	456	729	380	400	2,400	850	808	416	329	156	209	466
10	428	1,110	360	550	1,800	750	770	405	353	156	198	409
11	404	896	340	440	1,600	700	916	398	383	167	223	364
12	392	680	340	420	1,400	700	916	374	405	169	357	392
13	370	671	320	400	1,200	750	967	379	429	169	366	500
14	408	1,780	320	400	1,300	800	1,370	274	368	177	279	704
15	320	1,870	360	400	1,700	900	2,510	368	315	207	232	770
16	348	1,320	480	380	1,600	1,000	3,450	786	260	339	209	1,180
17	356	1,080	544	380	1,400	1,100	2,400	905	235	295	198	910
18	345	989	552	380	1,300	1,200	2,000	665	241	316	408	616
19	416	884	902	380	1,300	1,300	2,370	510	226	384	870	487
20	623	775	992	360	1,400	1,330	2,330	499	312	322	548	453
21	820	685	850	360	1,300	1,880	2,020	725	218	360	429	1,680
22	608	590	700	360	1,100	3,000	1,930	909	196	580	429	7,730
23	646	500	600	360	1,000	4,230	2,330	720	185	588	588	4,260
24	2,790	440	480	380	850	8,310	1,820	650	190	1,080	572	2,740
25	1,590	380	340	480	750	5,880	1,600	730	198	1,070	613	2,190
26	924	360	380	850	700	4,010	1,350	650	242	901	456	1,790
27	705	360	500	1,100	650	3,030	1,220	544	396	755	383	1,560
28	612	534	360	1,000	600	2,310	1,070	478	315	700	361	1,370
29	803	1,460	480	850	-	2,070	1,170	425	241	615	319	1,150
30	1,080	1,490	550	800	-	1,830	1,150	339	183	548	262	994
31	928	-	500	750	-	2,310	-	275	-	508	240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	19,528	2,790	320	630	1.73	1.99
November	24,651	1,870	360	822	2.25	2.51
December	16,150	992	320	521	1.43	1.65
Calendar year 1937	302,783	4,800	128	830	2.27	30.85
January	16,050	1,100	360	518	1.42	1.64
February	35,000	3,000	600	1,250	3.42	3.56
March	55,340	8,310	500	1,785	4.89	5.64
April	50,055	3,450	770	1,668	4.57	5.10
May	18,789	1,120	274	606	1.66	1.91
June	8,453	429	183	282	.773	.86
July	12,297	1,080	156	397	1.09	1.26
August	11,560	870	198	373	1.02	1.18
September	34,668	7,730	185	1,156	3.17	3.54
Water year 1937-38	302,541	8,310	156	829	2.27	30.84

Peak discharge.- Mar. 24 (2 p.m.) 10,400 sec.-ft.; Sept. 22 (11:30 a.m.) 9,410 sec.-ft.

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 1938.
Average discharge.- 26 years (1912-38), 106 second-feet.
Extremes.- Maximum discharge during year, 389 second-feet Apr. 28, 29; maximum gage height, 3.8 feet Mar. 28 (backwater from North Branch); minimum daily discharge, about 0.2 second-foot several times during year, when gates in dam were closed.
1911-38: Maximum discharge, 862 second-feet Mar. 23, 1921, from rating curve extended logarithmically above 450 second-feet; minimum, that for water year 1937-38.
Remarks.- Records good except those for periods of ice effect or of backwater from North Branch, Oct. 28 to Dec. 7, Jan. 31, Feb. 3-27, Mar. 1, 2, 4, 7-11, Mar. 24 to Apr. 6, Apr. 17-19, Sept. 23-29 (computed on basis of two discharge measurements and record of gate operations at Old Forge Dam), and those for periods of faulty gage heights, Oct. 21-27, Dec. 8-13, 19-26, Jan. 26-28, May 7-20, June 24, Sept. 18-30 (computed on basis of record of operations at Old Forge Dam), all of 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 1937-38 except periods of extreme low flow or backwater (gage height, in feet, and discharge, in second-feet)

0.0	0.4	.6	9.6	2.0	129
.1	.7	.8	17	2.5	209
.2	1.6	1.0	28	3.0	314
.3	2.9	1.2	41	3.5	444
.4	4.6	1.6	79		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	0.2	0.2	209	62	122	72	363	2.6	4.3	46	53
2	248	.2	.2	200	62	122	76	363	2.9	5.0	46	51
3	248	.2	.2	200	62	122	76	338	2.9	5.0	46	51
4	238	.2	.2	200	62	122	76	338	2.9	5.0	41	49
5	238	.2	.2	200	64	200	76	338	2.9	4.6	22	51
6	228	.2	.2	200	64	248	80	144	2.9	4.6	21	49
7	228	.2	.2	200	64	245	58	.2	3.2	4.6	17	137
8	228	.2	.2	200	64	245	6.8	.2	45	4.6	21	174
9	228	.2	.2	191	66	245	9.0	.2	143	4.3	21	174
10	218	.2	.2	191	66	245	12	.2	143	5.0	20	166
11	218	.2	.2	191	66	245	13	.2	143	5.5	20	166
12	209	.2	.2	191	66	238	15	.2	143	5.5	21	166
13	191	.2	.2	191	66	248	19	.2	101	5.5	21	166
14	182	.2	35	191	66	248	18	.2	79	23	20	158
15	182	.2	166	191	68	238	4.6	.2	51	41	20	158
16	182	.2	158	191	68	248	4.6	.2	35	41	20	158
17	174	.2	158	191	68	248	7.4	.2	35	41	20	72
18	174	.2	79	182	68	248	11	.2	34	41	22	.2
19	174	.2	.2	182	68	238	66	.2	37	51	64	.2
20	130	.2	.2	182	68	238	209	.2	37	79	102	.2
21	.2	.2	.2	182	68	248	200	.9	37	74	102	1.6
22	.2	.2	.2	182	68	248	200	1.6	37	79	102	83
23	.2	.2	.2	182	68	248	200	1.6	29	94	102	220
24	.2	.2	.2	182	68	245	191	1.6	4.6	171	102	310
25	.2	.2	.2	133	68	245	200	2.1	4.3	261	102	340
26	.2	.2	.2	.2	82	245	191	2.4	4.3	289	102	340
27	.2	.2	61	.2	122	250	160	2.4	4.6	191	102	310
28	.2	.2	209	.2	122	230	389	2.4	4.6	181	77	250
29	.2	.2	209	35	-	170	389	2.9	4.6	143	53	245
30	.2	.2	209	62	-	118	363	2.6	4.3	143	53	248
31	.2	-	209	62	-	70	-	2.6	-	118	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,168.2	248	0.2	134		
November	6.0	.2	.2	.20		
December	1,497.2	209	.2	48.3		
Calendar year 1937	39,544.4	360	.2	108	2.08	28.27
January	4,894.6	209	.2	158		
February	1,974	122	62	70.5		
March	6,670	250	70	215		
April	3,393.4	389	4.6	113		
May	1,909.9	363	.2	61.6		
June	1,180.6	143	2.6	39.4		
July	2,124.5	289	4.3	68.5		
August	1,581	102	17	51.0		
September	4,347.2	340	.2	145		
Water year 1937-38	33,746.6	389	.2	92.5	1.78	24.114

Note.- The combined storage in Old Forge and Sixth Lake Reservoirs on Sept. 30, 1938, showed a net increase of 495,600,000 cubic feet for the water year, equivalent to a mean yearly discharge of 15.7 second-feet, 0.302 second-foot per square mile or 4.10 inches on drainage area.
The combined storage in Old Forge and Sixth Lake Reservoirs on Dec. 31, 1937, showed a net decrease of 206,800,000 cubic feet for the calendar year, equivalent to a mean yearly discharge of 6.56 second-feet, 0.126 second-foot per square mile or 1.71 inches on drainage area.

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 1938.

Average discharge.- 13 years, 335 second-feet.

Extremes.- Maximum discharge during year, 1,630 second-feet Mar. 26 (gage height, 6.01 feet); maximum gage height, 7.15 feet Jan. 18 (ice jam); minimum discharge, 58 second-feet May 31 (gage height, 2.13 feet).

1925-38: Maximum discharge, 2,100 second-feet Apr. 27, 1928 (gage height, 6.6 feet); minimum, about 42 second-feet Aug. 28, 1931 (gage height, 1.98 feet).

Remarks.- Records excellent except those for periods of ice effect, Dec. 2-17, Dec. 21 to Mar. 15 (computed on basis of three discharge measurements, gage heights, weather records and records for Middle Branch of Moose River at Old Forge and Moose River at McKeever), and those for periods of missing gage heights, Oct. 26 to Nov. 4, May 12-13 (computed on basis of 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 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.2	63	2.6	117	3.2	240	4.5	715	6.0	1,620
2.3	75	2.8	151	3.5	325	5.0	975		
2.4	88	3.0	192	4.0	500	5.5	1,270		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	313	240	284	340	260	260	750	666	130	79	289	242
2	313	220	240	320	260	260	755	638	119	94	251	96
3	304	240	200	300	280	260	760	607	123	96	228	80
4	298	245	170	300	280	240	710	589	122	95	206	95
5	330	240	160	280	260	300	652	572	122	85	177	111
6	374	232	150	300	300	380	584	539	107	80	151	114
7	344	225	140	300	700	420	528	293	75	74	138	131
8	319	222	130	320	900	420	446	213	84	70	130	242
9	313	238	120	300	800	440	397	188	90	69	120	264
10	313	256	110	300	600	400	377	173	197	73	112	256
11	313	273	110	280	550	380	357	163	235	71	134	245
12	307	264	100	280	480	380	360	149	243	70	146	243
13	270	270	100	280	420	400	357	130	215	71	131	301
14	276	344	120	260	440	420	364	130	177	77	120	292
15	184	367	220	260	550	440	383	158	149	116	112	316
16	256	400	260	260	550	472	432	218	123	127	108	319
17	267	400	280	260	480	488	496	251	114	120	111	307
18	264	390	331	260	440	508	552	177	125	127	154	194
19	289	374	264	240	440	524	602	165	119	144	147	130
20	310	357	230	240	460	540	688	169	112	167	184	122
21	248	328	220	240	440	666	765	206	106	204	197	192
22	151	301	220	240	400	775	795	201	102	228	225	571
23	169	275	180	240	360	865	780	190	99	236	218	652
24	197	251	150	240	320	1,140	760	194	104	384	232	840
25	210	228	130	240	280	1,320	730	199	94	446	220	986
26	220	215	120	260	280	1,580	679	197	96	516	206	975
27	200	206	170	340	280	1,440	625	194	102	456	197	898
28	190	228	260	300	260	1,250	620	188	98	446	197	790
29	240	270	300	280	-	1,070	706	171	87	387	165	679
30	280	284	320	280	-	931	697	104	80	351	151	612
31	260	-	340	280	-	795	-	65	-	335	172	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,322	374	151	268	1.81	2.09
November	8,383	400	206	279	1.89	2.11
December	6,129	340	100	198	1.34	1.54
Calendar year 1937	122,885	930	64	337	2.28	30.88
January	8,620	340	240	278	1.88	2.17
February	12,070	900	260	431	2.91	3.03
March	19,764	1,580	240	638	4.31	4.97
April	17,707	795	357	590	3.99	4.45
May	8,097	666	65	261	1.76	2.03
June	3,749	243	75	125	.845	.94
July	5,894	516	69	190	1.28	1.48
August	5,329	289	108	172	1.16	1.34
September	11,295	986	80	376	2.54	2.83
Water year 1937-38	115,359	1,580	65	316	2.14	28.98

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 1938.

Average discharge.- 10 years (1928-38), 171 second-feet.

Extremes.- Maximum discharge observed during year, 2,540 second-feet Mar. 24 (gage height, 6.8 feet); minimum observed, 19 second-feet Oct. 1 (gage height, 1.04 feet).
1927-38: 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 (gage height, 0.88 foot).

Remarks.- Records good except those for periods of ice effect, Nov. 23-25, Dec. 4, Dec. 9 to Mar. 21, which were computed on basis of three discharge measurements, gage heights, observer's notes, and weather records, and are fair. Gage read twice daily.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.0	16	2.0	126	4.5	975
1.1	23	2.2	162	5.0	1,270
1.2	30	2.6	249	5.5	1,590
1.4	47	3.0	358	6.0	1,940
1.6	68	3.5	527	6.3	2,150
1.8	95	4.0	735		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	172	237	85	200	90	780	134	61	33	81	68
2	23	143	172	80	180	95	606	118	55	73	106	77
3	22	143	110	75	170	90	389	102	65	77	78	56
4	22	152	120	75	200	90	274	95	64	49	57	49
5	20	126	113	70	240	90	214	87	59	44	43	43
6	29	134	107	70	300	150	182	84	56	23	40	39
7	78	152	104	75	600	240	172	87	55	31	35	50
8	87	162	87	85	1,000	280	134	92	94	23	31	186
9	58	255	100	85	950	260	188	84	81	23	29	156
10	45	344	95	80	600	220	210	84	87	23	28	96
11	41	262	90	70	460	200	196	95	81	23	46	66
12	38	192	80	65	400	190	260	94	112	33	104	53
13	38	182	75	65	380	200	345	98	124	63	74	132
14	43	433	70	60	400	260	361	101	87	81	47	172
15	41	547	70	60	480	280	438	124	71	122	36	162
16	36	374	75	55	550	320	546	203	61	115	31	172
17	32	288	80	55	460	360	438	172	53	87	32	143
18	32	249	120	55	400	400	358	143	54	97	100	115
19	47	214	280	55	440	400	274	121	49	183	146	100
20	110	192	440	50	460	400	264	118	45	202	85	94
21	152	162	380	50	400	550	258	162	47	103	51	276
22	124	126	300	50	300	988	362	162	42	193	129	1,570
23	216	120	220	55	220	1,360	580	124	30	379	194	1,570
24	508	110	190	65	160	2,120	421	143	26	282	134	816
25	389	100	170	150	130	1,500	315	214	28	321	116	490
26	237	104	140	280	110	830	225	182	47	143	84	301
27	162	120	120	360	95	566	182	134	45	99	68	237
28	126	190	100	360	90	438	152	110	34	112	98	262
29	228	344	90	320	-	344	134	98	50	110	72	225
30	288	358	85	260	-	344	126	84	40	121	64	172
31	237	-	80	240	-	606	-	69	-	87	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,528	508	19	114	1.34	1.54
November	6,450	547	100	215	2.53	2.82
December	4,500	440	70	145	1.71	1.97
Calendar year 1937	63,255	914	15	173	2.04	27.69
January	3,560	360	50	115	1.35	1.56
February	10,375	1,000	90	371	4.36	4.54
March	14,261	2,120	90	460	5.41	6.24
April	9,384	780	126	313	3.68	4.11
May	3,718	214	69	120	1.41	1.63
June	1,803	124	26	60.1	.707	.79
July	3,378	379	26	109	1.28	1.48
August	2,309	194	28	74.5	.876	1.01
September	7,948	1,570	39	265	3.12	3.48
Water year 1937-38	71,214	2,120	19	195	2.29	31.17

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Stillwater Reservoir near Beaver River, N. Y.

Location.- Float-tape gage, lat. 43°53'50", long. 75°03'05", at Stillwater Dam, 7½ miles west of Beaver River post office, Herkimer County. Zero of gage is at mear sea level (general adjustment of 1912).

Drainage area.- 172 square miles.

Records available.- February 1925 to September 1938.

Extremes.- Maximum elevation during year, 1,679.32 feet Apr. 23 (contents, 4,629,000,000 cubic feet); minimum, 1,663.27 feet Feb. 6 (contents, 1,162,000,000 cubic feet).
1925-38: 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 (cortents not determined).

Remarks.- The flow of Beaver River below this reservoir and of Black River below Castorland is affected by the operation of the reservoir. Records furnished by the Board of Black River Regulating District, which has established the zero capacity of reservoir at elevation 1,650.3 feet, below which there is available about 90,000,000 cubic feet of storage. Capacity above 1,650.3 feet is 4,624,000,000 cubic feet. Gage read once daily.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69.31	68.96	71.91	69.77	63.91	68.32	74.75	79.29	78.73	76.22	75.55	72.09
2	69.13	69.15	72.06	69.54	63.70	68.25	75.24	79.29	78.64	76.19	75.46	71.91
3	69.05	69.31	72.18	69.33	63.58	68.18	75.57	79.28	78.58	76.15	75.38	71.64
4	68.93	69.40	72.28	69.14	63.47	68.05	75.83	79.26	78.50	76.15	75.25	71.63
5	68.66	69.43	72.38	68.98	63.33	67.92	76.08	79.24	78.47	76.06	75.10	71.64
6	68.49	69.48	72.34	68.78	63.27	67.87	76.28	79.19	78.42	75.93	74.96	71.43
7	68.37	69.51	72.24	68.62	63.75	67.82	76.46	79.16	78.35	75.78	74.91	71.19
8	68.20	69.53	72.17	68.44	64.84	67.77	76.62	79.14	78.31	75.64	74.83	71.13
9	67.99	69.55	72.02	68.28	65.59	67.68	76.81	79.09	78.22	75.55	74.66	70.92
10	67.93	69.64	71.87	68.09	66.14	67.57	77.01	79.01	78.17	75.56	74.49	70.71
11	67.82	69.63	71.71	67.91	66.54	67.45	77.14	78.92	78.13	75.51	74.47	70.63
12	67.61	69.57	71.54	67.72	66.77	67.32	77.28	78.83	78.17	75.39	74.53	70.50
13	67.46	69.68	71.41	67.47	66.88	67.19	77.45	78.75	78.15	75.41	74.57	70.39
14	67.28	69.98	71.29	67.27	67.13	67.11	77.64	78.69	78.05	75.44	74.52	70.26
15	67.08	70.32	71.06	67.05	67.41	67.01	77.90	78.76	77.94	75.60	74.41	70.12
16	67.02	70.62	70.95	66.81	67.58	66.93	78.32	78.73	77.84	75.53	74.24	69.97
17	67.06	70.86	70.77	66.56	67.58	66.87	78.66	78.74	77.71	75.50	74.06	69.82
18	66.95	71.11	70.67	66.37	67.75	66.97	78.92	78.71	77.64	75.60	73.98	69.80
19	66.83	71.31	70.85	66.12	67.91	67.10	79.18	78.65	77.61	75.55	73.86	69.72
20	66.75	71.50	71.01	65.87	68.23	67.35	79.26	78.63	77.55	75.46	73.69	69.55
21	66.79	71.64	71.01	65.62	68.53	67.64	79.27	78.59	77.41	75.38	73.63	69.46
22	66.89	71.75	70.97	65.39	68.55	68.25	79.28	78.57	77.29	75.39	73.61	70.07
23	67.07	71.74	70.93	65.16	68.53	68.94	79.32	78.65	77.15	75.41	73.46	70.84
24	67.48	71.71	70.89	64.93	68.47	70.25	79.27	78.61	77.02	75.56	73.32	71.26
25	67.78	71.67	70.83	64.79	68.41	71.35	79.26	78.67	76.86	75.61	73.16	71.58
26	67.98	71.63	70.71	64.73	68.32	72.03	79.23	78.69	76.88	75.57	72.97	71.79
27	68.13	71.61	70.53	64.66	68.41	72.65	79.22	78.71	76.80	75.50	72.79	71.96
28	68.26	71.64	70.41	64.53	68.47	73.02	79.25	78.72	76.66	75.44	72.74	72.23
29	68.46	71.68	70.19	64.33	-	73.41	79.26	78.75	76.50	75.46	72.64	72.32
30	68.64	71.75	70.07	64.15	-	73.74	79.28	78.79	76.38	75.48	72.45	72.45
31	68.86	-	69.99	64.06	-	74.17	-	78.78	-	75.51	72.26	-

Note.- Add 1,600.00 feet to obtain elevations above mean sea level.

Elevation and contents, water year October 1937 to September 1938

Date (midnight)	Elevation (feet)	Contents (million cubic feet)	Monthly gain or loss in storage (equivalent mean second-feet)
Sept. 30.....	1,669.38	2,216	-
Oct. 31.....	1,668.93	2,128	-32.9
Nov. 30.....	1,671.86	2,734	+234
Dec. 31.....	1,669.84	2,308	-159
Calendar year 1937...	-	-	+8.6
Jan. 31.....	1,663.96	1,265	-389
Feb. 28.....	1,668.37	2,020	+312
March 31.....	1,674.56	3,358	+500
Apr. 30.....	1,679.29	4,620	+487
May 31.....	1,678.75	4,464	-58.2
June 30.....	1,676.27	3,788	-261
July 31.....	1,675.54	3,601	-69.8
Aug. 31.....	1,672.15	2,798	-300
Sept. 30.....	1,672.53	2,883	+32.8
Water year 1937-38...			+21.2

Note.- Reservoir elevations at midnight obtained by interpolation.

Beaver River below Stillwater Dam, near Beaver River, N. Y.

Location.- Staff gage, lat. 43°53'50", long. 75°03'05", at Stillwater Dam, at outlet of Beaver River Flow, 7½ miles west of Beaver River post office, Herkimer County.

Drainage area.- 172 square miles.

Records available.- May 1908 to September 1938.

Average discharge.- 30 years, 361 second-feet (not adjusted for storage).

Extremes.- 1908-38: 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, 4,624,000,000 cubic feet). Discharge determined from ratings of 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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	566	13	13	616	601	598	14	354	395	503	453	629
2	414	13	13	613	598	598	14	354	461	381	478	629
3	155	101	13	610	595	598	14	354	460	14	610	465
4	634	206	13	609	591	595	14	354	352	136	609	13
5	629	206	197	607	591	595	14	354	135	501	606	462
6	627	206	646	604	588	592	14	353	459	501	439	663
7	627	206	646	601	243	592	14	351	458	500	181	660
8	624	352	646	601	12	592	15	387	406	430	603	660
9	456	538	643	598	12	592	15	498	339	293	603	658
10	151	538	640	595	12	589	15	498	339	135	600	494
11	520	538	640	595	86	589	15	497	261	474	283	225
12	518	417	637	616	365	586	15	496	133	409	14	653
13	516	13	637	650	367	586	19	496	454	14	266	651
14	514	105	634	647	438	583	21	379	453	14	176	649
15	397	13	631	644	589	583	24	147	452	264	655	648
16	12	13	631	641	589	583	27	493	495	343	653	646
17	147	13	628	637	589	429	30	494	519	123	651	485
18	512	13	327	634	592	272	32	493	394	453	651	172
19	510	13	13	630	304	201	398	493	145	453	649	643
20	381	13	244	627	12	12	736	493	517	452	490	641
21	238	13	424	624	369	12	736	492	514	452	178	504
22	12	290	424	623	601	12	940	190	511	452	647	13
23	12	402	424	620	601	13	1,040	357	508	343	644	13
24	12	402	469	617	601	13	838	376	508	123	644	13
25	12	402	575	614	601	13	736	215	386	453	642	13
26	12	402	575	614	427	13	578	215	137	453	640	13
27	12	402	573	611	178	14	401	215	506	452	495	13
28	12	320	645	610	601	14	354	180	506	342	169	172
29	12	517	772	607	-	14	354	31	504	228	636	223
30	13	204	700	604	-	14	354	311	503	175	633	13
31	13	-	619	601	-	14	-	348	-	123	631	-

Month	Observed				Adjusted for storage*		
	Second-foot-days	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches
October	9,270	634	12	299	266	1.55	1.79
November	6,884	538	13	229	463	2.69	3.00
December	14,692	772	13	474	315	1.83	2.11
Calendar year 1937	140,898	1,140	12	386	395	2.30	31.15
January	19,120	650	595	617	228	1.33	1.53
February	11,753	601	12	420	732	4.26	4.44
March	10,511	598	12	339	839	4.88	5.63
April	7,791	1,040	14	260	747	4.34	4.84
May	11,268	498	31	363	305	1.77	2.04
June	12,210	519	133	407	146	.849	.95
July	9,989	503	14	322	292	1.47	1.70
August	15,629	655	14	504	204	1.19	1.37
September	11,736	663	13	391	424	2.47	2.76
Water year 1937-38	140,853	1,040	12	386	407	2.37	32.16

*Adjusted for storage 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 1938.

Extremes.- Maximum discharge during year, 1,850 second-feet Mar. 25 (gage height, 4.57 feet); minimum, 59 second-feet Nov. 21 (gage height, 1.21 feet); minimum daily discharge, 84 second-feet Nov. 21.

1930-38: Maximum discharge, 3,390 second-feet Apr. 19, 1933 (gage height, 5.80 feet); minimum, about 10 second-feet Feb. 24, 1936 (gage height, 0.89 foot); minimum daily discharge, 35 second-feet May 13, 1934.

Remarks.- Records excellent. Gage-height record incomplete Jan. 1, 29, Feb. 26, Mar. 5, Apr. 30; discharge partly estimated. Flow of Beaver River was completely regulated during the year at Stillwater Dam. (See records for Beaver River below Stillwater Dam, near Beaver River). Between Stillwater Dam and this station flow is further regulated and controlled by operation of nine power-plant ponds.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.3	74	1.8	192	2.6	495
1.4	93	1.9	222	3.0	702
1.5	114	2.0	254	3.5	1,025
1.6	138	2.2	326	4.0	1,420
1.7	164	2.4	406	4.5	1,880

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	371	355	677	721	796	837	715	174	416	469	487	584
2	297	372	629	644	732	829	729	583	428	319	622	690
3	313	370	558	670	787	935	235	370	375	131	486	638
4	420	360	577	598	872	864	722	472	416	86	532	517
5	542	363	272	666	829	647	708	515	137	390	645	600
6	533	354	490	601	925	320	659	604	337	446	572	611
7	619	112	722	670	1,260	558	423	417	362	449	118	709
8	604	430	558	666	1,240	745	381	348	348	587	395	708
9	554	672	587	601	963	711	345	446	347	506	683	717
10	385	510	644	677	950	654	117	694	349	169	497	492
11	483	635	597	683	857	726	346	506	449	510	758	188
12	540	678	530	695	651	798	438	624	203	593	546	558
13	589	732	703	720	658	601	399	716	357	710	467	747
14	565	212	627	689	994	799	379	458	447	586	109	713
15	357	766	644	680	938	788	378	165	558	618	594	717
16	335	686	704	726	954	903	369	519	490	397	620	641
17	109	673	621	707	944	1,020	114	728	453	152	709	664
18	433	610	734	785	1,050	1,150	433	617	484	497	776	333
19	464	487	626	739	1,050	846	643	595	216	502	712	746
20	470	401	799	708	854	454	756	623	414	555	563	838
21	434	84	703	626	875	931	835	512	483	482	306	935
22	614	381	708	722	866	975	895	424	527	584	575	1,080
23	533	606	697	483	816	989	963	466	693	651	674	1,250
24	222	413	709	727	864	1,610	489	778	608	497	570	1,250
25	683	438	672	799	820	1,820	775	797	637	677	485	553
26	470	436	706	831	806	1,490	910	645	152	633	762	453
27	458	453	690	784	504	1,000	792	710	443	629	637	393
28	381	251	622	734	760	1,040	726	477	640	712	550	392
29	514	632	668	749	-	946	648	333	648	653	573	439
30	405	712	644	755	-	812	684	237	528	500	659	611
31	129	-	697	803	-	600	-	417	-	177	615	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	13,826	683	109	446	1.52	1.75
November	14,184	766	84	473	1.61	1.80
December	19,915	799	272	642	2.18	2.51
Calendar year 1937	217,258	1,920	83	595	2.02	27.48
January	21,659	831	483	699	2.38	2.74
February	24,615	1,260	504	879	2.99	3.11
March	27,398	1,820	320	884	3.01	3.47
April	17,006	963	114	567	1.93	2.15
May	15,970	797	165	515	1.75	2.02
June	12,945	693	137	432	1.47	1.64
July	14,867	712	86	480	1.63	1.88
August	17,297	776	109	558	1.90	2.19
September	19,767	1,250	188	659	2.24	2.50
Water year 1937-38	219,449	1,820	84	601	2.04	27.76

Peak discharge.- Feb. 7 (4-5:15 a.m.) 1,510 sec.-ft.; Feb. 8 (8 a.m.) 1,500 sec.-ft.; Mar. 24 (3:30 p.m.) 1,920 sec.-ft.; Sept. 23 (5:50 p.m.) 1,560 sec.-ft.; Sept. 24 (3:30 a.m.) 1,460 sec.-ft.

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 1938.
Extremes.- Maximum discharge during year, 3,640 second-feet Mar. 24 (gage height, 6.84 feet); maximum gage height, 7.52 feet Feb. 7 (ice jam); minimum discharge, 2.6 second-feet Oct. 5-6, July 9 (gage height, 0.39 foot); minimum daily discharge, 4.4 second-feet Oct. 5.

1929-38: Maximum discharge, 4,560 second-feet Apr. 6, 1937; maximum gage height, 9.3 feet Jan. 8, 1930; minimum discharge, 0.8 second-foot July 22 to Aug. 2, 1933; minimum daily discharge, 0.8 second-foot July 22 to Aug. 2, 1933.

Remarks.- Records good except those for periods of ice effect, Dec. 18, Jan. 10-22, 25-26, Feb. 4-7, Mar. 5, 6, 17 (computed on basis of six discharge measurements, gage heights, and weather records), those for periods of missing gage heights, Oct. 9-11, Aug. 22-26 (computed on basis of observer's notes and weather records), and those below ten second-feet, all of which are fair. Diurnal fluctuation caused by operation of power plant.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 7

0.4	2.75	1.4	91	3.5	715
.5	5.45	1.6	120	4.0	990
.6	9.5	1.8	154	4.5	1,320
.7	14.5	2.0	195	5.0	1,710
.8	20	2.2	242	5.5	2,150
1.0	35	2.6	353	5.8	2,450
1.2	59	3.0	493		

Feb. 8 to Sept. 30

1.2	56	1.8	150
1.4	81	2.0	193
1.6	113		

Note.- Same as preceding table above 2.2 feet and below 1.0 foot.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	179	384	95	437	91	874	99	34	16	78	58
2	6.5	183	190	90	356	95	450	79	34	17	152	41
3	7.6	336	116	92	322	97	304	64	61	23	72	30
4	8.6	253	146	91	480	96	250	53	59	16	42	30
5	4.4	212	152	91	440	110	208	49	44	14	28	26
6	27	380	147	92	1,000	280	168	49	37	14	20	21
7	40	287	104	94	2,000	332	153	48	44	10	16	88
8	29	280	25	98	1,250	288	144	54	71	6.1	15	214
9	24	927	68	94	856	226	175	49	72	9.2	15	97
10	22	552	124	90	868	189	188	52	36	14	15	54
11	21	288	130	90	553	168	353	69	36	19	97	35
12	23	186	126	90	392	146	981	63	50	38	158	34
13	40	676	118	90	334	246	628	81	43	74	74	309
14	86	1,120	112	85	1,570	533	493	92	30	42	39	192
15	81	540	110	80	869	449	614	353	23	87	25	194
16	36	352	110	80	493	430	673	417	20	63	17	161
17	28	454	116	80	338	750	392	205	17	40	148	109
18	30	460	180	75	636	1,290	490	114	15	42	608	78
19	238	320	358	75	836	1,140	402	77	14	42	198	64
20	328	284	328	75	474	1,660	309	78	9.9	28	86	54
21	264	244	279	75	320	2,200	232	129	6.6	54	48	477
22	166	202	235	80	237	1,930	712	102	7.7	43	60	2,080
23	1,280	168	190	84	193	2,200	491	77	6.5	327	65	1,340
24	1,020	172	156	85	171	2,370	275	207	7.2	330	50	635
25	423	162	149	160	146	973	195	320	8.2	143	60	382
26	268	268	136	260	139	745	160	163	34	67	40	226
27	301	504	128	356	114	594	131	98	36	50	30	372
28	309	412	120	379	81	396	99	73	21	38	57	343
29	1,200	756	108	356	-	345	88	62	16	104	40	170
30	474	367	105	309	-	450	98	57	16	79	104	118
31	279	-	99	450	-	726	-	36	-	44	101	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,071.1	1,280	4.4	228	2.56	2.95
November	11,524	1,120	162	384	4.31	4.81
December	4,849	384	25	156	1.75	2.02
Calendar year 1937	86,869.6	2,800	1.7	238	2.67	36.29
January	4,341	450	75	140	1.57	1.81
February	15,905	2,000	81	568	6.38	6.64
March	21,545	2,370	91	695	7.81	9.00
April	10,730	981	88	358	4.02	4.48
May	3,569	417	36	115	1.29	1.49
June	909.1	72	6.5	30.3	.340	.38
July	1,893.3	330	6.1	61.1	.687	.79
August	2,558	608	15	82.5	.927	1.07
September	8,032	2,080	21	268	3.01	3.36
Water year 1937-38	92,926.5	2,370	4.4	255	2.87	38.80

Peak discharge.- Feb. 7 (3:15 a.m.) about 2,500 sec.-ft.; Mar. 20 (11 p.m.) 2,490 sec.-ft.; Mar. 24 (2 a.m.) 3,640 sec.-ft.; Sept. 22 (1:20 a.m.) 3,330 sec.-ft.

East Branch of Oswegatchie River at Cranberry Lake, N. Y.

Location.- Staff gage, lat. 44°13'15", long. 74°51'00", 850 feet downstream from dam at outlet of Cranberry Lake, in Cranberry Lake village, St. Lawrence County.

Drainage area.- 144 square miles.

Records available.- May 1923 to September 1938.

Average discharge.- 15 years, 305 second-feet.

Extremes.- Maximum discharge during year, 1,000 second-feet Mar. 27, 28, Apr. 1-6; maximum gage height, 6.8 feet Apr. 2, 3; minimum discharge, 76 second-feet July 28 (gage height, 3.39 feet).

1923-33: 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 good. Computed from once-daily gage readings and record of gate operations at Cranberry Lake Dam. Discharge for day of missing gage height, Apr. 19, estimated; that for days of rapidly changing stage averaged for intervals of a day from graph based on gage readings and record of operation at dam. Flow completely regulated by operation of gates in Cranberry Lake Dam.

Rating table, water year 1937-38 (gage height, in feet, and discharge in second-feet)

3.9	77	4.4	151	5.5	445
4.0	89	4.6	190	6.0	650
4.1	102	4.8	233	6.5	910
4.2	117	5.0	283	7.0	1,200

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	190	257	160	283	360	376	1,050	328	222	211	81	245
2	233	257	160	283	360	376	1,080	283	222	211	82	245
3	233	257	160	283	360	376	1,080	250	222	211	82	245
4	233	257	160	283	360	376	1,080	233	222	211	82	245
5	233	257	160	283	360	376	1,080	233	222	211	117	245
6	233	257	160	291	360	376	968	233	222	211	187	245
7	233	257	160	312	360	376	725	233	222	211	211	245
8	233	257	160	312	360	376	535	233	222	211	211	245
9	233	257	160	312	360	376	500	233	222	211	211	245
10	233	257	160	312	360	376	500	233	222	211	211	245
11	240	257	160	312	376	376	500	233	222	211	211	245
12	257	257	160	312	376	360	429	233	222	211	230	245
13	257	257	176	312	376	360	393	233	222	211	245	245
14	257	257	222	312	376	360	393	233	222	211	245	245
15	257	257	237	312	376	360	393	233	222	211	245	245
16	257	217	283	312	376	360	410	233	222	211	245	245
17	257	160	283	312	376	360	410	222	222	211	245	245
18	257	160	283	312	376	360	389	222	222	211	245	245
19	257	160	283	298	376	360	360	222	222	211	245	235
20	257	160	283	298	376	360	360	222	222	211	245	211
21	257	160	283	298	376	376	360	222	222	211	245	211
22	257	160	283	298	376	376	523	222	222	211	245	160
23	257	160	283	298	376	376	650	222	222	222	245	102
24	257	160	283	298	376	393	650	222	222	161	257	102
25	257	160	283	298	376	468	650	222	222	117	257	102
26	257	160	283	298	376	696	575	222	222	104	257	102
27	257	160	283	298	376	968	500	222	222	77	245	102
28	257	160	283	298	376	1,080	410	222	222	77	245	102
29	257	160	283	298	-	1,020	360	222	222	81	245	102
30	257	160	283	298	-	1,020	360	222	222	81	245	102
31	257	-	283	315	-	1,020	-	222	-	81	245	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,667	257	190	247		
November	6,312	257	160	210		
December	7,083	283	160	228		
Calendar year 1937	121,503	1,200	38	333	2.31	31.36
January	9,341	315	283	301		
February	10,368	376	360	370		
March	15,169	1,080	360	489		
April	17,673	1,080	360	589		
May	7,220	328	222	233		
June	6,660	222	222	222		
July	5,643	222	77	182		
August	6,607	257	81	213		
September	6,043	245	102	201		
Water year 1937-38	105,786	1,080	77	290	2.01	27.31

Note.- Elevation of water surface in Cranberry Lake Reservoir on Sept. 30, 1938, was 1.71 feet higher than on Sept. 30, 1937, corresponding to an increase in storage of 524,392,704 cubic feet. This is equivalent to a mean yearly discharge of 16.6 second-feet, 0.115 second-foot per square mile or 1.56 inches on drainage area.

Elevation of water surface in Cranberry Lake Reservoir on Dec. 31, 1937, was 1.25 ft. lower than on Dec. 31, 1936, corresponding to a decrease in storage of 383,328,000 cubic feet. This is equivalent to a mean yearly discharge of 12.2 second-feet, 0.0847 second-foot per square mile or 1.15 inches on drainage area.

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 1938.
Average discharge.- 13 years (1925-38), 539 second-feet.
Extremes.- Maximum discharge during year, 3,190 second-feet Mar. 24 (gage height, 6.34 feet); minimum, about 6 second-feet Oct. 1, 3, 5 (gage height, 0.92 foot); minimum daily discharge, 108 second-feet Dec. 12.
1924-38: Maximum discharge, 4,010 second-feet Apr. 6, 1928 (gage height, 7.1 feet), from rating curve extended logarithmically above 1,900 second-feet; minimum, probably less than 1 second-foot during complete shut-down of power plant and pending of entire flow of river; minimum daily discharge, 1 second-foot July 25, 1926.
Remarks.- Records excellent except those for periods of missing gage heights, Oct. 30 to Nov. 21, May 2-4, 8-24, June 13-20, Aug. 6-19, Sept. 6-16, which were computed on basis of record of output for Flat Rock power plant and are good. Large diurnal fluctuation 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 1937-38 (gage height, in feet, and discharge, in second-feet)

2.0	108	2.8	300	5.0	1,660
2.1	125	3.0	368	5.5	2,180
2.2	144	3.2	447	6.0	2,760
2.3	165	3.6	632	6.1	2,880
2.4	188	4.0	865		
2.6	240	4.5	1,220		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	409	500	501	398	513	698	427	429	320	273	270	437
2	269	500	520	476	775	680	1,520	700	416	286	333	335
3	153	480	534	444	503	675	1,200	215	315	266	374	345
4	380	480	460	446	587	684	1,540	540	433	254	319	166
5	188	490	153	454	517	513	1,450	405	306	256	274	274
6	224	480	496	431	642	417	1,290	296	317	257	215	320
7	412	205	506	406	1,470	683	1,270	388	313	258	205	340
8	339	460	471	255	1,390	591	1,010	320	322	320	235	340
9	339	500	505	328	1,290	554	1,060	390	318	273	235	520
10	152	540	491	435	1,240	499	814	390	264	264	225	400
11	400	520	394	503	640	580	992	450	269	266	225	320
12	165	480	108	479	810	733	954	520	278	404	260	320
13	446	410	486	448	624	784	808	500	260	266	195	340
14	338	450	409	446	798	860	1,030	320	280	475	215	560
15	290	660	270	312	914	549	1,010	350	280	254	180	340
16	143	520	371	326	928	740	447	390	320	254	245	390
17	360	500	433	334	785	1,200	500	500	280	257	235	481
18	377	740	167	492	751	1,180	1,020	560	350	205	340	318
19	202	700	300	434	751	760	1,150	450	260	384	235	316
20	470	390	413	515	496	463	1,250	340	260	262	219	311
21	329	245	451	406	1,010	1,150	984	350	315	375	322	323
22	419	431	550	430	738	2,030	1,170	400	329	412	245	1,160
23	409	424	468	407	711	2,470	779	440	278	592	256	1,680
24	351	484	480	405	722	2,850	266	490	270	559	271	944
25	428	375	423	483	773	2,250	786	574	327	912	327	304
26	558	485	454	510	515	1,700	615	576	221	640	322	425
27	511	471	434	518	392	1,030	660	491	295	483	262	397
28	519	320	435	624	741	1,520	881	409	264	364	332	527
29	661	704	442	392	-	1,520	1,240	338	245	487	350	559
30	560	550	458	375	-	1,490	837	330	263	306	356	286
31	380	-	492	528	-	1,500	-	337	-	277	405	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	11,181	661	143	361		
November	14,494	740	205	483		
December	13,075	550	108	422		
Calendar year 1937	210,873	1,800	108	578	2.20	29.81
January	13,440	624	255	434		
February	22,026	1,470	392	787		
March	33,353	2,850	417	1,076		
April	28,960	1,540	266	965		
May	13,188	700	215	425		
June	8,968	433	221	299		
July	11,143	912	205	359		
August	8,482	405	180	274		
September	13,778	1,680	166	459		
Water year 1937-38	192,088	2,850	108	526	2.00	27.17

Peak discharge.- Feb. 7 (12:30 p.m.) 1,710 sec.-ft.; Mar. 24 (11 a.m.) 3,190 sec.-ft.; Sept. 23 (12:40 a.m.) 2,740 sec.-ft.

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 1938.
Average discharge.- 22 years, 1,722 second-feet.
Extremes.- Maximum discharge during year, 11,100 second-feet Mar. 25 (gage height, 7.47 feet); minimum, 289 second-feet Oct. 7 (gage height, 0.92 foot).
1916-38: Maximum discharge, 15,600 second-feet Jan. 11, 1930 (gage height, 9.1 feet), from rating curve extended above 11,700 second-feet; minimum, 200 second-feet Aug. 18, 1934 (gage height, 0.65 foot).
Remarks.- Records excellent except those for periods of ice effect, Dec. 8, Jan. 17-19, Feb. 7, 26, 28, Mar. 1, 3-4 (computed on basis of three discharge measurements, gage heights, observer's notes and weather records), and those for periods of missing gage heights, Nov. 18-20, Dec. 12-21, Dec. 31 to Jan. 3, Aug. 25 to Sept. 6 (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 good. Seasonal flow slightly regulated by storage in Cranberry Lake; slight diurnal fluctuation caused by operation of power plants. During high stages on Grass River a portion of the flow of that stream may pass through Upper Lake, Indian River, and Lower Lake and into Oswegatchie River at Rensselaer Falls, 4½ miles upstream.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 23						Mar. 24 to Sept. 30							
1.0	331	2.0	1,120	4.0	3,790	1.0	320	2.0	1,080	4.0	3,670	6.0	7,590
1.2	451	2.5	1,650	5.0	5,640	1.2	440	2.5	1,600	4.5	4,540	6.5	8,730
1.4	592	3.0	2,270	6.0	7,790	1.4	575	3.0	2,200	5.0	5,480	7.0	9,920
1.6	753	3.5	2,990	7.0	10,200	1.6	730	3.5	2,900	5.5	6,500	7.5	11,150

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	377	2,060	2,080	1,020	3,160	1,300	4,680	2,010	802	440	931	600
2	360	1,840	2,050	993	2,940	1,310	4,180	1,690	794	446	786	650
3	365	1,600	1,870	966	2,480	1,400	3,870	1,380	738	421	714	600
4	420	1,460	1,640	966	2,960	1,300	3,640	1,440	698	361	674	550
5	377	1,290	1,460	957	3,510	1,290	3,370	1,110	674	390	628	500
6	354	1,210	1,360	921	3,960	1,310	3,200	1,040	690	453	628	440
7	351	1,130	1,180	921	6,500	1,340	2,840	1,050	698	486	561	421
8	420	1,090	900	921	7,880	1,390	2,550	922	674	421	492	421
9	407	1,040	698	948	8,250	1,550	2,280	949	658	440	440	512
10	492	1,240	1,000	840	7,860	1,580	2,120	878	628	421	460	547
11	519	1,480	1,120	849	7,160	1,530	2,160	861	612	453	421	730
12	451	1,540	1,210	930	5,970	1,470	2,560	878	561	446	397	674
13	426	1,610	1,100	930	4,410	1,570	3,050	922	492	421	366	612
14	458	1,960	1,000	975	3,450	2,610	2,990	1,050	519	428	366	612
15	492	2,340	950	939	3,000	2,940	2,860	1,090	554	540	453	690
16	471	2,480	900	876	2,720	2,860	2,990	1,050	526	598	397	895
17	465	2,620	900	800	2,580	3,100	2,900	1,090	519	628	343	913
18	485	2,580	950	750	2,540	3,990	2,450	1,200	466	561	428	844
19	451	2,520	1,100	750	2,960	4,820	2,630	1,260	453	512	479	810
20	471	2,490	1,300	770	2,940	5,560	2,920	1,320	446	598	605	762
21	526	2,470	1,420	753	2,680	6,830	2,900	1,270	415	722	605	722
22	680	2,100	1,550	805	2,450	7,700	2,900	1,170	479	698	519	940
23	921	1,710	1,720	939	2,400	9,160	3,220	1,130	453	738	479	1,700
24	1,230	1,540	1,840	814	2,110	10,700	3,320	1,200	440	1,150	505	3,080
25	1,520	1,390	1,690	1,300	1,910	11,000	2,940	1,190	446	1,590	540	3,610
26	1,620	1,340	1,530	3,080	1,800	10,900	2,510	1,280	466	1,910	582	3,380
27	1,780	1,340	1,390	2,930	1,710	10,500	2,480	1,380	434	1,970	628	2,990
28	1,750	1,420	1,290	2,680	1,400	9,660	2,150	1,340	460	1,750	612	2,520
29	1,710	1,580	1,200	2,410	-	8,220	1,940	1,240	472	1,400	550	2,010
30	1,940	1,810	1,080	2,180	-	6,840	2,030	1,070	440	1,100	550	1,790
31	2,200	-	1,050	2,490	-	5,640	-	904	-	1,020	550	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	24,489	2,200	351	790	0.812	0.94
November	52,280	2,620	1,040	1,743	1.79	2.00
December	40,528	2,080	698	1,307	1.34	1.54
Calendar year 1937	662,659	13,800	295	1,816	1.87	25.33
January	38,393	3,080	750	1,238	1.27	1.46
February	103,690	8,250	1,400	3,703	3.81	3.97
March	141,370	11,000	1,290	4,560	4.69	5.41
April	86,630	4,680	1,940	2,888	2.97	3.31
May	36,364	2,010	861	1,173	1.21	1.40
June	16,707	802	415	557	.572	.64
July	23,512	1,970	361	758	.779	.90
August	16,689	931	343	538	.553	.64
September	35,525	3,610	421	1,184	1.22	1.36
Water year 1937-38	616,177	11,000	343	1,688	1.73	23.57

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 Beers Corners and 4 miles downstream from Harrisville, Lewis County.
Drainage area.- 258 square miles.
Records available.- July 1916 to September 1938.
Average discharge.- 22 years, 525 second-feet.
Extremes.- Maximum discharge during year, 4,970 second-feet Mar. 25 (gage height, 8.22 feet); minimum, 40 second-feet Oct. 2 (gage height, 1.06 feet).
1916-38: 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. 21-25, Dec. 4, Jan. 13-19, Feb. 7-12 (computed on basis of three discharge measurements, gage heights, and weather records), and those for periods of missing gage heights, Nov. 7-13, Jan. 20, 21, July 17-31 (computed on basis of observer's readings, weather records, and records for Oswegatchie River near Heuvelton and Independence River at Sperryville), which are fair. Slight diurnal fluctuations, principally during low flows, caused by pondage for operation of power plants.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 20

1.2	53	2.2	223	4.0	1,170
1.4	76	2.4	279	5.0	1,990
1.6	103	2.6	344	6.0	2,930
1.8	135	3.0	515		
2.0	175	3.5	805		

Mar. 21 to Sept. 30

1.4	71	3.0	480	6.0	2,630
1.6	96	3.5	710	6.5	3,130
1.8	128	4.0	1,000	7.0	3,630
2.0	168	4.5	1,355	7.5	4,180
2.2	216	5.0	1,750	8.0	4,730
2.6	332	5.5	2,180		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	832	924	236	576	344	1,260	464	255	97	354	156
2	58	656	826	236	555	317	1,380	425	224	112	329	126
3	65	545	614	245	515	330	1,300	385	241	138	320	112
4	64	477	550	228	576	334	1,110	352	241	130	271	95
5	72	411	445	226	609	330	904	325	194	127	224	104
6	78	371	411	231	872	396	726	313	198	103	201	108
7	104	360	363	239	2,000	520	612	335	173	90	199	105
8	145	390	256	291	2,600	540	548	329	188	88	176	199
9	126	500	310	291	2,400	530	535	306	211	82	127	291
10	104	650	310	304	2,000	505	557	283	194	84	128	212
11	102	730	304	270	1,700	467	594	298	196	89	123	158
12	111	600	279	242	1,300	432	728	342	161	97	148	170
13	100	550	270	220	1,100	448	923	373	189	142	187	220
14	109	717	250	220	1,040	545	987	398	163	214	192	472
15	108	889	245	200	1,080	582	987	427	156	214	140	468
16	101	975	247	190	1,100	692	1,080	557	139	258	131	411
17	102	982	250	190	1,010	885	1,210	598	125	175	117	377
18	97	1,030	288	180	1,000	1,180	1,240	535	131	110	254	308
19	155	1,030	458	180	1,060	1,420	1,200	468	142	135	319	295
20	296	906	609	177	1,100	1,540	1,110	420	143	320	203	276
21	432	650	644	173	1,020	1,890	987	497	117	330	154	314
22	449	440	620	171	868	2,550	954	535	104	430	165	956
23	476	360	570	152	728	3,160	1,160	480	98	860	183	2,100
24	808	340	477	191	609	4,100	1,300	480	90	1,160	235	2,320
25	1,040	360	441	310	530	4,630	1,150	616	85	1,350	282	1,970
26	998	382	378	520	449	3,500	954	665	96	860	241	1,510
27	836	419	330	604	407	2,680	776	584	126	560	190	1,110
28	662	533	298	638	359	2,090	631	497	128	450	145	923
29	741	717	276	592	-	1,580	544	406	103	410	158	818
30	982	903	264	505	-	1,300	493	325	100	425	135	666
31	1,010	-	247	570	-	1,160	-	316	-	373	157	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	10,599	1,040	58	342	1.33	1.53
November	18,705	1,030	340	624	2.42	2.70
December	12,754	924	245	411	1.59	1.83
Calendar year 1937	197,553	3,800	49	541	2.10	28.48
January	9,022	638	152	291	1.13	1.30
February	29,163	2,600	359	1,042	4.04	4.21
March	40,977	4,630	317	1,322	5.12	5.90
April	27,940	1,380	493	931	3.61	4.03
May	13,334	665	283	430	1.67	1.92
June	4,711	255	85	157	.609	.68
July	10,013	1,350	82	323	1.25	1.44
August	6,188	354	117	200	.775	.89
September	17,350	2,320	95	578	2.24	2.50
Water year 1937-38	200,756	4,630	58	550	2.13	28.93

Grass River at Pyrites, N. Y.

Location.- Water-stage recorder, lat. 44°31'50", long. 75°11'50", 1,000 feet downstream from lower bridge in Pyrites, St. Lawrence County, and half a mile upstream from Harrison Creek.

Drainage area.- 355 square miles.

Records available.- August 1924 to September 1938.

Average discharge.- 14 years, 600 second-feet.

Extremes.- Maximum discharge during year, 4,950 second-feet Mar. 25 (gage height, 10.09 feet, backwater from ice), from rating curve extended logarithmicially above 2,650 second-feet; maximum gage height, 10.22 feet Feb. 7 (backwater from ice); minimum discharge, 103 second-feet June 25 (gage height, 1.47 feet).

1924-38: Maximum discharge, about 8,300 second-feet Nov. 18, 1927 (gage height, 13.0 feet), from rating curve extended logarithmically 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 period of ice effect, Dec. 8 to Mar. 29 (computed on basis of five discharge measurements, gage heights, except Jan. 18-23, 30, Feb. 2, 3, 5-7, Feb. 12 to Mar. 18, and Mar. 21, 22, weather records, and records for St. Regis River at Brasher Center and West Branch of Oswegatchie River near Harrisville), which are fair, and those for periods of faulty recorder operation, June 6 to Aug. 22 and Aug. 24 to Sept. 6 (computed on basis of partial gage-height record, recorded range in stage, weather records, and records for St. Regis River at Brasher Center and West Branch of Oswegatchie River near Harrisville), which are poor. Occasional diurnal fluctuations caused by operation of power plants.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	626	754	280	650	400	1,660	572	256	140	280	190
2	132	460	572	420	550	400	1,700	538	232	160	320	170
3	134	408	429	480	500	380	1,450	486	239	220	280	150
4	132	392	438	440	600	380	1,180	446	245	230	220	140
5	132	355	434	420	550	360	987	416	228	190	190	130
6	145	340	396	400	950	360	818	396	215	170	160	136
7	222	367	352	420	2,600	360	702	396	210	150	130	144
8	332	375	300	380	2,400	340	646	404	240	160	140	270
9	284	451	260	360	1,800	340	651	392	210	180	130	396
10	237	552	260	340	1,300	340	666	371	200	200	120	314
11	206	514	260	320	900	360	748	379	220	180	140	235
12	189	400	240	300	800	480	1,150	442	200	170	170	192
13	192	392	240	280	750	500	1,290	482	190	190	150	228
14	224	588	240	260	700	460	1,190	538	200	300	140	514
15	212	829	240	260	650	440	1,180	557	180	320	150	473
16	192	921	260	240	650	600	1,410	682	160	260	130	392
17	181	905	260	240	650	1,000	1,480	702	150	200	130	336
18	173	888	280	240	700	1,300	1,300	567	170	220	150	295
19	181	834	480	220	750	1,300	1,200	460	220	190	170	259
20	290	702	600	220	750	1,700	1,120	481	200	180	200	239
21	425	581	650	220	700	2,600	1,040	768	170	170	180	295
22	482	486	500	240	650	3,000	1,120	861	150	200	170	1,370
23	442	375	420	280	600	3,400	1,560	682	130	300	161	2,330
24	538	429	340	320	550	4,200	1,530	572	120	750	167	2,070
25	596	400	300	550	500	4,800	1,200	646	110	900	600	1,560
26	482	392	280	750	480	3,400	982	596	170	700	900	1,070
27	387	460	280	550	460	2,800	829	486	260	500	700	786
28	336	596	260	500	420	2,200	702	400	220	380	500	765
29	545	788	240	460	-	1,700	651	344	180	320	400	744
30	965	883	260	460	-	1,460	601	302	150	300	320	606
31	867	-	260	700	-	1,430	-	281	-	260	240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,985	965	130	322	0.961	1.11
November	16,687	921	340	556	1.66	1.85
December	11,085	754	240	358	1.07	1.23
Calendar year 1937	239,622	6,900	104	656	1.96	26.60
January	11,550	750	220	373	1.11	1.28
February	23,560	2,600	420	841	2.51	2.61
March	42,790	4,800	340	1,380	4.12	4.75
April	32,743	1,700	601	1,091	3.26	3.64
May	15,645	861	281	505	1.51	1.74
June	5,825	260	110	194	.579	.65
July	8,790	900	140	284	.848	.98
August	7,838	900	120	253	.755	.87
September	16,799	2,330	130	560	1.67	1.86
Water year 1937-38	203,297	4,800	110	557	1.66	22.57

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 1938.

Average discharge.- 30 years, 1,294 second-feet.

Extremes.- Maximum discharge during year, 4,250 second-feet Mar. 29 (gage height, 9.29 feet); minimum, 314 second-feet July 11 (gage height, 3.42 feet); minimum daily discharge, 319 second-feet July 10, 11.
1908-1938: Maximum discharge, 7,580 second-feet Apr. 17, 1922 (gage height, 11.8 feet); minimum, about 10 second-feet Sept. 2, 1913 (gage height, 0.85 foot); minimum daily discharge, 11 second-feet 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 tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 5				Nov. 6 to Sept. 30					
3.5	334	4.6	677	3.4	309	4.6	677	7.5	2,410
3.6	360	5.0	840	3.6	360	5.0	840	8.0	2,850
3.8	415	5.5	1,070	3.8	415	5.5	1,080	8.5	3,350
4.0	474	6.0	1,320	4.0	474	6.0	1,360	9.0	3,900
4.2	537	6.5	1,620	4.2	537	6.5	1,670	10.0	5,150
4.4	604			4.4	604	7.0	2,020		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	764	557	1,570	916	768	1,550	4,190	2,490	880	344	1,730	950
2	517	756	1,570	894	772	1,520	4,160	2,400	890	344	1,730	763
3	529	706	1,580	885	784	1,480	4,130	2,340	912	334	1,550	743
4	482	848	1,560	876	806	1,420	4,040	2,270	896	332	1,310	774
5	869	1,100	1,510	867	806	1,380	3,890	2,180	867	332	1,150	675
6	894	1,430	1,500	849	876	1,400	3,780	2,080	876	339	924	596
7	858	1,430	1,510	831	1,080	1,390	3,570	1,760	906	334	747	570
8	818	1,380	1,510	770	1,260	1,380	3,400	1,300	876	332	766	777
9	797	1,460	1,450	534	*1,330	1,350	3,250	1,180	867	326	998	629
10	743	1,490	1,400	515	*1,480	1,320	3,010	1,060	854	319	1,040	647
11	719	1,460	1,290	515	*1,530	1,290	2,960	1,100	840	319	866	658
12	665	1,400	1,250	527	1,560	1,250	2,790	1,180	801	332	573	700
13	706	1,450	1,150	534	1,580	1,230	2,690	1,220	759	339	432	814
14	545	1,400	1,070	540	1,680	*1,270	2,600	1,250	634	337	503	1,100
15	642	1,420	1,050	575	1,750	1,540	2,610	1,210	459	357	715	1,430
16	632	1,460	1,040	707	1,760	1,500	2,720	1,180	527	360	715	1,340
17	578	1,450	1,000	715	1,750	1,470	2,920	1,190	654	368	608	1,220
18	579	1,490	1,020	704	1,780	1,460	3,100	1,190	685	401	648	1,160
19	574	1,540	1,060	688	1,800	1,440	3,090	1,190	747	424	784	1,080
20	560	1,500	1,000	673	1,810	1,430	3,050	1,310	696	444	772	1,050
21	442	1,490	1,020	662	1,820	1,470	3,040	1,540	604	510	784	1,490
22	466	1,470	1,010	655	1,810	1,590	3,120	1,780	450	647	1,100	2,510
23	387	1,470	1,030	651	1,810	1,890	3,150	1,740	409	838	1,380	2,780
24	404	1,460	1,020	651	1,780	2,590	3,190	1,720	382	1,030	1,660	3,110
25	391	1,430	1,010	685	1,750	3,200	3,180	1,680	365	1,060	1,780	3,360
26	492	1,360	1,020	711	1,690	3,660	3,110	1,650	365	1,080	1,740	3,540
27	548	1,290	995	719	1,660	3,920	2,980	1,610	365	1,060	1,580	3,610
28	374	1,370	985	719	1,610	4,160	2,820	1,550	357	1,250	1,360	3,570
29	352	1,510	970	723	-	4,210	2,720	1,520	347	1,530	1,180	3,440
30	339	1,530	950	735	-	4,160	2,620	1,480	337	1,550	901	3,330
31	415	-	926	763	-	4,190	-	1,230	-	1,530	880	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	18,081	894	339	583	0.807	0.93
November	40,107	1,540	557	1,337	1.85	2.06
December	37,026	1,580	926	1,194	1.65	1.90
Calendar year 1937	532,873	4,560	299	1,460	2.02	27.43
January	21,789	916	515	703	.974	1.12
February	40,892	1,820	768	1,460	2.02	2.10
March	63,110	4,210	1,230	2,036	2.82	3.25
April	95,880	4,190	2,600	3,196	4.43	4.94
May	48,580	2,490	1,060	1,567	2.17	2.50
June	19,607	912	337	654	.906	1.01
July	19,102	1,550	319	616	.853	.98
August	32,906	1,780	432	1,061	1.47	1.70
September	48,416	3,610	570	1,614	2.24	2.50
Water year 1937-38	485,496	4,210	319	1,330	1.84	24.99

*Gage height missing; discharge estimated.

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 and January 1919 to September 1938.
Average discharge.- 25 years (1910-13, 1914-17, 1919-38), 1,095 second-feet.
Extremes.- Maximum discharge during year, 11,600 second-feet Mar. 24 (gage height, 11.38 feet); minimum, 155 second-feet Aug. 9 (gage height, 5.75 feet).
1910-17, 1919-38: Maximum discharge, 16,800 second-feet Apr. 6, 1937 (gage height, 12.82 feet), from rating curve extended logarithmically above 8,240 second-feet; maximum gage height recorded, about 15.5 feet Apr. 6, 1937 (backwater from 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, Nov. 23, Dec. 3, Dec. 8 to Feb. 7, Feb. 15-18, 21, 22, 28, Mar. 1, 3-16, 21-24, which were computed on basis of one discharge measurement, gage heights, engineers' notes, and weather records and which are fair.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

5.7	125	6.4	683	9.0	4,970
5.8	185	6.6	915	9.5	6,070
5.9	250	6.8	1,170	10.0	7,350
6.0	321	7.0	1,440	11.0	10,340
6.1	399	7.5	2,120	12.0	13,740
6.2	485	8.0	3,020		
6.3	580	8.5	3,950		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	329	1,080	1,210	460	1,500	700	3,400	1,220	433	264	468	383
2	321	928	1,000	700	1,200	683	3,270	1,000	476	328	532	337
3	344	819	850	750	1,100	650	2,670	952	494	532	490	300
4	344	694	739	650	1,300	550	2,180	940	383	416	324	314
5	368	662	728	600	1,200	650	1,880	940	250	376	344	286
6	307	673	784	600	1,900	600	1,620	879	271	321	234	257
7	321	652	601	550	3,800	600	1,400	831	307	293	204	264
8	552	652	460	550	2,810	600	1,360	761	425	321	237	464
9	433	795	500	500	2,670	550	1,360	728	344	329	190	379
10	523	843	480	480	2,530	550	1,240	717	352	433	179	353
11	532	784	460	460	2,130	600	1,330	683	416	383	223	338
12	399	750	440	460	1,990	750	2,410	739	376	376	280	264
13	459	705	420	440	1,880	950	2,340	750	360	389	276	250
14	360	1,310	420	420	1,650	900	2,340	891	408	694	230	487
15	476	1,760	400	400	1,400	850	2,500	940	321	642	257	520
16	408	1,870	400	380	1,300	1,100	3,240	1,200	264	476	211	555
17	352	1,870	420	380	1,200	1,680	2,880	1,310	257	321	192	502
18	360	1,660	460	360	1,200	2,280	2,450	1,100	321	416	230	476
19	376	1,440	550	360	1,570	2,500	2,280	940	425	307	278	314
20	542	1,200	700	360	1,520	3,310	2,120	1,140	337	307	337	366
21	717	990	700	360	1,400	5,000	1,990	1,790	314	293	337	431
22	717	867	1,000	380	1,300	5,000	2,180	1,920	293	352	300	1,790
23	705	700	1,000	440	1,240	6,500	2,930	1,570	286	481	293	2,230
24	717	611	800	600	1,140	9,000	2,620	1,330	250	1,010	314	2,040
25	621	691	700	1,000	1,030	8,750	2,130	1,210	173	1,160	819	1,760
26	621	750	600	2,000	928	6,240	1,900	1,170	328	978	903	1,480
27	632	717	550	1,400	928	5,220	1,660	1,070	601	795	855	1,310
28	561	831	550	1,100	850	3,910	1,450	903	485	642	716	1,510
29	732	1,030	500	1,000	-	3,110	1,430	773	376	532	620	1,400
30	1,380	1,260	480	1,100	-	2,760	1,410	611	329	514	640	1,200
31	1,270	-	480	1,600	-	3,000	-	552	-	416	399	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,779	1,380	307	541	0.878	1.01
November	29,594	1,870	611	986	1.60	1.78
December	19,382	1,210	400	625	1.01	1.16
Calendar year 1937	444,096	11,000	198	1,217	1.98	26.78
January	20,840	2,000	360	672	1.09	1.26
February	44,666	3,800	850	1,595	2.59	2.70
March	79,643	9,000	550	2,569	4.17	4.81
April	63,970	3,400	1,240	2,132	3.46	3.86
May	31,560	1,920	552	1,018	1.65	1.90
June	10,655	601	173	355	.576	.64
July	15,097	1,160	264	487	.791	.91
August	11,912	903	179	384	.623	.72
September	22,560	2,230	250	752	1.22	1.36
Water year 1937-38	366,[illegible]52	9,000	173	1,005	1.63	22.11

Peak discharge.- Mar. 24 (8 p.m.) 11,600 sec.-ft.

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 1938.

Average discharge.- 13 years, 234 second-feet.

Extremes.- Maximum discharge during year, 2,240 second-feet Mar. 24 (gage height, 4.42 feet); minimum, 28 second-feet Aug. 22 (gage height, 0.59 foot); minimum daily discharge, 60 second-feet Aug. 3.

1925-38: Maximum discharge, 2,290 second-feet Apr. 23, 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 Oct. 25, 1934 (gage height, 0.46 foot); minimum daily discharge, 28 second-feet Sept. 4, 1934.

Remarks.- Records good. Discharge for period of missing gage heights, July 10-31, computed on basis of records of power output at plant upstream. Diurnal fluctuation caused by operation of power plant. A small diversion from a tributary stream above gage is used as water supply for the village of Malone.

Rating table, water year 1937-38 (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	3.5	1,360
1.3	115	2.0	340	4.0	1,820
1.4	139	2.2	435		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	123	171	182	138	207	177	695	266	125	107	122	82
2	140	168	174	143	177	177	626	251	142	158	114	77
3	144	171	154	145	178	177	468	227	152	129	95	82
4	132	167	171	142	164	177	391	176	107	139	95	92
5	153	130	153	138	174	177	336	207	142	101	94	92
6	135	171	207	137	221	210	287	183	105	108	94	115
7	168	203	142	137	426	233	264	206	147	120	86	176
8	171	156	144	138	453	220	246	177	149	94	60	170
9	145	195	150	134	384	205	243	184	121	144	61	175
10	143	226	165	133	331	184	239	157	116	155	90	152
11	127	168	163	130	266	122	242	194	119	105	95	124
12	135	139	140	127	245	183	345	175	132	155	94	149
13	164	171	158	132	211	196	349	175	116	235	92	200
14	151	274	144	133	206	243	377	198	126	136	92	180
15	137	268	150	129	200	220	485	230	96	156	76	152
16	136	260	155	127	188	242	654	394	90	99	84	152
17	133	257	148	133	177	291	538	333	129	97	82	123
18	151	257	168	126	208	354	460	293	92	128	106	127
19	128	172	219	125	254	349	430	253	97	105	131	116
20	168	195	168	128	270	356	396	298	117	92	94	140
21	168	196	154	119	216	638	372	499	90	94	90	194
22	160	190	165	127	201	976	392	428	90	93	86	553
23	129	137	168	126	193	1,250	493	327	92	164	120	378
24	168	203	152	122	184	2,020	407	306	92	224	156	197
25	165	143	152	220	194	1,650	355	302	108	175	180	177
26	165	165	152	275	180	1,140	315	259	237	117	138	174
27	140	212	138	229	199	792	283	243	204	119	95	196
28	144	204	151	208	155	572	260	197	118	138	99	275
29	237	247	124	187	-	477	251	197	132	126	115	240
30	258	254	158	184	-	499	278	155	107	95	86	173
31	202	-	128	203	-	591	-	180	-	94	92	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,820	255	123	155	1.17	1.35
November	5,870	274	130	196	1.48	1.65
December	4,897	219	124	158	1.20	1.38
Calendar year 1937	95,075	1,320	92	260	1.97	26.76
January	4,675	275	119	151	1.14	1.31
February	6,462	453	155	231	1.75	1.82
March	15,148	2,020	177	489	3.70	4.27
April	11,477	495	239	383	2.90	3.24
May	7,650	499	155	247	1.87	2.16
June	3,890	237	90	123	.932	1.04
July	4,022	235	92	130	.985	1.14
August	3,114	180	60	100	.758	.87
September	5,233	553	77	174	1.32	1.47
Water year 1937-38	77,058	2,020	60	211	1.60	21.70

Peak discharge.- Mar. 24 (2:30 p.m.) 2,240 sec.-ft.

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 Company, 1 mile south of Chateaugay, Franklin County.
Drainage area.- 112 square miles.
Records available.- September to December 1908, October 1926 to September 1938.
Average discharge.- 12 years (1926-38), 179 second-feet.
Extremes.- Maximum discharge during year, 998 second-feet Mar. 25 (gage height, 4.85 feet); minimum, 49 second-feet Sept. 10 (gage height, 1.13 feet); minimum daily discharge, 80 second-feet Sept. 12.

1908, 1926-38: Maximum discharge, 2,060 second-feet Apr. 8, 1928 (gage height, 7.3 feet), from rating curve extended logarithmically above 930 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, Dec. 9-22, Dec. 30 to Jan. 25, Jan. 27-31, Feb. 2, 6-9, 12, 15-22, Feb. 26 to Mar. 12, which were computed on basis of four discharge measurements, gage heights, and weather records and are fair. Flow regulated by storage in Upper and Lower Chateaugay Lakes. Large diurnal fluctuation caused by operation of power plants.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 6				Feb. 7 to Sept. 30					
1.5	84	2.0	145	1.4	74	2.4	212	4.0	649
1.6	95	2.2	175	1.6	97	2.8	290	4.4	805
1.7	106	2.6	245	1.8	123	3.2	389	4.8	975
1.8	118	3.0	328	2.0	150	3.6	511		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	152	103	101	102	112	190	679	209	185	109	102	101
2	159	103	102	102	106	185	664	205	169	109	101	98
3	152	103	103	100	116	185	627	201	137	109	101	97
4	118	103	104	100	119	185	575	172	137	109	100	97
5	112	102	102	98	119	180	497	172	133	109	100	96
6	96	105	101	98	220	185	347	173	122	109	102	97
7	175	103	104	98	240	190	318	155	123	107	102	101
8	296	104	101	96	170	190	282	128	119	107	100	98
9	296	107	102	96	150	185	255	126	118	110	98	98
10	291	104	100	96	158	185	245	127	117	106	98	88
11	217	103	100	96	172	195	259	129	120	107	100	87
12	109	102	100	94	170	210	278	125	116	108	98	80
13	108	109	100	94	156	268	221	127	109	107	97	86
14	108	127	98	94	153	299	222	127	109	106	97	84
15	107	108	98	94	150	279	247	163	109	107	98	85
16	103	114	98	94	145	278	243	220	106	105	96	84
17	100	112	106	92	145	365	286	271	109	106	98	84
18	101	103	114	92	155	356	325	275	110	106	99	85
19	103	97	110	92	180	320	323	275	109	106	99	85
20	103	94	104	92	165	423	325	334	107	106	98	85
21	102	94	104	92	155	561	320	404	107	105	100	130
22	100	95	110	92	155	617	337	381	108	110	100	116
23	103	95	108	94	187	729	332	381	105	109	99	93
24	102	108	101	100	210	916	327	365	106	109	99	106
25	101	104	100	160	220	975	325	337	114	104	99	105
26	100	106	98	138	205	957	310	304	118	102	98	106
27	101	105	96	120	195	912	251	221	108	100	97	113
28	103	105	106	114	190	873	251	217	107	102	97	114
29	130	106	103	110	-	857	249	216	106	102	100	109
30	110	103	102	116	-	809	219	193	106	102	98	110
31	104	-	100	130	-	690	-	189	-	101	94	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,162	296	96	134		
November	3,127	127	94	104		
December	3,176	114	96	102		
Calendar year 1937	79,210	1,080	89	217	1.94	26.32
January	3,186	160	92	103		
February	4,618	240	106	165		
March	13,749	975	180	444		
April	10,139	679	219	338		
May	6,922	404	125	223		
June	3,549	185	105	118		
July	3,294	110	100	106		
August	3,065	102	94	98.9		
September	2,918	130	80	97.3		
Water year 1937-38	61,905	975	80	170	1.52	20.53

Peak discharge.- Mar. 21 (3 p.m.) 686 sec.-ft.; Mar. 22 (8:30 p.m.) 753 sec.-ft.; Mar. 25 (1 a.m.) 998 sec.-ft.

Note.- Elevation of water surface of Chateaugay Lakes at midnight Dec. 31, 1937, was 1.10 feet lower than at midnight Dec. 30, 1936, corresponding to an approximate decrease in storage of 145,665,000 cubic feet. This is equivalent to a mean discharge for the calendar year of 4.62 second-feet, or 0.0413 second-foot per square mile, and run-off of 0.56 inch from the drainage area.

Elevation of water surface of Chateaugay Lakes at midnight Sept. 30, 1938, was 1.10 feet higher than at midnight Sept. 30, 1937, corresponding to an approximate increase in storage of 145,665,000 cubic feet. This is equivalent to a mean discharge for the water year of 4.62 second-feet, or 0.0413 second-foot per square mile, and run-off of 0.56 inch from the drainage area.

Richelieu River (Lake Champlain) at Rouses Point, N. Y.

Location.- Staff gage, lat. 44°59'45", long. 73°21'40", at Rutland Railroad bridge in Rouses Point, Clinton County, 1 mile south of Fort Montgomery. Zero of gage is 92.50 feet above mean sea level (general adjustment of 1912).

Drainage area.- 8,277 square miles.

Records available.- January 1875 to September 1938. Prior to 1870, at St. Johns, Quebec (maximum and minimum monthly stage; see Water-Supply Paper 97, page 340). January 1875 to September 1916, at Chambly, Quebec (monthly discharge; see Water-Supply Paper 424, pp. 20-24). 1871-75, unpublished record of gage heights obtained by Corps of Engineers, U. S. Army, at Fort Montgomery.

Extremes.- Maximum gage height observed during year, 5.10 feet Apr. 17; minimum observed, 0.25 foot Oct. 20.
1871-1938: Maximum gage height observed, 8.80 feet Mar. 30, 1903; observations at St. Johns, Quebec, indicate a maximum gage height of 8.83 feet (computed) during April 1869; minimum observed, -0.60 foot Nov. 13, 1908.

Remarks.- Gage read once daily. Gage-height record furnished by Corps of Engineers, U. S. Army. This river is the outlet of Lake Champlain.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.25	1.03	1.60	1.54	2.05	2.64	4.97	4.61	3.28	2.05	1.80	1.43
2	.70	1.75	1.45	1.54	2.12	2.63	4.92	4.45	3.43	1.86	1.82	1.46
3	.88	.87	1.52	1.35	2.28	2.66	4.96	4.49	3.10	1.70	1.70	1.55
4	.95	.95	1.55	1.56	2.16	2.64	4.92	4.48	3.10	1.57	1.80	1.60
5	1.05	1.20	1.50	1.40	2.14	2.61	4.84	4.43	2.92	1.55	1.62	1.32
6	1.00	.78	1.45	1.41	2.16	2.56	4.82	4.35	2.95	1.60	1.63	1.28
7	.90	1.18	1.60	1.37	2.21	2.50	4.65	4.20	3.10	1.68	1.50	1.52
8	.72	.90	1.80	1.43	2.46	2.48	4.75	4.14	2.85	1.65	1.45	1.20
9	.77	1.10	1.58	1.44	2.60	2.52	4.68	4.08	2.75	1.75	1.52	1.20
10	.82	.82	1.68	1.45	2.64	2.57	4.64	4.00	2.80	1.62	1.47	1.26
11	.70	.80	1.52	1.45	2.67	2.58	4.95	3.90	2.85	1.62	1.65	1.34
12	1.18	.92	1.48	1.42	2.69	2.55	4.44	3.84	2.55	1.58	1.30	1.45
13	.65	.80	1.46	1.41	2.70	2.56	4.54	3.78	2.45	1.60	1.35	1.24
14	.70	.93	1.42	1.38	2.73	2.49	4.55	3.71	2.43	1.73	1.48	1.40
15	.58	1.12	1.48	1.41	2.75	2.53	4.42	3.52	2.45	1.55	1.43	1.55
16	.52	1.25	1.52	1.46	2.76	2.55	4.73	3.69	2.50	1.60	1.32	1.35
17	.66	1.40	1.47	1.35	2.76	2.60	5.10	3.70	2.35	1.62	1.35	1.42
18	1.10	1.37	1.54	1.38	2.81	2.64	4.90	3.65	2.28	1.57	1.40	1.48
19	.75	1.43	1.52	1.37	2.74	2.74	4.89	3.75	2.29	1.45	1.38	1.52
20	.25	1.40	1.51	1.42	2.71	2.83	4.95	3.95	2.18	1.55	1.50	1.57
21	.75	1.40	1.55	1.39	2.79	2.86	4.94	3.64	2.17	1.42	1.56	1.68
22	.72	1.42	1.67	1.38	2.81	3.18	5.08	3.78	2.15	1.48	1.43	3.30
23	.90	1.58	1.52	1.37	2.82	3.60	4.88	3.83	2.10	1.55	1.55	3.33
24	.82	1.48	1.54	1.42	2.76	3.95	4.96	3.69	1.97	1.52	1.35	3.55
25	1.15	1.47	1.48	1.44	2.75	4.42	4.92	3.58	2.05	1.65	1.43	3.60
26	1.05	1.60	1.54	1.63	2.74	4.74	4.88	3.80	1.92	1.68	1.60	3.95
27	.88	1.38	1.50	1.80	2.74	4.76	4.92	3.54	1.90	1.52	1.75	3.95
28	.77	1.48	1.56	1.92	2.62	4.87	4.64	3.50	1.86	1.58	1.50	4.00
29	.78	1.35	1.44	1.99	-	4.88	4.68	3.44	1.88	1.70	1.65	3.80
30	.82	1.55	1.45	2.10	-	5.00	4.65	3.42	1.88	1.65	1.45	3.87
31	.86	-	1.40	1.97	-	5.08	-	3.40	-	1.72	1.52	-

Lake Champlain at Burlington, Vt.

Location.- Float gage, lat. 44°28'55", long. 73°13'00", in pump house of Burlington Water Department, half a mile north of railroad station in Burlington, Chittenden County. Zero of gage is about 92.5 feet above mean sea level.

Records available.- May 1907 to September 1938.

Extremes.- Maximum gage height observed during year, 5.02 feet Apr. 21; minimum observed, 0.55 foot Oct. 19.

1907-38: 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 furnished by Water Department, City of Burlington.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.00	1.06	1.53	1.55	2.13	2.86	4.96	4.54	3.26	1.88	1.62	1.54
2	.92	.97	1.60	-	2.14	2.85	4.96	4.61	3.21	1.89	1.66	1.48
3	-	1.01	1.63	1.51	2.17	2.85	5.00	4.62	3.10	1.85	1.66	1.43
4	.92	.95	1.63	1.51	2.18	2.86	4.96	4.58	3.06	1.84	1.65	1.38
5	.91	.97	-	1.51	2.18	2.86	4.96	4.50	2.96	1.83	1.62	1.41
6	.90	1.01	1.66	1.46	2.25	2.85	4.92	4.38	2.91	1.80	1.62	1.41
7	.85	.93	1.67	1.51	2.38	2.86	4.87	4.28	2.90	1.70	1.58	1.32
8	.85	1.05	1.54	1.51	2.42	2.85	4.78	4.20	2.82	1.68	1.58	1.34
9	.80	.95	1.54	1.52	2.57	2.86	4.70	4.14	2.76	1.67	1.49	1.35
10	-	.88	1.55	1.50	2.63	2.86	4.72	4.05	2.70	1.68	1.43	1.32
11	.75	.98	1.56	1.48	2.81	2.85	4.78	3.96	2.63	1.67	1.40	1.28
12	.74	.93	1.60	1.46	-	2.80	4.58	3.90	2.58	1.61	1.40	1.22
13	.74	1.01	1.55	1.45	-	2.85	4.58	3.83	2.57	1.61	1.42	1.30
14	.74	1.21	1.58	1.48	-	2.87	4.55	3.78	2.50	1.62	1.34	1.33
15	.75	1.24	1.50	1.47	2.84	2.86	4.70	3.78	2.44	1.61	1.30	1.34
16	.75	1.40	1.51	1.51	2.85	2.86	4.80	3.80	2.37	1.56	1.30	1.40
17	.63	1.47	1.50	1.47	2.86	2.86	4.86	3.75	2.33	-	1.33	1.49
18	.65	1.48	1.52	1.48	2.88	2.87	4.84	3.71	2.28	-	1.40	1.52
19	.55	1.52	1.55	1.46	2.88	2.86	4.87	3.67	2.26	1.59	1.37	1.52
20	.65	1.55	1.61	1.46	2.94	2.86	4.83	3.71	2.22	1.52	1.48	1.54
21	.66	-	1.53	1.45	2.90	2.85	5.02	3.71	2.22	1.53	1.44	1.80
22	.66	1.53	1.57	1.46	2.91	3.10	4.98	3.80	2.13	1.55	1.50	2.50
23	.85	1.49	-	1.42	2.91	3.50	5.01	3.78	2.05	1.55	1.48	3.50
24	.92	1.43	1.59	1.42	2.93	3.74	5.00	3.68	2.02	1.51	1.54	3.60
25	.83	1.43	1.64	1.45	2.93	4.57	4.95	3.69	1.93	1.54	1.62	3.72
26	.91	1.42	1.58	1.50	2.93	4.65	4.92	3.64	2.08	1.51	1.64	3.73
27	.84	1.43	1.54	1.58	2.93	4.94	4.84	3.61	2.08	1.58	1.62	3.74
28	.92	1.43	1.51	1.65	2.93	4.94	4.80	3.54	2.05	1.62	1.58	3.86
29	.99	1.53	1.55	2.22	-	4.92	4.78	3.49	2.02	1.62	1.56	3.90
30	1.03	1.53	1.55	2.21	-	4.95	4.74	3.37	1.97	1.66	1.58	3.89
31	1.01	-	1.55	2.25	-	-	-	3.32	-	1.66	1.56	-

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 1938.
Average discharge.- 10 years, 278 second-feet.
Extremes.- Maximum discharge during year, 5,690 second-feet Mar. 22 (gage height, 9.48 feet); maximum gage height, 9.93 feet Mar. 21 (ice jam); minimum discharge, 18 second-feet Aug. 14 (gage height, 1.81 feet); minimum daily discharge, 23 second-feet Aug. 13 and 15.

1928-38: 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 Sept. 18, 1932 (gage height, 1.33 feet); minimum daily discharge, 10 second-feet Sept. 18, 1932.
Remarks.- Records good except those for periods of ice effect, Dec. 9 to Mar. 22, which were computed on basis of four discharge measurements, gage heights, weather records, and unpublished records of discharge from Chazy Lake and are fair. Diurnal fluctuation cuased by operation of sawmill nearby; partial regulation due to storage in Chazy Lake. Clinton Prison, at Dannemora, obtains its water supply from Chazy Lake.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 22

2.2	70	4.0	640
2.4	104	4.5	910
2.6	146	5.0	1,210
2.8	194	6.0	1,960
3.0	252	7.0	2,910
3.2	316	8.0	3,970
3.4	388	8.4	4,410
3.6	466		

Mar. 23 to Sept. 30

1.8	17	2.4	97
1.9	27	2.6	135
2.0	39	2.9	218
2.1	52	3.2	316
2.2	66		

Note.- Same as preceding table above 3.2 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	128	167	150	260	180	849	557	159	76	62	78
2	94	124	146	160	240	200	642	385	138	91	62	78
3	91	119	141	160	220	190	483	295	133	83	69	81
4	88	132	149	150	200	200	405	253	122	72	57	84
5	72	109	144	150	220	200	379	226	125	79	49	84
6	89	119	143	150	240	220	342	208	118	81	44	49
7	90	128	160	150	600	240	340	226	122	79	55	79
8	98	126	149	150	500	260	310	199	128	73	47	87
9	86	141	150	140	420	260	273	167	120	65	50	64
10	93	149	150	140	360	240	240	174	114	59	59	44
11	94	124	140	140	320	240	267	189	125	64	46	58
12	81	94	130	140	280	260	1,020	182	119	80	31	39
13	82	123	140	130	260	300	875	182	112	99	23	53
14	87	399	140	130	260	420	769	186	109	90	24	52
15	97	447	140	120	240	460	956	221	80	77	23	46
16	90	372	140	130	220	500	1,580	1,780	66	66	29	33
17	91	365	140	130	220	550	819	1,170	68	58	25	27
18	86	307	150	120	240	750	606	595	71	55	65	34
19	87	255	200	110	300	800	519	415	108	66	63	51
20	104	211	180	120	360	900	435	472	96	60	56	59
21	100	189	150	130	300	3,000	392	1,080	70	51	58	143
22	110	163	140	130	240	4,400	375	793	69	96	66	1,570
23	124	173	140	140	220	3,430	602	486	91	122	66	624
24	102	201	150	140	220	3,110	459	407	91	115	65	293
25	108	174	160	190	220	1,850	351	381	93	89	62	218
26	105	162	170	400	200	1,070	313	313	206	72	58	163
27	94	178	160	340	220	980	286	264	284	65	49	127
28	85	187	160	260	200	772	232	227	146	59	60	208
29	144	185	150	240	-	700	236	203	120	73	52	196
30	236	203	150	220	-	732	417	186	83	72	72	169
31	172	-	150	240	-	788	-	176	-	68	83	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,174	236	72	102	0.413	0.48
November	5,787	447	94	193	.781	.87
December	4,679	200	130	151	.611	.70
Calendar year 1937	118,833	4,200	43	326	1.32	17.88
January	5,200	400	110	168	.680	.78
February	7,780	600	200	278	1.13	1.18
March	28,202	4,400	180	910	3.68	4.24
April	15,772	1,580	232	526	2.13	2.38
May	12,598	1,760	167	406	1.64	1.89
June	3,486	284	66	116	.470	.52
July	2,355	122	51	76.0	.308	.36
August	1,630	83	23	52.6	.213	.25
September	4,891	1,570	27	163	.660	.74
Water year 1937-38	95,554	4,400	23	262	1.06	14.39

Peak discharge.- Mar. 22 (1:30 a.m.) 5,690 sec.-ft.

150680 (1—31)——9

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 1938.

Extremes.- Maximum discharge during year, 4,890 second-feet Mar. 24; maximum gage height, 10.53 feet Dec. 16 (ice jam); minimum discharge, 115 second-feet Oct. 4 (gage height, 1.80 feet); minimum daily discharge, 166 second-feet Oct. 4.

1930-38: Maximum discharge, 5,780 second-feet Apr. 17, 1933, from rating curve extended logarithmically above 3,700 second-feet; maximum gage height, 12.74 feet Dec. 2, 1936 (ice jam); minimum discharge, 67 second-feet Aug. 27, 1934 (gage height, 1.63 feet); minimum daily discharge, 96 second-feet Sept. 22, Nov. 10, 12, 1934.

Remarks.- Records good except those for periods of ice effect, Nov. 23-24, Dec. 10 to Mar. 19 (computed on basis of three discharge measurements, gage heights except those for Jan. 17-25, Jan. 27 to Feb. 5, Feb. 8-14, Mar. 5-6, 8, 11, 14-16, weather records, and records of Kents Falls power plant at Cadyville), and those for period of missing gage heights, Oct. 1-3 (computed on basis of records of Kents Falls power plant at Cadyville), which are fair. Considerable diurnal fluctuation caused by operation of power plants. Flow partly regulated by storage in Lower Saranac Lake and elsewhere.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.9	149	2.3	326	2.7	565	3.4	1,120	5.0	2,850
2.0	187	2.4	381	2.8	635	3.6	1,300	5.5	3,450
2.1	229	2.5	439	3.0	785	4.0	1,700	6.0	4,070
2.2	275	2.6	500	3.2	945	4.5	2,250	6.5	4,720

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	319	382	650	550	500	2,320	1,220	638	425	526	563
2	500	330	346	650	500	650	2,030	1,230	592	588	523	578
3	300	360	369	600	460	650	1,720	1,100	586	444	513	599
4	166	344	455	500	600	700	1,630	930	493	477	527	436
5	229	406	566	500	500	750	1,490	824	482	412	528	310
6	270	296	486	550	650	900	1,320	478	551	390	450	410
7	345	290	666	550	1,000	850	1,160	422	573	370	284	426
8	372	254	556	550	900	900	1,160	393	639	393	374	391
9	271	288	354	600	800	1,000	1,110	416	592	436	406	296
10	296	482	480	600	750	1,200	962	438	598	342	497	282
11	298	430	600	500	750	1,000	946	470	604	424	399	369
12	352	670	650	550	700	1,200	1,170	460	447	518	476	348
13	278	647	700	600	800	1,300	1,100	449	568	422	392	466
14	193	636	750	550	800	1,200	1,200	428	560	462	337	402
15	240	502	600	480	750	1,100	1,750	776	338	523	450	422
16	226	490	750	600	600	950	1,970	1,240	490	462	456	406
17	299	432	600	650	650	1,000	1,780	1,210	558	327	472	395
18	210	588	650	600	750	1,100	1,770	1,020	700	330	539	450
19	364	835	650	500	800	1,100	1,770	1,040	754	308	517	526
20	328	862	600	400	750	1,220	1,750	1,220	602	336	315	614
21	339	915	600	380	650	2,260	1,570	1,450	596	292	176	1,360
22	352	744	650	380	600	2,560	1,700	1,110	616	350	376	2,280
23	464	650	650	360	650	3,580	1,770	1,090	458	474	468	2,150
24	423	750	550	340	600	4,650	1,620	1,120	372	536	771	2,180
25	415	678	750	460	600	3,560	1,590	1,140	338	407	472	1,850
26	447	654	500	650	550	2,980	1,460	882	801	338	355	1,700
27	418	718	480	600	600	2,330	1,390	966	432	528	388	1,580
28	293	816	600	550	550	2,110	1,290	900	317	468	346	1,510
29	491	686	650	500	-	1,920	1,260	779	302	490	439	1,430
30	442	685	750	360	-	1,990	1,420	754	346	410	612	1,310
31	392	-	650	240	-	2,220	-	732	-	424	606	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	10,563	550	166	341	0.655	0.76
November	16,757	915	254	559	1.07	1.19
December	18,040	750	346	582	1.12	1.29
Calendar year 1937	315,000	3,750	166	863	1.66	22.48
January	16,000	650	240	516	.990	1.14
February	18,660	1,000	460	674	1.29	1.34
March	49,430	4,650	500	1,595	3.06	3.53
April	45,168	2,320	946	1,506	2.89	3.22
May	26,687	1,450	393	861	1.65	1.90
June	15,943	801	302	531	1.02	1.14
July	13,026	588	292	420	.806	.93
August	13,990	771	176	451	.866	1.00
September	26,039	2,280	282	868	1.67	1.86
Water year 1937-38	270,503	4,650	166	741	1.42	19.30

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 1938.
Average discharge.- 19 years (1919-38), 222 second-feet.
Extremes.- Maximum discharge during year, 10,800 second-feet Sept. 22 (gage height, 12.20 feet), from rating curve extended logarithmically above 3,200 second-feet; minimum, 38 second-feet June 23 (gage height, 2.39 feet); minimum daily discharge, 46 second-feet June 22.
1916-17, 1919-38: Maximum discharge, that of Sept. 22, 1938; practically no flow Sept. 13, 1920, caused by closing gates in logging dam (gage height, 1.60 feet); minimum daily discharge, 7.2 second-feet July 29, 1920.
Remarks.- Records excellent except those for periods of ice effect, Nov. 23-26, Dec. 2-21, Jan. 6 to Mar. 24 (computed on basis of three discharge measurements, gage heights, and weather records), and periods of missing gage heights, Dec. 22 to Jan. 5, Sept. 4, 5 (computed on basis of records for Ausable River near Ausable Forks and East Branch of Ausable River at Ausable Forks), all of which are fair. Diurnal fluctuation at low and medium stages caused by operation of power plants.

Rating tables, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 24

2.4	42	3.2	184	5.6	1,480
2.5	52	3.6	316	6.0	1,810
2.6	65	4.0	484	6.5	2,270
2.7	80	4.4	680	7.0	2,780
2.8	96	4.8	905	7.5	3,330
3.0	135	5.2	1,180		

Mar. 25 to Sept. 30

2.4	39	3.0	132	4.8	905	7.0	2,780
2.5	49	3.2	184	5.2	1,180	7.5	3,330
2.6	61	3.6	316	5.6	1,480	8.0	3,930
2.7	75	4.0	484	6.0	1,810	9.0	5,280
2.8	91	4.4	680	6.5	2,270	10.0	6,810

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	183	221	65	150	80	892	285	132	83	170	105
2	59	139	160	65	130	80	486	248	120	136	170	98
3	62	177	120	65	120	75	329	214	151	114	131	89
4	70	153	95	60	110	75	306	182	146	89	102	80
5	55	137	110	60	100	85	234	171	130	82	88	70
6	133	131	110	65	160	130	200	168	121	92	77	63
7	348	122	100	65	1,300	220	192	170	109	74	68	84
8	178	124	95	60	800	180	162	158	162	72	61	127
9	116	316	90	60	480	140	172	156	132	60	119	103
10	95	311	85	60	300	120	167	140	107	56	102	87
11	89	196	80	60	240	110	160	143	108	56	90	78
12	87	169	70	55	220	100	185	128	106	76	98	68
13	115	162	75	55	200	140	202	145	104	70	84	196
14	109	534	70	55	240	200	326	167	90	72	72	204
15	93	408	70	55	240	150	986	324	84	192	65	208
16	81	306	70	50	160	150	1,030	546	67	130	63	213
17	77	257	75	50	130	220	603	548	80	100	58	171
18	73	230	90	50	160	280	615	607	62	154	414	161
19	205	192	130	50	260	220	732	522	50	156	288	143
20	365	160	110	50	220	220	676	551	70	124	160	280
21	344	145	95	55	170	550	576	665	56	158	110	1,720
22	199	132	85	55	150	800	661	506	46	350	401	5,660
23	268	110	85	60	130	1,500	630	374	54	290	322	1,510
24	625	95	80	75	120	2,800	405	360	50	354	964	844
25	265	85	75	400	100	1,040	334	334	89	236	726	593
26	172	90	75	900	95	618	286	278	268	152	374	436
27	138	120	75	500	90	464	304	232	207	134	226	374
28	126	208	70	340	85	336	436	218	117	270	180	422
29	518	654	70	240	-	320	385	184	96	954	143	334
30	431	361	70	200	-	364	340	172	77	455	124	272
31	267	-	70	170	-	634	-	160	-	234	109	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,819	625	55	188	1.62	1.87
November	6,407	654	85	214	1.84	2.05
December	2,876	221	70	92.8	.800	.92
Calendar year 1937	87,747	2,280	46	240	2.07	28.12
January	4,150	900	50	134	1.16	1.34
February	6,660	1,300	85	238	2.05	2.14
March	12,401	2,800	75	400	3.45	3.98
April	13,012	1,030	160	434	3.74	4.17
May	9,056	665	128	292	2.52	2.90
June	3,191	268	46	106	.914	1.02
July	5,575	954	56	180	1.55	1.79
August	6,159	964	58	199	1.72	1.98
September	14,793	5,660	63	493	4.25	4.74
Water year 1937-38	90,099	5,660	46	247	2.13	28.90

Peak discharge.- Mar. 24 (11 a.m.) 3,590 sec.-ft.; Sept. 22 (3:45 a.m.) 10,800 sec.-ft.

Ausable River near Ausable Forks, N.Y.

Location.- Water-stage recorder, lat. 44°27'05", long. 73°38'35", 1¾ miles downstream from confluence of East and West Branches at Ausable Forks, Clinton County.
Drainage area.- 448 square miles.
Records available.- September 1924 to September 1938. August 1910 to September 1925 at Ausable Forks, 1½ miles upstream.
Average discharge.- 14 years, (1924-38), 695 second-feet.
Extremes.- Maximum discharge during year, 24,200 second-feet Sept. 22 (gage height, 11.65 feet), from rating curve extended logarithmically above 9,100 second-feet; maximum gage height, 12.6 feet, former site and datum, from floodmarks, Sept. 22; minimum discharge, 117 second-feet June 24 (gage height, 1.18 feet).
1910-38: Maximum discharge, that of Sept. 22, 1938 (supersedes maximum discharge published in Water-Supply Paper 824); maximum gage height, about 14.0 feet (revised) Mar. 27, 1934, caused by ice jam; practically no flow July 21, 1912.
The maximum discharge for the water year 1924-25 has been revised to 21,200 second-feet Oct. 1 (gage height, 11.15 feet), superseding that published in Water-Supply Paper 604.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.2	122	2.2	545	5.0	3,850
1.3	150	2.4	670	6.0	5,740
1.4	181	2.6	815	7.0	8,090
1.5	215	3.0	1,160	8.0	10,900
1.6	252	3.5	1,690	9.0	13,900
1.8	335	4.0	2,330	10.0	17,600
2.0	433	4.5	3,060		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	575	748	300	500	240	2,450	1,060	382	198	444	236
2	204	460	507	300	460	240	1,460	820	331	358	426	228
3	205	487	407	280	440	220	998	672	335	332	368	213
4	212	460	368	280	420	220	815	593	331	279	313	194
5	195	402	408	260	400	340	690	539	310	251	288	184
6	232	373	363	280	550	750	562	510	300	290	251	205
7	649	354	344	280	2,800	650	540	499	292	249	237	214
8	448	340	309	260	1,910	550	506	482	363	197	220	268
9	301	612	300	240	1,240	480	522	460	319	191	272	252
10	264	800	280	240	954	440	528	428	292	195	292	234
11	272	545	280	240	670	420	505	433	264	212	248	215
12	264	397	260	220	550	400	733	428	272	226	256	181
13	301	433	260	240	500	750	755	392	283	248	243	294
14	322	2,490	240	260	600	800	1,040	455	262	241	237	449
15	280	1,700	240	260	650	500	3,230	1,110	222	364	208	432
16	260	1,360	240	260	550	550	3,700	2,410	200	342	207	599
17	226	989	260	240	500	850	2,180	1,920	208	252	195	465
18	195	793	300	240	550	778	1,790	1,880	278	256	716	397
19	263	644	380	220	750	779	2,230	1,540	296	377	734	360
20	855	551	360	220	600	924	2,020	1,550	223	322	457	592
21	908	440	320	220	500	2,540	1,750	2,150	202	280	315	5,840
22	563	360	300	220	460	3,000	1,680	1,560	166	704	516	14,300
23	598	320	280	240	420	5,300	1,910	1,090	144	726	695	3,790
24	2,350	280	280	280	380	7,700	1,270	954	142	990	1,820	2,070
25	1,040	260	260	1,400	340	3,380	1,020	895	198	758	1,490	1,360
26	618	320	260	1,950	300	2,020	879	733	637	477	825	972
27	455	368	240	945	280	1,460	815	618	738	349	513	847
28	397	438	240	800	260	1,080	1,090	545	462	348	396	920
29	1,420	1,840	240	650	-	980	1,150	493	331	1,810	319	740
30	1,290	1,180	240	600	-	1,020	1,270	438	246	1,130	278	599
31	815	-	260	550	-	1,450	-	474	-	670	248	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,602	2,350	195	536	1.20	1.38
November	20,571	2,490	260	686	1.53	1.71
December	9,774	748	240	315	.703	.81
Calendar year 1937	277,520	9,300	142	760	1.70	23.08
January	12,975	1,950	220	419	.935	1.08
February	18,534	2,800	260	662	1.43	1.54
March	40,811	7,700	220	1,316	2.94	3.39
April	40,088	3,700	505	1,336	2.93	3.32
May	28,131	2,410	392	907	2.02	2.33
June	9,029	738	142	301	.672	.75
July	13,622	1,810	191	439	.930	1.13
August	14,027	1,820	195	452	1.01	1.16
September	37,650	14,300	181	1,255	2.80	3.12
Water year 1937-38	261,814	14,300	142	717	1.60	21.72

Peak discharge.- Mar. 24 (12 m.) 9,270 sec.-ft.; Sept. 22 (3:30 a.m.) 24,200 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 1938.

Average discharge.- 14 years, 51.1 second-feet.

Extremes.- Maximum discharge during year, 694 second-feet Sept. 22 (gage height, 5.60 feet), from rating curve extended logarithmically above 450 second-feet; minimum, 5.6 second-feet Sept. 6 (gage height, 1.39 feet).

1924-38: Maximum discharge, 1,050 second-feet Apr. 6, 1937 (gage height, 6.95 feet), from rating curve extended logarithmically above 450 second-feet; minimum, 0.8 second-foot July 2, Aug. 29, 1931 (plant shut down).

Remarks.- Records good except those for periods of ice effect (computed on basis of two discharge measurements, gage heights, and weather records), and periods of missing gage heights (computed on basis of recorded range in stage and record for West Branch of Ausable River near Newman), of which some are fair and some poor. Flow regulated by storage in Taylor Pond and Fern Lake. Power plant above station not operated during year.

Rating table, water year 1937-38, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.4	5.8	1.7	18	2.2	54	3.5	229
1.5	8.7	1.8	24	2.6	96	4.0	325
1.6	12.8	2.0	37	3.0	147	5.0	547

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	33	30	†70	*60	†12	113	*60	19	54	8.1	8.7
2	60	27	23	†65	*55	†12	97	*54	18	49	8.1	8.1
3	59	25	†19	†60	†55	†12	74	48	17	28	7.5	7.0
4	57	22	†16	†50	†55	*12	61	41	17	21	27	6.4
5	55	20	16	†46	†50	*13	53	38	16	19	40	6.4
6	54	20	17	†44	†55	*34	44	36	15	25	40	5.8
7	53	20	†17	†44	†120	*24	42	36	18	19	41	7.5
8	26	19	†16	†40	†95	*17	*36	34	23	14	43	12
9	12	23	†16	†36	80	*15	*33	34	20	12	44	9.1
10	38	25	†16	†34	67	†14	*30	31	15	44	43	7.5
11	56	23	†16	†32	†55	†14	*29	34	15	53	43	7.2
12	59	17	†16	†32	†46	†15	*35	33	16	55	43	7.0
13	61	20	†15	†44	†38	†16	*70	31	14	74	52	17
14	60	54	†15	†70	31	†26	*100	33	12	66	54	19
15	58	69	†15	†90	37	†38	*140	50	11	55	53	15
16	56	67	†15	†70	†32	36	*135	*110	10	50	54	*13
17	31	67	†15	†55	†28	48	*100	*88	44	26	56	*10
18	14	55	17	†46	24	55	*88	*72	62	13	71	*9.1
19	16	44	21	†40	27	50	78	*58	59	11	50	*10
20	18	37	†24	†36	†26	50	72	*57	43	9.9	43	20
21	22	33	†22	†32	†24	80	68	*72	23	11	42	117
22	19	27	†22	†30	†20	150	64	*80	15	20	50	494
23	17	†22	†20	†30	†17	300	*70	*56	11	37	52	*213
24	25	†20	†20	†38	†15	450	*52	*49	14	34	72	*88
25	27	†20	†19	*120	†14	211	*47	47	59	21	41	52
26	20	21	†19	*100	†13	153	*46	39	107	14	19	36
27	17	22	†18	†85	†13	110	*49	34	118	12	13	33
28	18	25	†17	†75	†12	89	*70	31	71	40	9.9	48
29	50	31	†17	†70	-	87	*70	28	56	51	8.1	42
30	60	34	†24	†65	-	94	*64	24	50	22	8.4	33
31	43	-	†42	†65	-	110	-	22	-	8.4	8.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,220	61	12	39.4	0.798	0.92
November	942	69	17	31.4	.636	.71
December	595	42	15	19.2	.389	.45
Calendar year 1937	23,903	640	5	65.5	1.33	18.00
January	1,714	120	30	55.3	1.12	1.29
February	1,164	120	12	41.6	.842	.88
March	2,347	450	12	75.7	1.53	1.76
April	2,030	140	29	67.7	1.37	1.53
May	1,460	110	22	47.1	.953	1.10
June	988	118	10	32.9	.666	.74
July	968.3	74	8.4	31.2	.632	.73
August	1,144.5	72	7.5	36.9	.747	.86
September	1,361.8	494	5.8	45.4	.919	1.03
Water year 1937-38	15,934.6	494	5.8	43.7	.885	12.00

*Gage heights missing.
†Stage-discharge relation affected by ice.

East Branch of Ausable River at Ausable Forks, N. Y.

Location.- Hook gage, lat. 44°28'20", 73°40'55", 700 feet above 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 Sept. 21, staff gage at lower highway bridge in Ausable Forks, 400 feet upstream from confluence with West Branch. Zero of staff gage was 541.78 feet above mean sea level (general adjustment of 1912).

Drainage area.- 198 square miles.

Records available.- September 1924 to September 1938.

Average discharge.- 14 years, 314 second-feet.

Extremes.- Maximum discharge during year, 20,100 second-feet Sept. 22 (gage height, 12.91 feet at present site, 11.2 feet, from floodmarks, at former site and datum), from rating curve extended above 6,500 second-feet logarithmically and on basis of velocity-area studies; minimum discharge observed, 47 second-feet June 24 (gage height, 0.38 foot, former site and datum).

1924-38: Maximum discharge observed, that of Sept. 22, 1938; maximum gage height, present site, that of Sept. 22, 1938; minimum discharge observed, 20 second-feet Aug. 11, 14, 28, 1934.

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 20-26, Dec. 3 to Feb. 6, Feb. 10-16, Feb. 18 to Mar. 15, computed on basis of three discharge measurements, gage heights, observer's notes, and weather records; that for period of backwater from trash on control, Oct. 1-5, computed on basis of one discharge measurement, gage heights, and observer's notes. Gage read twice daily Oct. 1 to Sept. 20 and oftener Sept. 21-30. For days of rapidly changing stage and for each day in period Sept. 21-30 discharge was averaged for intervals of a day from graph based upon gage readings.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	292	459	100	220	110	1,090	467	145	91	190	88
2	61	252	286	100	200	110	574	343	130	120	198	94
3	53	280	200	95	190	100	392	288	120	113	153	88
4	53	231	190	90	190	100	298	258	113	106	127	82
5	53	210	190	90	180	160	267	234	113	88	106	76
6	56	182	180	95	320	420	185	220	110	94	97	71
7	213	186	170	100	1,830	280	190	234	110	79	82	71
8	182	168	160	95	728	240	177	211	138	71	71	110
9	143	408	150	90	550	220	194	194	113	66	76	88
10	112	384	140	90	400	220	207	185	100	61	88	82
11	98	263	130	90	300	220	207	194	94	66	88	79
12	98	215	130	90	240	200	298	181	106	66	82	76
13	147	236	120	85	220	400	309	177	106	64	79	124
14	120	1,760	120	85	260	400	474	185	100	64	76	145
15	92	1,050	110	80	280	240	1,940	846	88	120	71	173
16	85	876	110	80	260	194	1,660	1,210	82	100	66	272
17	79	566	120	80	253	343	1,040	945	76	74	61	220
18	76	418	150	80	320	331	855	945	76	94	333	165
19	82	334	180	80	360	272	1,080	685	88	134	301	145
20	455	260	170	80	300	418	990	816	74	134	173	330
21	482	200	160	80	240	1,520	900	950	61	113	120	4,000
22	309	150	150	85	220	1,330	885	626	56	367	134	7,830
23	275	120	140	90	190	2,840	900	418	51	320	202	1,530
24	1,520	100	130	120	170	3,790	558	385	47	467	1,040	825
25	664	100	130	700	150	1,580	445	349	61	355	514	537
26	378	120	130	900	140	812	373	288	248	229	288	379
27	258	182	120	460	130	605	355	234	226	153	194	324
28	221	236	120	320	120	373	482	202	141	130	153	336
29	1,000	1,210	120	260	-	361	605	190	106	762	127	259
30	652	728	110	240	-	379	685	177	85	447	113	216
31	425	-	110	220	-	526	-	161	-	262	97	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,500	1,520	53	274	1.38	1.59
November	11,717	1,760	100	391	1.97	2.20
December	4,885	459	110	158	.798	.92
Calendar year 1937	130,497	5,220	42	358	1.81	24.50
January	5,250	900	80	169	.854	.98
February	8,961	1,830	120	320	1.62	1.69
March	19,094	3,790	100	616	3.11	3.58
April	18,615	1,940	177	620	3.13	3.49
May	12,798	1,210	161	413	2.09	2.41
June	3,164	248	47	105	.530	.59
July	5,410	762	61	175	.884	1.02
August	5,500	1,040	61	177	.894	1.03
September	18,815	7,830	71	627	3.17	3.54
Water year 1937-38	122,709	7,830	47	336	1.70	23.04

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 1938.

Average discharge.- 15 years (1923-38), 306 second-feet.

Extremes.- Maximum discharge during year, 7,640 second-feet Sept. 22 (gage height, 8.77 feet), from rating curve extended logarithmically above 4,600 second-feet; minimum daily discharge, 50 second-feet (estimated) Oct. 3, 4.

1923-38: Maximum discharge, about 11,800 second-feet Oct. 1, 1924 (gage height, 10.85 feet), from rating curve extended logarithmically 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. 21-27, Dec. 8 to Jan. 28, Jan. 28 to Mar. 23 (computed on basis of five discharge measurements, gage heights except those for Dec. 31 to Jan. 1, and weather records), and those for periods of missing gage heights, Oct. 1-5, Oct. 14 to Nov. 15 (computed on basis of recorded range in stage, observer's inspections, weather records, and records for East Branch of Ausable River at Ausable Forks), which are fair.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

2.3	50	2.8	193	3.6	640	5.5	2,530
2.4	68	3.0	281	4.0	940	6.0	3,200
2.5	92	3.2	385	4.5	1,390	7.0	4,650
2.6	121	3.4	505	5.0	1,910	7.8	5,940

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	220	334	100	260	120	882	624	178	90	197	107
2	55	200	240	95	240	120	704	449	163	118	185	104
3	50	220	178	90	220	110	539	369	148	128	159	92
4	50	190	222	90	220	110	449	326	141	104	131	78
5	59	170	214	85	200	160	408	301	135	95	106	70
6	64	160	189	90	280	360	347	281	121	104	95	63
7	63	160	159	95	460	320	326	272	121	87	85	68
8	92	150	170	95	950	280	311	249	128	82	78	87
9	85	340	150	90	650	260	326	240	121	78	85	85
10	73	340	140	90	420	240	385	235	109	75	106	75
11	68	240	130	85	340	220	365	291	109	66	101	73
12	70	200	120	85	280	220	499	286	109	73	92	70
13	68	220	120	85	240	320	512	249	106	82	87	125
14	68	1,300	110	85	260	340	558	253	104	80	70	135
15	68	800	110	80	280	240	940	368	95	70	64	145
16	65	591	110	80	280	220	1,610	1,080	95	70	64	163
17	65	467	120	80	260	320	879	793	75	66	68	138
18	65	353	140	80	240	300	675	633	90	68	79	110
19	90	286	180	75	280	280	732	505	118	90	134	107
20	220	240	240	75	300	420	654	486	115	85	115	247
21	201	200	200	75	240	1,000	570	633	95	92	80	2,180
22	190	160	170	75	220	1,700	505	499	85	243	90	5,800
23	240	130	150	80	190	2,400	619	391	70	231	118	1,430
24	600	110	140	110	180	4,110	486	347	68	311	256	747
25	280	100	130	340	160	1,900	420	336	92	274	318	550
26	170	110	130	1,500	150	1,070	385	291	203	174	196	410
27	135	120	120	874	140	873	358	263	256	158	141	344
28	130	155	120	420	130	654	336	235	159	208	121	334
29	500	560	110	300	-	605	363	214	118	613	104	291
30	440	550	110	260	-	626	578	206	95	458	92	253
31	280	-	100	280	-	689	-	189	-	274	90	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,659	600	50	150	0.545	0.63
November	9,042	1,300	100	301	1.09	1.22
December	4,856	334	100	157	.571	.66
Calendar year 1937	123,592	4,200	44	339	1.23	16.70
January	6,044	1,500	75	195	.709	.82
February	8,070	950	130	288	1.05	1.09
March	20,587	4,110	110	664	2.41	2.78
April	16,715	1,610	311	557	2.03	2.26
May	11,894	1,080	189	384	1.40	1.61
June	3,622	256	68	121	.440	.49
July	4,747	613	66	153	.556	.64
August	3,707	318	64	120	.436	.50
September	14,481	5,800	63	483	1.76	1.96
Water year 1937-38	108,424	5,800	50	297	1.08	14.66

Peak discharge.- Sept. 22 (12 m.) 7,640 sec.-ft.

Lake George at Rogers Rock, N. Y.

Location.- Water-stage recorder, lat. 43°48'10", long. 73°27'25", at Rogers Rock, Essex County, on south side of Stones Bay, about 500 feet north of Hooper's dock. Zero of gage is 315.93 feet above mean sea level (general adjustment of 1912).

Records available.- July 1913 to September 1938.

Extremes.- Maximum gage height during year, 4.37 feet Sept. 22; minimum, 1.97 feet Nov. 13.
1913-38: Maximum gage height observed, 5.09 feet Apr. 9, 1936; minimum, 1.06 feet Dec. 29, 1922.

Remarks.- Records excellent. Gage heights for parts of Oct. 13, 14, Nov. 23, Feb. 10, 11 estimated. Elevation of lake surface regulated by operation of power plants and floodgates at Ticonderoga.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.68	2.32	2.52	2.53	2.94	3.09	3.64	4.10	3.98	3.70	3.62	3.36
2	2.55	2.36	2.48	2.60	2.94	3.07	3.62	4.08	3.98	3.72	3.64	3.30
3	2.60	2.31	2.48	2.60	2.95	3.04	3.65	4.02	3.94	3.66	3.63	3.30
4	2.60	2.27	2.48	2.61	2.96	3.03	3.68	3.99	3.91	3.65	3.63	3.31
5	2.59	2.27	2.48	2.62	2.95	3.02	3.68	3.98	3.92	3.70	3.58	3.22
6	2.60	2.25	2.48	2.56	2.98	3.02	3.67	3.98	3.92	3.64	3.55	3.20
7	2.57	2.26	2.60	2.58	3.03	3.01	3.63	3.99	3.93	3.65	3.54	3.19
8	2.52	2.26	2.63	2.62	3.07	2.99	3.65	3.96	3.91	3.66	3.51	3.11
9	2.48	2.26	2.59	2.63	3.09	2.98	3.69	3.96	3.89	3.67	3.52	3.10
10	2.46	2.20	2.57	2.62	3.07	2.95	3.76	3.94	3.87	3.67	3.50	3.10
11	2.46	2.15	2.54	2.60	3.06	2.93	3.82	3.91	3.87	3.65	3.52	3.08
12	2.49	2.16	2.52	2.61	3.07	2.91	3.77	3.91	3.86	3.64	3.48	3.10
13	2.44	2.14	2.51	2.63	3.05	2.90	3.80	3.90	3.82	3.63	3.45	3.13
14	2.42	2.31	2.50	2.62	3.13	2.88	3.84	3.87	3.84	3.65	3.44	3.12
15	2.38	2.36	2.48	2.59	3.16	2.89	3.85	3.88	3.83	3.64	3.42	3.21
16	2.33	2.45	2.48	2.62	3.16	2.89	3.93	4.01	3.81	3.63	3.41	3.21
17	2.32	2.47	2.48	2.61	3.18	2.88	4.02	4.04	3.82	3.59	3.43	3.20
18	2.36	2.47	2.53	2.62	3.19	2.88	4.03	4.03	3.78	3.58	3.56	3.19
19	2.35	2.47	2.57	2.63	3.15	2.88	4.06	4.05	3.78	3.58	3.56	3.22
20	2.36	2.41	2.57	2.62	3.14	2.91	4.09	4.09	3.77	3.57	3.56	3.33
21	2.36	2.43	2.59	2.60	3.15	2.96	4.06	4.07	3.78	3.51	3.56	3.58
22	2.31	2.44	2.62	2.58	3.16	3.02	4.12	4.07	3.77	3.54	3.54	4.19
23	2.33	2.45	2.61	2.60	3.14	3.11	4.10	4.11	3.75	3.56	3.53	4.17
24	2.36	2.44	2.58	2.60	3.12	3.29	4.12	4.14	3.73	3.57	3.54	4.19
25	2.32	2.43	2.56	2.74	3.11	3.37	4.13	4.08	3.73	3.56	3.49	4.15
26	2.31	2.42	2.60	2.90	3.10	3.44	4.12	4.08	3.67	3.56	3.49	4.17
27	2.28	2.39	2.58	2.91	3.08	3.49	4.14	4.03	3.73	3.57	3.47	4.15
28	2.28	2.40	2.60	2.92	3.09	3.51	4.12	4.00	3.70	3.57	3.40	4.12
29	2.37	2.51	2.55	2.90	-	3.53	4.08	3.98	3.69	3.61	3.41	4.05
30	2.37	2.53	2.54	2.92	-	3.55	4.11	3.99	3.68	3.60	3.36	4.03
31	2.31	-	2.49	2.94	-	3.59	-	3.99	-	3.60	3.40	-

Poultney River below Fair Haven, Vt.

Location.- Water-stage recorder, lat. 43°37'40", long. 73°18'50", a third of a mile below 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 1938.

Average discharge.- 10 years, 241 second-feet.

Extremes.- Maximum discharge during year, 10,300 second-feet Sept. 22 (gage height, 21.40 feet), from rating curve extended above 1,190 second-feet on basis of determinations of flood flows over dam; minimum, 6.0 second-feet (regulated) May 31 (gage height, 1.69 feet).

1928-38: Maximum discharge, that of Sept. 22, 1938; 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 period of ice effect, Jan. 14 to Mar. 6 (computed on basis of weather records, available gage heights, and records for Otter Creek at Center Rutland), and those for periods of missing gage heights, Oct. 1-5, Oct. 9 to Nov. 2, Nov. 4 to Jan. 13, Sept. 25-29 (computed on basis of weather records, power plant records, and records for Otter Creek at Center Rutland), which are fair. Lake Bomoseen may produce seasonal storage. Considerable diurnal regulation at low stages.

Rating tables, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 7

1.9	8.0	2.4	38	4.0	345
2.0	12	2.6	58	4.7	540
2.1	16	2.9	100	5.5	705
2.2	22	3.2	158	6.5	915
2.3	29	3.5	222		

Feb. 8 to Sept. 30

1.7	7.4	2.2	26	2.9	100	7.5	1,280
1.8	10	2.3	32	3.2	158	9.5	2,080
1.9	13	2.4	39	3.8	290	12.0	3,300
2.0	17	2.5	48	5.0	610	15.0	5,200
2.1	21	2.6	58	6.2	900	18.0	7,400

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	51	133	74	520	210	461	153	57	36	31	42
2	63	53	111	95	420	200	377	209	56	56	80	39
3	10	58	96	113	400	220	323	213	47	65	21	26
4	51	56	76	99	420	250	288	188	42	35	21	13
5	53	56	63	104	400	300	327	183	26	19	26	29
6	64	55	112	88	450	340	253	197	52	20	26	51
7	62	10	80	124	900	390	309	95	44	24	11	50
8	74	58	111	176	850	404	258	73	45	32	25	72
9	31	58	98	244	660	378	314	137	43	20	26	63
10	21	61	73	198	560	352	336	148	30	10	28	60
11	61	30	90	170	450	315	290	139	42	36	29	17
12	51	42	68	105	440	278	370	116	10	21	32	63
13	62	44	75	134	420	271	329	106	48	38	36	231
14	63	67	60	150	700	361	341	78	55	21	22	270
15	62	167	65	130	600	345	440	136	28	37	34	308
16	46	139	71	135	480	326	599	148	28	17	28	620
17	26	244	79	140	450	334	410	127	31	11	26	360
18	62	148	113	135	450	381	434	108	30	27	70	282
19	49	145	176	130	600	379	517	86	15	24	116	241
20	80	120	204	170	450	374	521	96	39	25	63	632
21	118	112	232	110	350	557	442	115	48	20	55	1,880
22	61	116	248	150	370	686	394	78	9.2	20	33	6,880
23	27	93	227	130	370	721	378	108	18	11	51	2,540
24	10	100	222	150	310	910	280	104	19	12	92	1,450
25	62	68	150	350	280	720	315	115	16	25	68	895
26	53	93	162	800	220	632	264	103	12	22	76	660
27	50	77	149	600	180	631	297	83	24	21	35	595
28	79	79	118	500	160	493	236	88	29	18	33	580
29	51	126	102	450	-	474	215	38	23	11	48	545
30	67	175	131	400	-	438	204	65	29	12	41	472
31	10	-	112	540	-	429	-	58	-	12	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,630	118	10	52.6	0.281	0.32
November	2,701	244	10	90.0	.481	.54
December	3,807	248	60	123	.658	.76
Calendar year 1937	105,011	3,230	5.2	288	1.54	20.89
January	6,894	800	74	222	1.19	1.37
February	12,860	900	160	459	2.45	2.55
March	13,099	910	200	423	2.26	2.61
April	10,522	599	204	351	1.88	2.10
May	3,691	213	38	119	.636	.73
June	995.2	57	9.2	33.2	.178	.20
July	758	65	10	24.5	.131	.15
August	1,323	116	11	42.7	.228	.26
September	19,966	6,880	13	666	3.56	3.97
Water year 1937-38	78,246.2	6,880	9.2	214	1.14	15.56

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 1938.

Average discharge.- 10 years, 560 second-feet.

Extremes.- Maximum discharge during year, 13,700 second-feet Sept. 22 (gage height, 12.45 feet) by computation of flow over dam; minimum daily discharge, 64 second-feet Oct. 10, 17.

1928-38: Maximum discharge, that of Sept. 22, 1938; minimum daily discharge, 61 second-feet Sept. 16, 1934.

Remarks.- Records good except those for periods of missing gage heights, Nov. 12-14, Jan. 18, 19, Apr. 21 to May 3, which were computed on basis of weather records and records for station at Middlebury and are fair. Flow affected by diurnal regulation and seasonal storage on East Creek at Pittsford and Chittenden.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

0.6	64	1.6	230	3.5	1,050	7.0	4,200
.8	85	2.0	346	4.0	1,390	8.0	5,500
1.0	112	2.5	536	5.0	2,160	9.0	7,050
1.3	164	3.0	770	6.0	3,100	11.0	10,600

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	180	294	656	182	1,020	322	845	700	302	195	430	276
2	144	282	469	173	662	444	845	600	268	1,150	798	256
3	66	288	351	272	589	493	697	500	254	532	432	162
4	126	322	272	286	704	373	610	435	192	300	298	202
5	132	272	292	264	670	399	570	412	208	246	222	173
6	169	208	370	276	742	902	488	352	217	212	184	220
7	155	164	402	353	2,640	782	508	396	213	194	156	261
8	165	252	398	515	2,150	578	460	377	314	175	210	376
9	100	244	334	375	1,740	504	456	360	274	129	248	304
10	64	267	216	409	1,210	451	657	340	210	166	327	204
11	148	158	183	296	764	412	612	338	170	242	326	134
12	120	140	196	261	605	426	826	324	232	622	464	216
13	139	500	268	286	584	488	870	269	358	1,410	288	1,660
14	150	1,600	239	277	1,540	1,040	902	245	346	488	218	944
15	190	1,370	238	234	1,710	663	1,170	1,370	262	380	250	1,250
16	109	1,060	250	232	900	595	1,730	2,360	196	293	224	1,410
17	64	849	250	252	642	602	1,260	1,880	183	244	229	819
18	142	654	544	240	655	571	1,010	1,050	141	203	752	756
19	142	536	1,210	230	988	580	1,230	755	170	210	897	787
20	350	423	833	304	706	610	1,220	730	211	203	443	1,910
21	834	356	524	198	586	1,230	1,050	834	192	198	274	5,520
22	378	388	451	274	519	1,690	950	690	176	210	275	10,100
23	304	312	438	226	518	2,020	850	685	157	265	258	4,790
24	483	302	318	278	487	2,700	750	618	143	246	1,030	2,620
25	409	237	294	1,430	456	2,430	650	736	99	229	872	1,650
26	264	282	281	2,420	424	1,560	600	576	106	153	491	1,190
27	239	342	312	1,470	328	1,140	650	441	270	170	327	966
28	246	478	234	746	388	960	450	436	352	148	310	921
29	564	1,400	258	523	-	845	550	360	224	513	292	775
30	611	1,130	224	540	-	820	800	340	167	581	272	668
31	331	-	236	941	-	746	-	320	-	368	247	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,518	834	64	243	0.792	0.91
November	15,110	1,600	140	504	1.64	1.83
December	11,541	1,210	183	372	1.21	1.40
Calendar year 1937	236,982	3,920	64	649	2.11	28.68
January	14,763	2,420	173	476	1.55	1.79
February	24,933	2,640	328	890	2.90	3.02
March	27,376	2,700	322	883	2.88	3.32
April	24,266	1,730	450	809	2.64	2.94
May	19,829	2,360	245	640	2.08	2.40
June	6,607	358	99	220	.717	.80
July	10,675	1,410	129	344	1.12	1.29
August	12,044	1,030	156	389	1.27	1.46
September	41,540	10,100	134	1,385	4.51	5.03
Water year 1937-38	216,202	10,100	64	592	1.93	26.19

Peak discharge.- Jan. 26 (11 a.m.- 2 p.m.) 2,700 sec.-ft.; Feb. 7 (6-7 p.m.) 3,100 sec.-ft.; Sept. 22 (1 a.m.) 13,700 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 1938.

Average discharge.- 22 years (1903-6, 1910-19, 1928-38), 975 second-feet.

Extremes.- Maximum discharge during year, 6,630 second-feet Sept. 25 (gage height, 7.55 feet); minimum, 165 second-feet Oct. 18 (gage height, 1.12 feet).

1903-7, 1910-20, 1928-38: 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 logarithmically about 9,000 second-feet.

Remarks.- Records good except those for periods of ice effect, Dec. 7-11, Dec. 28 to Jan. 1, Jan. 11, 12, 15-20, Feb. 28 to Mar. 4, which were computed on basis of gage heights, weather records, and records for station at Center Rutland and are fair. Discharge for Oct. 1-6 determined from stage graph based on one or two float gage readings daily. Small seasonal storage in Chittenden Reservoir, on East Creek.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.1	160	1.6	320	1.9	560	2.5	930	4.0	2,550	7.0	5,860
1.3	210	1.7	385	2.0	615	3.0	1,400	5.0	3,490	8.0	7,280
1.5	275	1.8	470	2.2	715	3.5	1,970	6.0	4,610		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	598	1,460	480	1,730	600	2,500	1,300	598	346	628	624
2	333	514	1,060	340	1,680	630	2,280	1,170	481	770	970	604
3	298	470	734	293	1,460	850	2,030	1,020	453	1,160	1,070	582
4	250	492	598	385	1,250	900	1,620	850	453	780	780	553
5	275	514	546	492	1,240	710	1,350	774	385	598	620	453
6	284	453	539	492	1,260	774	1,140	728	320	492	453	402
7	288	346	600	539	2,220	1,240	993	671	385	402	352	566
8	264	306	680	728	2,220	1,240	948	666	410	326	311	815
9	240	394	750	829	2,280	1,080	898	666	492	288	359	787
10	213	428	650	704	2,330	957	1,050	651	453	275	470	704
11	178	378	500	660	2,330	858	1,210	651	378	261	588	604
12	211	306	372	600	2,330	815	1,350	660	402	385	710	378
13	228	298	311	546	2,220	822	1,510	620	419	806	715	1,610
14	222	758	410	576	2,160	1,190	1,560	576	571	1,180	582	2,030
15	222	1,510	436	530	2,090	1,460	1,730	801	566	774	436	2,220
16	225	1,730	410	400	2,090	1,350	2,090	1,910	453	615	453	2,330
17	216	1,680	410	390	2,030	1,400	2,160	2,160	378	508	462	2,280
18	180	1,460	453	470	1,850	1,460	2,220	2,220	333	966	1,030	2,190
19	227	1,120	1,000	440	1,790	1,460	2,160	2,090	288	656	1,790	2,060
20	353	866	1,460	430	1,730	1,510	2,160	1,790	288	525	1,620	2,400
21	767	734	1,270	532	1,510	1,850	2,090	1,680	346	419	1,170	3,030
22	906	651	957	481	1,240	2,380	1,970	1,400	302	462	843	3,720
23	656	638	829	402	1,050	2,650	1,790	1,190	302	620	748	3,670
24	588	598	728	394	975	3,000	1,620	1,080	284	767	1,850	5,310
25	642	560	638	1,360	922	3,000	1,300	1,100	268	646	1,970	6,540
26	604	436	582	2,330	850	3,000	1,130	1,100	405	576	1,680	6,410
27	444	525	553	2,160	767	3,000	993	930	302	462	1,290	5,820
28	359	615	520	2,160	640	3,000	966	774	436	372	993	5,170
29	553	942	450	2,090	-	2,910	850	710	546	514	822	4,500
30	767	1,560	390	1,910	-	2,830	1,030	651	419	698	722	3,960
31	760	-	450	1,790	-	2,650	-	615	-	741	666	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	12,059	906	178	389	0.619	0.71
November	21,880	1,730	298	729	1.16	1.29
December	20,746	1,460	311	669	1.07	1.23
Calendar year 1937	430,007	4,250	178	1,178	1.88	25.47
January	28,933	2,330	293	837	1.33	1.53
February	46,244	2,330	640	1,652	2.63	2.74
March	51,576	3,000	600	1,664	2.65	3.06
April	46,638	2,500	850	1,555	2.48	2.77
May	33,204	2,220	576	1,071	1.71	1.97
June	12,116	598	268	404	.643	.72
July	18,390	1,180	261	593	.944	1.09
August	27,153	1,970	311	876	1.39	1.60
September	72,322	6,540	378	2,411	3.84	4.28
Water year 1937-38	388,261	6,540	178	1,064	1.69	22.99

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, 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 1938.

Average discharge.- 19 years (1914-23, 1928-38), 591 second-feet.

Extremes.- Maximum discharge during year, 14,000 second-feet Sept. 22 (gage height, 14.11 feet), from rating curve extended above 7,000 second-feet on basis of slope-area measurement; minimum daily discharge, 28 second-feet Oct. 17.

1909-23, 1928-38: Maximum discharge, 20,200 second-feet Apr. 7, 1912 (gage height, about 16.7 feet, present datum), from rating curve extended above 7,000 second-feet on basis of slope-area measurement; 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 measurement.

Remarks.- Records good. Discharge for period of ice effect, Dec. 10 to Mar. 24, computed on basis of one discharge measurement, available gage heights, and power-plant records; that for period of missing gage heights, June 24 to July 13, computed on basis of power-plant records. Flow affected by complete regulation of run-off from 24 square miles of drainage area. Considerable diurnal fluctuation caused by operation of several small power plants above station. Flood run-off affected since November 1935 by storage in Wrightsville and East Barre Detention Reservoirs, combined capacity of which is 1,415,720,000 cubic feet.

Rating tables, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 26

2.7	20	3.2	89	4.4	655	7.0	2,900
2.8	29	3.4	137	4.7	865	8.0	3,980
2.9	41	3.6	213	5.0	1,080	10.0	6,490
3.0	54	3.8	307	5.5	1,460		
3.1	71	4.1	470	6.0	1,910		

Jan. 27 to Sept. 30

3.0	54	3.8	279
3.1	71	4.0	385
3.2	89	4.2	515
3.4	136	4.4	655
3.6	198		

Note.- Same as preceding table above 4.4 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	285	803	230	800	430	1,780	725	196	220	182	250
2	95	287	596	320	650	500	1,640	606	187	500	249	275
3	29	352	433	400	650	430	1,390	502	174	230	254	192
4	73	348	380	350	580	350	1,260	437	215	160	226	114
5	103	303	333	300	500	350	1,160	398	139	160	243	130
6	127	210	358	280	580	600	970	360	150	170	192	168
7	113	194	579	200	2,250	620	830	348	232	150	157	217
8	134	204	708	550	1,500	590	746	328	244	170	162	232
9	74	328	513	480	1,250	540	788	316	196	100	174	212
10	84	345	360	400	1,000	500	970	316	181	70	174	180
11	39	248	250	350	700	470	865	392	188	120	171	111
12	77	162	280	320	630	440	1,300	372	221	200	181	129
13	107	201	350	400	550	400	1,300	324	174	210	161	520
14	66	2,570	450	350	950	550	1,460	313	214	169	62	433
15	54	1,730	480	280	900	500	2,050	556	196	178	116	736
16	58	1,380	420	180	650	550	2,250	766	146	136	133	819
17	28	1,110	350	200	550	750	1,820	544	180	55	142	457
18	66	888	400	230	680	850	1,730	422	134	318	670	543
19	63	705	650	200	800	950	1,680	367	80	283	1,110	463
20	365	513	580	200	700	1,000	1,550	520	158	198	532	1,150
21	1,780	442	450	220	500	2,000	1,500	928	156	288	274	4,280
22	1,000	406	450	210	510	2,800	1,380	714	149	315	239	6,040
23	664	360	400	170	490	3,500	1,340	566	96	307	293	2,120
24	542	400	330	220	470	5,600	1,110	444	90	469	652	1,770
25	387	356	250	1,500	470	3,100	1,000	474	100	340	480	1,580
26	269	304	290	2,150	450	2,500	851	372	500	203	302	1,410
27	279	398	250	1,200	350	2,200	718	308	300	171	214	1,200
28	261	464	300	700	360	2,000	655	276	230	210	123	1,120
29	595	1,340	350	600	-	1,960	613	234	190	954	148	930
30	531	1,090	450	620	-	1,870	711	224	170	377	242	718
31	348	-	380	850	-	1,640	-	238	-	234	238	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,505	1,780	28	274	0.633	0.73
November	17,923	2,570	162	597	1.38	1.54
December	13,173	803	250	425	.982	1.13
Calendar year 1937	252,920	6,900	24	693	1.60	21.71
January	14,660	2,150	170	473	1.09	1.26
February	20,470	2,250	350	731	1.69	1.76
March	40,540	5,600	350	1,308	3.02	3.48
April	37,417	2,250	613	1,247	2.88	3.21
May	13,690	928	224	442	1.02	1.18
June	5,586	500	80	186	.430	.48
July	7,665	954	55	247	.570	.66
August	8,496	1,110	62	274	.633	.73
September	28,499	6,040	111	950	2.19	2.44
Water year 1937-38	216,624	6,040	28	593	1.37	18.60

Peak discharge.- Mar. 24 (11 a.m.) 6,490 sec.-ft.; Sept. 22 (1 a.m.) 14,000 sec.-ft.

Winooski River near Essex Junction, Vt.

Location.- Water-stage recorder, lat. 44°28'40", long. 75°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 1938.
Average discharge.- 10 years, 1,635 second-feet.
Extremes.- Maximum discharge during year, 34,300 second-feet Sept. 22 (gage height, 18.72 feet); minimum daily discharge, 130 second-feet June 19.

1928-38: 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 measurement and computation of flood flow over dam; 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 measurement and computation of flow over dam.

Remarks.- Records excellent except those for period of ice effect, Dec. 10 to Mar. 24 (computed on basis of power-plant records, gage heights, and weather records), those below 800 second-feet, and those above 12,000 second-feet, all of which are good. Considerable diurnal regulation at low stages. Flow affected by reservoirs in Mollys Brook and, since summer of 1937, by Waterbury Reservoir, which completely regulate run-off from 24 square miles and 109 square miles, respectively, of drainage area. Flood run-off affected since november 1935 by storage in Wrightsville and East Barre Detention Reservoirs, combined capacity of which is 1,415,720,000 cubic feet.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.4	117	0.9	270	2.0	1,040	5.0	6,100
.5	145	1.0	305	2.5	1,610	7.0	10,200
.6	175	1.1	345	3.0	2,300	10.0	16,000
.7	205	1.3	465	3.5	3,130	13.0	22,000
.8	237	1.6	680	4.0	4,110	17.0	30,500

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	234	994	2,140	650	1,700	900	4,150	2,470	592	467	1,170	530
2	144	870	1,600	600	1,600	800	4,920	1,980	558	484	931	576
3	166	717	1,160	620	1,200	750	4,280	1,570	272	299	821	557
4	342	794	816	800	1,200	700	3,770	1,140	197	364	402	372
5	261	819	790	640	1,100	800	3,540	910	260	438	244	164
6	288	746	936	670	900	750	3,170	872	506	398	342	492
7	284	438	1,040	740	4,500	1,300	2,920	620	420	465	294	684
8	275	685	1,180	600	5,000	1,200	2,680	682	521	943	382	852
9	144	668	1,300	800	2,500	1,100	1,660	994	552	213	403	623
10	140	934	2,500	1,000	2,000	1,000	1,860	856	416	164	449	464
11	390	720	1,300	960	1,800	900	1,700	796	298	194	388	450
12	222	900	2,000	700	1,400	750	3,010	696	136	208	346	521
13	185	832	1,100	500	1,200	800	3,910	992	466	342	184	1,190
14	216	7,010	800	640	1,100	1,300	4,150	838	505	336	148	1,510
15	195	6,880	1,000	600	2,000	1,100	5,780	1,020	492	290	324	1,840
16	156	3,780	900	400	1,900	1,000	7,380	1,960	396	201	417	2,670
17	148	2,960	800	600	1,600	1,700	5,390	1,710	334	135	358	1,650
18	162	2,100	900	500	1,000	1,800	4,880	1,380	278	324	808	1,520
19	252	1,740	900	480	3,000	1,500	4,920	1,300	130	470	2,400	1,260
20	704	1,490	1,400	430	3,500	2,000	4,560	1,200	303	492	2,030	1,410
21	2,430	672	1,700	540	3,000	3,000	4,310	1,900	261	611	797	10,400
22	2,270	1,130	1,000	400	2,800	5,000	3,940	1,860	325	994	436	29,800
23	1,840	906	900	350	2,200	10,000	4,050	1,630	173	1,250	508	8,750
24	4,170	920	1,300	1,000	1,500	17,000	3,520	1,300	233	2,030	1,710	5,340
25	1,910	734	700	1,600	1,000	9,520	3,160	1,240	135	2,250	2,980	4,520
26	1,010	908	800	3,000	1,100	5,680	2,960	1,190	350	1,640	1,570	3,830
27	693	724	900	3,500	900	4,840	2,790	844	570	1,250	634	3,370
28	737	1,060	940	2,000	1,000	4,090	2,670	779	586	1,270	470	3,150
29	1,140	2,980	480	1,300	-	3,760	2,340	580	339	1,220	514	2,600
30	1,520	3,120	740	1,000	-	3,860	2,130	478	316	1,570	516	1,770
31	1,300	-	700	1,100	-	3,370	-	626	-	1,400	493	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	23,928	4,170	140	772	0.715	0.82
November	49,231	7,010	438	1,641	1.52	1.70
December	34,722	2,500	480	1,120	1.04	1.20
Calendar year 1937	671,702	19,600	70	1,840	1.71	23.14
January	28,720	3,500	350	926	.858	.99
February	53,700	5,000	900	1,918	1.78	1.85
March	92,270	17,000	700	2,976	2.76	3.18
April	110,500	7,380	1,660	3,683	3.41	3.80
May	36,413	2,470	478	1,175	1.09	1.26
June	10,920	592	130	364	.337	.38
July	22,712	2,250	135	733	.679	.78
August	23,469	2,980	148	757	.702	.81
September	92,865	29,800	144	3,096	2.87	3.20
Water year 1937-38	579,450	29,800	130	1,588	1.47	19.97

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 confluence with 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 1938.

Extremes.- Maximum discharge during year, 455 second-feet Sept. 21; maximum gage height, 3.50 feet Dec. 28 (ice jam); minimum discharge, 1.6 second-feet Aug. 17.
1920-23, 1933-38: 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 or of missing gage heights, which are fair. Flood run-off affected by storage in East Barre Detention Reservoir (capacity, 522,720,000 cubic feet) since November 1935. Diversions from reservoir on Orange Brook, a tributary upstream, for municipal supply of city of Barre.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.1	1.3	0.5	14	0.9	48	1.3	140
.2	3.9	.6	18	1.0	65	1.4	176
.3	6.9	.7	24	1.1	86	1.6	272
.4	10.3	.8	34	1.2	112	1.8	391

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	26	50	15	70	20	144	63	15	10	14	10
2	2.6	24	37	16	60	18	120	51	14	25	24	15
3	2.1	24	31	18	50	17	91	41	11	19	22	9.6
4	2.3	24	35	17	41	16	76	35	11	11	11	15
5	2.6	18	34	19	41	20	67	34	11	9.6	7.2	7.6
6	3.9	18	31	17	47	25	55	34	12	6.9	5.7	6.6
7	8.3	16	55	24	196	30	54	34	11	5.1	4.2	25
8	5.8	15	50	55	161	25	51	32	19	4.8	4.2	25
9	4.5	24	45	40	110	18	62	30	13	4.8	5.1	9.6
10	3.6	20	40	22	80	19	69	35	8.6	4.5	4.8	4.5
11	3.9	12	35	18	50	17	83	47	27	4	4.5	4.2
12	4.5	7.6	35	14	45	19	132	37	28	9	7.2	4.5
13	5.5	15	25	11	40	20	144	30	20	10	5.7	96
14	5.1	220	20	15	90	31	154	30	13	5.1	3.6	112
15	4.5	283	25	15	80	28	202	103	7.9	4.5	3.4	140
16	4.8	241	20	14	50	32	241	90	6.0	3.9	2.9	84
17	4.5	60	25	14	40	45	220	50	5.7	6.1	1.9	47
18	4.5	48	30	12	35	60	172	38	5.7	94	71	53
19	5.1	41	60	11	45	100	144	33	5.4	34	105	48
20	70	37	50	10	40	140	120	68	6.6	20	21	134
21	262	35	44	10	35	175	112	88	3.9	50	11	382
22	178	29	32	11	30	220	102	71	2.9	45	8.9	362
23	53	36	31	12	26	272	100	48	2.9	51	9.6	337
24	55	32	20	14	35	323	73	44	2.3	53	98	317
25	31	31	21	100	30	318	63	44	3.8	26	38	290
26	23	31	21	200	28	300	58	31	25	14	19	243
27	20	48	19	100	25	289	51	28	20	9.3	13	100
28	26	51	14	60	20	272	48	25	12	13	11	78
29	78	178	14	70	-	251	54	22	7.2	99	8.9	60
30	50	108	15	80	-	230	78	22	5.1	34	7.9	55
31	31	-	15	90	-	144	-	19	-	18	7.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	957.7	262	2.1	30.9	0.936	1.08
November	1,752.6	283	7.6	58.4	1.77	1.98
December	979	60	14	31.6	.958	1.10
Calendar year 1937	23,356.4	300	1.4	64.0	1.94	26.35
January	1,124	200	10	36.3	1.10	1.27
February	1,600	196	20	57.1	1.73	1.80
March	3,494	323	16	113	3.42	3.94
April	3,140	241	48	105	3.18	3.55
May	1,357	103	19	43.8	1.33	1.53
June	336.0	28	2.3	11.2	.339	.38
July	703.6	99	3.9	22.7	.688	.79
August	561.3	105	1.9	18.1	.548	.63
September	3,074.6	382	4.2	102	3.09	3.45
Water year 1937-38	19,079.8	382	1.9	52.3	1.58	21.50

Note.- Discharge for periods of ice effect, Dec. 7-20, Jan. 8, 9, Jan. 25 to Mar. 2, Mar. 6-8, 17-22, computed on basis of two discharge measurements, gage heights, weather records, and records for Dog River at Northfield Falls and other stations in Winooski River Basin; and that for periods of missing gage heights, June 26, 27, July 2, 10-13, on basis of records for other stations in Winooski River Basin, and Nov. 1-16, Mar. 31 to Apr. 3, Sept. 7-22 on basis of relation curve and daily gage readings at East Barre Detention Reservoir.

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 confluence with 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 1938.

Extremes.- Maximum discharge during year, 790 second-feet Sept. 21 (gage height, 3.75 feet); minimum daily discharge, 4.2 second-feet July 15.

1933-38: Maximum discharge, 2,170 second-feet Apr. 12, 1934 (gage height, 6.53), from rating curve extended above 1,050 second-feet; minimum daily discharge, 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 period of ice effect, Dec. 8 to Mar. 24 (computed on basis of two discharge measurements, gage heights, weather records, and records for other stations in Winooski River Basin), and those for periods of missing gage heights, all of which are fair. Flood run-off affected by storage in Wrightsville Detention Reservoir (capacity 893,000,000 cubic feet) since November 1935. Diurnal regulation at low stages caused by operation of small mill.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.1	1.7	0.6	26.5	1.4	122	3.2	577
.2	4.4	.7	30.5	1.7	180	3.7	770
.3	8.0	.8	37	2.0	246		
.4	13.0	.9	46	2.4	341		
.5	21.0	1.1	71	2.8	452		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.6	68	270	45	150	45	594	144	*30	11	*22	25
2	5.6	53	159	45	130	43	560	126	*27	28	*28	32
3	5.0	48	97	45	120	41	528	104	*24	34	25	31
4	5.5	45	74	43	110	41	482	87	*22	28	23	28
5	6.2	42	67	43	90	44	395	76	*23	*30	19	27
6	7.2	39	61	42	100	60	301	66	*26	*23	15	26
7	8.9	39	80	45	250	90	182	59	23	*18	17	23
8	17	39	75	85	350	80	146	54	24	*14	12	29
9	18	47	70	65	250	75	140	48	22	*9	8.2	27
10	16	61	65	55	180	70	144	46	21	*7	5.7	24
11	16	53	60	40	150	63	129	47	24	*15	5.0	22
12	19	42	60	25	130	60	198	48	27	*12	12	18
13	17	47	65	30	110	55	286	47	24	*14	12	60
14	15	471	55	35	135	60	395	52	21	7.4	13	106
15	13	560	50	35	110	55	544	66	21	4.2	13	169
16	14	512	45	33	100	70	612	94	21	6.4	8.8	267
17	12	452	40	33	90	75	631	90	20	5.2	7.2	169
18	9.2	354	45	30	85	85	612	74	16	8.6	140	109
19	12	236	90	28	100	95	594	62	*15	8.2	368	82
20	98	127	80	27	90	120	577	96	*18	7.0	254	209
21	413	89	75	30	85	200	544	209	8.0	15	110	511
22	367	70	70	30	75	350	512	174	*6	23	58	725
23	250	56	63	30	65	500	467	129	*6	30	42	714
24	151	56	75	30	75	600	409	101	*9	55	70	682
25	100	*54	55	100	65	770	328	101	*6	55	113	641
26	68	*50	50	330	60	750	224	79	*10	38	80	590
27	52	*65	45	300	55	730	151	64	15	30	50	533
28	44	87	50	220	50	710	129	57	18	*26	35	458
29	98	300	50	135	-	670	113	*40	*14	*45	26	355
30	127	341	50	150	-	650	120	*38	11	37	23	204
31	96	-	50	170	-	612	-	34	-	*20	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,088.2	413	5.0	67.4	0.974	1.12
November	4,503	560	39	150	2.17	2.42
December	2,241	270	40	72.3	1.04	1.20
Calendar year 1937	52,197.8	710	1.4	143	2.07	28.07
January	2,354	330	25	75.9	1.10	1.27
February	3,360	350	50	120	1.73	1.80
March	7,869	770	41	254	3.67	4.23
April	11,047	631	113	368	5.32	5.94
May	2,512	209	34	81.0	1.17	1.35
June	552.0	30	6	18.4	.266	.30
July	664.0	55	4.2	21.4	.309	.36
August	1,636.9	368	5.0	52.8	.763	.88
September	6,896	725	18	230	3.32	3.70
Water year 1937-38	45,723.1	770	4.2	125	1.81	24.57

*Gage height missing; discharge computed on basis of weather record and records for other stations in Winooski River Basin.

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 1938.

Extremes.- Maximum discharge during year, 9,750 second-feet Sept. 21 (gage height, 11.53 feet), by slope-area method; minimum, 6.6 second-feet (regulated) July 14; minimum daily discharge, 7.4 second-feet July 16.
1934-38: Maximum discharge, that of Sept. 21, 1938; minimum, that of July 14, 1938; minimum daily discharge, that of July 16, 1938.

Remarks.- Records good except those for periods of missing gage heights, Dec. 29 to Jan. 14, Jan. 16-23, Feb. 11 to Mar. 4, and day of ice effect, Jan. 25, which were computed on basis of weather records and records for other stations in Winooski River Basin and are fair. Some diurnal regulation at low stages from power plant above gage.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.5	5.8	1.2	47	2.1	247	3.8	1,090
.6	8.4	1.4	74	2.4	360	4.4	1,510
.8	16	1.6	110	2.8	540	5.0	2,000
1.0	29	1.8	157	3.2	745	5.8	2,750

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	48	163	55	209	50	320	112	38	19	31	29
2	11	44	130	55	154	45	324	97	33	45	42	30
3	11	45	104	50	152	45	282	88	30	25	33	20
4	16	44	99	50	140	50	215	79	28	20	24	30
5	14	39	93	50	114	62	179	76	28	26	23	25
6	15	39	91	55	146	110	150	72	34	19	12	22
7	20	41	108	70	660	81	140	72	28	15	18	27
8	20	42	88	120	332	70	132	66	31	14	22	34
9	10	42	81	90	254	66	142	60	30	11	18	29
10	12	46	74	60	197	65	150	65	25	9.6	19	20
11	22	35	67	45	130	62	145	74	28	19	19	19
12	17	36	76	30	115	59	247	73	23	15	21	25
13	18	66	72	30	150	70	268	64	33	18	12	89
14	16	1,020	66	35	175	84	352	65	22	16	18	53
15	16	338	60	33	120	76	541	127	21	14	22	161
16	11	244	69	30	80	76	485	122	19	7.4	14	115
17	11	180	62	30	70	93	309	90	19	11	10	71
18	21	160	123	25	80	102	282	75	20	37	131	84
19	16	134	106	25	100	140	268	67	20	35	86	80
20	105	117	86	25	90	160	228	104	25	18	40	347
21	153	108	86	25	85	660	209	124	15	41	28	2,660
22	58	97	86	26	75	764	206	110	12	48	30	1,880
23	58	84	71	28	65	1,250	200	91	12	66	30	511
24	102	84	76	44	85	1,840	160	84	16	63	174	340
25	58	81	68	270	75	760	142	77	10	45	98	255
26	44	79	64	547	65	536	130	68	50	35	50	204
27	40	91	59	218	60	432	117	60	34	26	46	187
28	44	107	68	137	55	356	104	56	24	25	38	172
29	82	480	65	152	-	328	102	51	20	61	32	140
30	69	228	60	157	-	344	128	48	15	56	30	123
31	56	-	55	239	-	297	-	43	-	34	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,162	153	11	37.5	0.493	0.57
November	4,199	1,020	35	140	1.84	2.05
December	2,576	163	55	83.1	1.09	1.26
Calendar year 1937	52,712	2,710	11	144	1.89	25.77
January	2,806	547	25	90.5	1.19	1.37
February	4,033	660	55	144	1.89	1.97
March	9,133	1,840	45	295	3.88	4.47
April	6,657	541	102	222	2.92	3.26
May	2,460	127	43	79.4	1.04	1.20
June	743	50	10	24.8	.326	.36
July	894.0	66	7.4	28.8	.378	.44
August	1,209	174	10	39.0	.512	.59
September	7,782	2,660	19	259	3.40	3.79
Water year 1937-38	43,654.0	2,660	7.4	120	1.58	21.33

Peak discharge.- Nov. 14 (8 a.m.) 1,750 sec.-ft.; Mar. 24 (9 a.m.) 2,400 sec.-ft.; Sept. 21 (10 p.m.) 9,700 sec.-ft.

Mad River near Moretown, Vt.

Location.- Water-stage recorder, lat. 44°16'40", long. 72°44'35", at highway bridge, 2.4 miles downstream from Moretown, Washington County.
Drainage area.- 139 square miles.
Records available.- November 1928 to September 1938.
Average discharge.- 10 years, 249 second-feet.
Extremes.- Maximum discharge during year, 18,400 second-feet Sept. 22 (gage height, 16.34 feet, from floodmarks), by computation of flow over dam; 9.6 second-feet Oct. 16.

1928-38: Maximum discharge, that of Sept. 22, 1938 (discharge of 9,450 second-feet Apr. 12, 1934, formerly published as the maximum, revised to 8,120 second-feet); minimum, 1.4 second-feet Oct. 1, 1930.

Maximum discharge known, 23,000 second-feet Nov. 3, 1927 (gage height, 19.4 feet, revised, from floodmarks), by computation of flow over dam.

Remarks.- Records good except those for periods of ice effect, Dec. 4, 9, 19, 20, Dec. 22 to Mar. 19, which were computed on basis of two discharge measurements, gage heights, weather records, and records for Dog River at Northfield Falls and are fair. Discharge for Dec. 2 to Jan. 14, Jan. 26-31, Sept. 17-27 determined from stage graph based on float-gage readings made twice daily or oftener and on floodmarks. Considerable diurnal regulation.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.0	7.2	3.5	75	4.5	590	8.0	4,800
3.1	15.3	3.6	100	5.0	1,010	9.0	6,250
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 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	132	294	100	540	100	630	282	83	31	76	94
2	26	121	255	120	340	90	526	224	74	155	124	83
3	10	132	165	110	320	90	409	188	68	64	82	65
4	32	117	160	100	300	100	349	170	65	45	62	65
5	28	104	165	100	250	130	304	154	58	42	50	61
6	27	109	162	100	350	350	256	140	61	34	38	55
7	49	105	174	100	1,300	200	242	140	59	32	34	77
8	58	101	154	140	700	130	228	130	74	39	39	153
9	42	191	140	130	500	120	246	121	55	29	44	83
10	28	164	118	110	400	110	272	124	47	14	46	66
11	48	122	121	100	300	105	298	148	54	34	46	57
12	39	97	137	60	230	100	503	144	54	28	62	55
13	38	255	140	90	270	150	458	123	52	27	45	336
14	46	2,470	121	80	400	220	702	162	44	24	36	182
15	43	744	109	70	280	160	1,300	456	38	32	43	608
16	29	566	112	70	200	180	1,060	402	33	23	35	409
17	20	394	137	70	160	190	694	291	31	15	35	237
18	43	356	170	70	180	220	702	223	28	142	672	190
19	38	282	300	65	300	250	726	181	34	78	306	267
20	293	242	220	65	200	299	606	321	42	55	133	803
21	467	214	148	65	180	967	518	375	35	82	89	5,540
22	171	178	170	65	160	1,130	512	316	27	116	129	4,620
23	188	152	170	65	140	2,190	454	232	24	155	113	987
24	533	158	120	100	180	3,270	356	214	21	315	1,040	659
25	208	144	150	600	160	1,140	299	206	22	283	530	474
26	142	153	140	1,300	140	782	266	162	99	115	253	366
27	115	206	130	500	120	670	242	140	64	77	168	305
28	114	272	110	300	110	518	219	130	52	92	130	307
29	302	961	130	330	-	526	224	115	36	295	102	240
30	232	420	120	400	-	503	342	109	29	202	83	211
31	164	-	110	700	-	434	-	96	-	107	74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,596	533	10	116	0.835	0.96
November	9,662	2,470	97	322	2.32	2.59
December	4,852	300	109	157	1.13	1.30
Calendar year 1937	102,295	4,900	10	280	2.01	27.38
January	6,295	1,300	65	203	1.46	1.68
February	6,710	1,300	110	311	2.24	2.33
March	15,444	3,270	90	498	3.58	4.13
April	13,943	1,300	219	465	3.35	3.74
May	6,219	456	96	201	1.45	1.67
June	1,463	99	21	48.8	.351	.39
July	2,732	315	14	89.7	.645	.74
August	4,721	1,040	34	152	1.09	1.26
September	17,655	5,540	55	588	4.23	4.72
Water year 1937-38	95,342	5,540	10	261	1.88	25.61

Peak discharge.- Mar. 24 (9 a.m.) 5,160 sec.-ft.; Sept. 22 (12:30 a.m.) 18,400 sec.-ft.

156900 O—39——10

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 2½ 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 1938.

Extremes.- Maximum discharge during year, 4,080 second-feet (regulated) Dec. 9 (gage height, 14.88 feet); minimum daily discharge, 0.6 second-foot (regulated) July 10, 16, 17.

1935-38: Maximum discharge, 6,520 second-feet Mar. 18, 1936 (gage height, 19.38 feet); minimum daily discharge, that of July 10, 16, 17, 1938.

Remarks.- Records good except those for periods of faulty intake action, which are fair. Flow completely regulated by storage in Waterbury Reservoir (capacity, 2,807,440,000 cubic feet).

Rating table, Dec. 8, 1937, to Sept. 30, 1938, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

4.7	0.6	5.3	15.5	6.2	101	8.5	935
4.8	1.3	5.4	21	6.4	133	9.2	1,350
4.9	2.7	5.5	27	6.7	193	10.0	1,740
5.0	4.7	5.6	34	7.0	268	11.0	2,190
5.1	7.5	5.8	52	7.4	400		
5.2	11	6.0	74	7.9	620		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30		*3	†70	†5.3	†3.1	847	416	1.7	2.4	534	88
2			*2	†79	†4.5	†3.3	1,290	283	1.4	1.7	349	78
3			*3	82	4.3	†3.1	1,260	93	1.4	1.2	75	1.0
4			*4	50	3.9	†3.3	1,230	3.9	1.4	1.2	2.6	39
5			*3	95	3.5	3.5	1,200	3.5	1.3	1.0	27	48
6			*2	52	7.4	6.9	1,170	3.3	1.3	.9	84	103
7		*30	*2	†3.7	25	5.5	1,140	2.9	2.0	430	31	180
8			3	†3.5	9.2	†5.5	700	2.7	1.7	354	44	85
9			1,520	2.9	6.9	†5.5	11	2.6	1.3	.9	62	1.1
10			1,570	2.9	6.4	†5.0	6.7	2.7	1.6	.6	.7	207
11			645	2.7	†4.7	†5.0	140	2.7	1.9	5.9	1.4	178
12	*30		1,400	2.9	4.7	†5.3	738	2.7	1.7	4.7	32	25
13			110	2.7	4.5	†6.1	990	2.6	1.3	.8	29	148
14		1,700	162	†2.3	7.2	†5.5	1,050	3.9	1.2	.7	45	472
15		887	112	†2.1	5.0	†4.3	1,110	9.5	1.2	.7	49	471
16		253	102	2.1	3.9	†2.7	1,110	5.0	1.1	.6	48	139
17			102	†2.1	3.5	3.7	1,110	3.7	1.1	.6	5.7	345
18			126	1.9	872	4.3	1,110	2.9	1.1	.8	121	155
19			267	2.4	1,760	4.5	1,110	2.7	1.1	.7	700	54
20			180	2.6	1,960	5.9	1,140	6.8	1.1	164	189	360
21			123	2.3	1,830	27	1,200	5.8	1.1	250	1.1	694
22			126	2.3	1,650	21	1,170	4.5	1.0	378	1.6	437
23	723		124	2.3	439	30	1,170	3.7	1.0	1,170	1.1	1,180
24	1,090	*5	100	2.3	150	37	1,170	4.3	1.0	1,170	440	1,140
25	250		107	14	†146	17	1,170	3.5	1.0	1,140	248	1,100
26			98	7.8	†133	13	1,200	2.7	1.8	698	1.2	1,060
27	*30		91	†4.5	†124	13	1,260	2.6	1.2	673	242	1,000
28			73	†4.1	†54	10	1,260	2.1	1.1	635	124	924
29	161		†82	4.1	-	13	679	2.1	1.1	614	1.2	420
30	167		†77	3.9	-	11	440	2.0	1.1	562	48	111
31	*30	-	†74	9.0	-	87	-	1.9	-	664	44	-

Month	Observed				Gain or loss in storage (millions of cubic feet)	Adjusted for storage‡		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October	3,171	1,090	-	102	+5.88	104	0.937	1.08
November	3,300	1,700	-	110	+334.32	239	2.15	2.40
December	7,393	1,570	2	238	-355.39	113	1.02	1.18
Calendar year 1937	83,933	3,170	-	230	+28.59	231	2.08	28.16
January	521.4	95	1.9	16.8	+333.17	141	1.27	1.46
February	9,227.9	1,960	3.5	330	-326.21	195	1.76	1.83
March	371.0	87	2.7	12.0	+1,222.33	468	4.22	4.86
April	29,181.7	1,290	6.7	973	-1,220.18	502	4.52	5.04
May	891.3	416	1.9	28.8	+578.24	245	2.21	2.55
June	39.3	2.0	1.0	1.31	+134.42	53.2	.479	.53
July	8,927.4	1,170	.6	288	-611.84	59.5	.536	.62
August	3,581.6	700	.7	116	-90.82	81.6	.735	.85
September	11,243.1	1,180	1.0	375	-9.32	371	3.34	3.73
Water year 1937-38	77,848.7	1,960	.6	213	+14.60	214	1.93	26.13

Peak discharge.- Oct. 23 (11:30 p.m.) 3,380 sec.-ft.; Nov. 14 (1-2 p.m.) 2,140 sec.-ft.; Dec. 9 (4:30 p.m.) 4,080 sec.-ft.; Feb. 18 (4:30 p.m.) 2,140 sec.-ft.

*Intake action faulty; discharge computed on basis of three discharge measurements, gage heights, weather records, and records for other stations in Winooski River Basin.

†Stage-discharge relation slightly affected by ice; discharge computed on basis of gage heights and weather records.

‡Adjusted for gain or loss in storage in Waterbury Reservoir (capacity, 2,807,440,000 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 mile upstream from Gihon River.

Drainage area.- 335 square miles.

Records available.- July 1910 to December 1913, September 1928 to September 1938.

Average discharge.- 10 years (1928-38), 517 second-feet.

Extremes.- Maximum discharge during year, 9,120 second-feet Sept. 22 (gage height, 13.58 feet), from rating curve extended above 4,500 second-feet on basis of computations of flood flow by critical-depth method at control and over dam; minimum, 16 second-feet Aug. 15; minimum daily discharge, 28 second-feet Aug. 21.

1910-13, 1928-38: 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 discharge, 27 second-feet Sept. 8, 1935.

Remarks.- Records good except those for periods of ice effect, Dec. 11, 12, Dec. 20 to Mar. 23 (computed on basis of one discharge measurement, gage heights, weather records, and records for nearby stations), and period of missing gage heights, Apr. 2-4 (computed on basis of weather records and records for nearby stations), all of which are fair. Diurnal fluctuation at low stages caused by power plant above station.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Sept. 22								Sept. 23-30	
1.6	22	2.4	300	4.5	1,270	10.0	4,940	2.3	240
1.7	33	2.6	400	5.0	1,520	11.0	5,980	2.7	420
1.8	53	2.9	560	6.0	2,020	12.0	7,130	3.1	600
1.9	86	3.2	700	7.0	2,600			3.6	825
2.0	122	3.5	835	8.0	3,280			4.2	1,120
2.2	205	4.0	1,040	9.0	4,050			5.0	1,520

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	251	722	340	700	370	1,670	855	191	150	235	222
2	79	242	568	340	620	320	1,400	871	178	101	178	297
3	78	219	426	310	540	330	1,250	599	166	117	176	147
4	56	271	438	280	490	330	1,100	233	164	140	171	104
5	81	211	49	250	340	250	835	268	94	176	141	148
6	98	218	133	230	440	300	722	246	168	163	104	173
7	88	196	384	220	2,300	560	678	243	219	136	33	200
8	100	228	824	300	1,600	500	678	265	215	151	146	184
9	79	271	560	460	1,200	470	575	343	217	146	138	183
10	37	330	368	460	980	450	768	269	201	46	137	95
11	91	266	260	300	800	440	745	317	161	120	175	44
12	86	208	300	260	560	300	875	358	140	155	139	205
13	122	207	370	240	540	320	1,040	366	198	173	119	584
14	78	2,370	289	260	860	500	1,570	355	202	133	54	500
15	80	1,620	291	160	820	460	2,780	529	222	125	102	618
16	112	895	288	180	640	440	3,500	866	199	103	117	721
17	80	678	258	240	460	420	2,180	664	171	50	138	368
18	71	549	264	180	450	400	1,920	487	162	118	437	274
19	200	452	658	200	400	380	1,870	458	93	136	830	355
20	924	385	600	160	600	800	1,520	438	100	127	519	521
21	3,610	285	540	170	640	1,400	1,420	1,080	154	120	28	3,910
22	1,140	350	430	190	580	2,500	1,220	895	181	64	190	5,180
23	609	271	340	200	520	3,800	1,320	693	166	200	299	1,370
24	480	263	280	320	470	6,890	1,040	521	140	255	495	833
25	379	200	200	900	420	3,950	895	540	124	258	460	588
26	330	276	240	2,200	360	2,360	768	533	361	167	275	492
27	275	330	260	1,500	250	1,620	610	428	547	193	139	403
28	109	359	320	1,000	440	1,180	610	353	377	217	106	368
29	456	1,650	400	600	-	1,140	605	286	260	179	204	289
30	666	1,170	320	540	-	1,370	745	272	223	144	135	268
31	431	-	320	480	-	1,180	-	477	-	131	137	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	11,110	3,610	37	358	1.07	1.23
November	15,221	2,370	196	507	1.51	1.68
December	11,700	824	49	377	1.13	1.30
Calendar year 1937	206,533	6,300	37	566	1.69	22.91
January	13,490	2,200	160	435	1.30	1.50
February	19,020	2,300	250	679	2.03	2.11
March	35,730	6,890	250	1,153	3.44	3.97
April	36,909	3,500	575	1,230	3.67	4.10
May	15,108	1,080	233	487	1.45	1.67
June	5,994	547	93	200	.597	.67
July	4,494	258	46	145	.433	.50
August	6,557	830	28	212	.633	.73
September	19,644	5,180	44	655	1.96	2.19
Water year 1937-38	194,977	6,890	28	534	1.59	21.65

Peak discharge.- Oct. 21 (1 a.m.) 4,970 sec.-ft.; Apr. 16 (6 a.m.) 4,300 sec.-ft.; Sept. 22 (1 a.m.) 9,120 sec.-ft.

Lamoille River near Milton, Vt.

Location.- Water-stage recorder, lat. 44°40'15", long. 73°06'25", 2½ miles north of Milton, Chittenden County.

Drainage area.- 723 square miles.

Records available.- August 1929 to November 1937 (discontinued).

Extremes.- Maximum discharge during period, 7,190 second-feet Oct. 20; maximum gage height, 14.10 feet Nov. 30 (affected by backwater from reservoir); minimum discharge, 157 second-feet Oct. 17 (gage height, 1.30 feet); minimum daily discharge, 177 second-feet Oct. 3.

1929-37: Maximum discharge, 23,200 second-feet Mar. 19, 1936 (gage height, 12.52 feet), by computation of flow over dam; minimum, 49 second-feet July 30, 1933 (gage height, 0.69 foot); minimum daily discharge, 91 second-feet July 30, 1933.

Remarks.- Records excellent except those for period of backwater from reservoir, Nov. 28-30, which were computed on basis of available gage heights, weather records, and records for nearby streams, and are fair. Diurnal regulation from operation of power plants above station.

Rating table, Oct. 1 to Nov. 30, 1937 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 28-30)

1.3	157	2.7	940	5.0	4,060
1.5	223	3.0	1,250	5.5	4,930
1.8	335	3.5	1,830	6.0	5,840
2.1	490	4.0	2,500	6.5	6,840
2.4	690	4.5	3,240		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	307	922										
2	195	698										
3	177	627										
4	203	606										
5	210	564										
6	206	532										
7	223	550										
8	251	564										
9	234	599										
10	190	738										
11	216	698										
12	230	578										
13	237	514										
14	307	3,110										
15	280	4,720										
16	234	2,430										
17	203	1,710										
18	265	1,550										
19	265	1,340										
20	812	1,060										
21	6,400	904										
22	3,590	786										
23	1,530	690										
24	1,360	690										
25	1,050	722										
26	794	620										
27	706	714										
28	621	900										
29	1,070	3,500										
30	2,020	2,000										
31	1,350	-										

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	25,736	6,400	177	830	1.15	1.33
November	35,636	4,720	514	1,188	1.64	1.83
December	-	-	-	-	-	-
Calendar year						
January						
February						
March						
April						
May						
June						
July						
August						
September						
Water year						

Missisquoi River near North Troy, Vt.

Location.- Water-stage recorder, lat. 44°58'20", long. 72°23'15", just upstream from Big Falls, 1½ miles downstream from Jay Branch, and 2¼ miles upstream from North Troy, Troy County.

Drainage area.- 131 square miles.

Records available.- August 1931 to September 1938.

Extremes.- Maximum discharge during year, 3,740 second-feet Mar. 24 (gage height 9.90 feet), from rating curve extended above 1,650 second-feet on basis of computation of flow over dam; minimum, 16 second-feet June 20 (gage height, 0.98 foot).

1913-38: 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; minimum, 10 second-feet Aug. 22, 1934 (gage height, 0.81 foot).

Remarks.- Records good except those for periods of ice effect, Jan. 25, 26, Feb. 7, Mar. 9-24 (computed on basis of one discharge measurement, available gage heights, weather records, and records for nearby stations), and periods of missing gage heights, Dec. 4 to Jan. 19, Mar. 4-8 (computed on basis of records for station at Richford), all of which are fair. Probably some backwater from ice at times during periods of missing gage heights. Some diurnal regulation from small power plant above station.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.2	22	1.5	46	2.6	237	5.0	1,140
1.2	27	1.7	64	3.0	350	7.0	2,140
1.3	33	1.9	90	3.5	526	9.0	3,240
1.4	39	2.2	143	4.0	720	9.5	3,520

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	178	266	100	456	82	1,010	442	80	44	89	194
2	50	156	187	90	329	83	641	363	72	54	121	169
3	38	230	90	85	237	84	417	237	70	52	87	96
4	45	180	85	85	210	85	329	192	59	48	72	77
5	43	151	80	80	187	90	276	164	45	59	47	72
6	55	190	75	80	232	100	230	149	67	48	46	57
7	61	202	400	160	840	130	220	145	62	47	33	64
8	51	187	300	130	880	160	220	134	70	39	41	98
9	48	364	200	110	544	125	220	120	59	41	34	76
10	41	323	120	100	366	100	212	110	59	34	38	56
11	46	194	80	80	260	90	221	115	66	33	54	46
12	51	132	110	70	220	80	505	126	72	216	70	60
13	86	139	160	70	180	130	519	128	68	225	64	302
14	77	1,050	120	70	192	300	1,210	211	58	96	38	235
15	58	691	100	70	217	200	2,040	307	47	57	45	316
16	52	386	100	70	164	170	1,550	386	45	47	37	344
17	44	296	100	70	139	150	988	260	45	43	47	202
18	52	274	120	65	119	170	1,100	194	52	52	272	158
19	200	237	270	65	191	200	1,060	151	34	46	534	149
20	1,010	200	200	60	207	250	860	416	26	42	144	210
21	2,270	173	160	61	151	700	720	760	33	35	80	1,260
22	527	158	130	59	126	1,200	622	360	31	40	144	2,000
23	282	125	110	66	117	2,000	602	230	30	59	171	517
24	232	145	100	71	110	3,300	372	204	29	93	219	301
25	187	128	90	250	106	1,530	302	253	38	84	250	230
26	143	141	80	1,000	103	821	258	169	628	128	120	172
27	128	217	100	663	98	508	232	135	178	900	83	175
28	128	268	100	353	87	389	217	117	96	272	80	240
29	428	892	100	326	-	474	254	104	62	183	70	159
30	400	463	100	287	-	563	600	98	49	281	80	126
31	250	-	100	353	-	612	-	90	-	101	76	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,123	2,270	38	230	1.76	2.03
November	8,470	1,050	125	282	2.15	2.40
December	4,333	400	75	140	1.07	1.23
Calendar year 1937	103,193	2,580	26	283	2.16	29.30
January	5,199	1,000	59	168	1.28	1.48
February	7,068	880	87	252	1.92	2.00
March	14,876	3,300	80	480	3.66	4.22
April	18,007	2,040	212	600	4.58	5.11
May	6,870	760	90	222	1.69	1.95
June	2,330	628	26	77.7	.593	.66
July	3,499	900	33	113	.863	.99
August	3,286	534	33	106	.809	.93
September	8,161	2,000	46	272	2.08	2.32
Water year 1937-38	89,222	3,300	26	244	1.86	25.32

Peak discharge.- Oct. 21 (6:30 a.m.) 3,210 sec.-ft.; Mar. 24 (8-9 a.m.) 3,740 sec.-ft.; Sept. 22 (10 a.m.) 2,540 sec.-ft.

Missisquoi River near Richford, Vt.

Location.- Water-stage recorder, lat. 44°57'30", long. 72°41'55", 1-2/3 miles upstream from Trout River, 3 miles south of Richford, Franklin County, and 3¾ miles downstream from North Branch.

Drainage area.- 479 square miles.

Records available.- May 1909 to November 1910, July 1911 to September 1923, October 1928 to September 1938.

Average discharge.- 18 years (1911-19, 1928-38), 931 second-feet.

Extremes.- Maximum discharge during year, 12,200 second-feet Sept. 21, from rating curve extended above 8,000 second-feet, by computation of flow over dam, slope-area method, and per-foot-of-width study at measuring section; maximum gage height, 14.72 feet Mar. 25 (ice jam); minimum discharge, 81 second-feet June 25 (gage height, 2.44 feet).

1909-10, 1911-23, 1928-38: Maximum discharge, 14,000 second-feet Mar. 19, 20, 1936, by computation of flow over dam and logarithmic extension; 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 flood of November 1927 (gage height, 23.1 feet), from rating curve extended above 14,000 second-feet.

Remarks.- Records good except those for period of ice effect, Dec. 9 to Mar. 25 (computed on basis of one discharge measurement, gage heights, and records for stations on nearby streams), and periods of missing gage-heights, June 27 to July 1, Aug. 26 to Sept. 14 (computed on basis of records for stations on nearby streams and weather records), which are fair. Slight diurnal regulation at low stages.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

2.4	72	3.0	234	4.5	990	8.0	4,420
2.5	94	3.2	304	5.0	1,370	9.0	5,700
2.6	118	3.5	430	6.0	2,240	10.0	7,150
2.8	172	4.0	670	7.0	3,260	12.0	10,500

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	128	748	1,060	370	1,330	420	3,590	1,660	286	140	480	700
2	126	610	760	360	880	430	3,040	1,330	258	161	444	550
3	121	630	545	350	750	450	2,150	1,020	234	128	403	450
4	118	650	525	330	700	420	1,660	772	224	136	316	350
5	111	540	484	310	600	420	1,330	660	193	136	244	320
6	166	585	448	300	800	500	1,020	590	181	128	199	260
7	178	706	867	350	3,500	630	955	560	196	128	175	300
8	152	620	1,130	540	3,400	700	871	540	331	108	164	400
9	136	814	900	450	2,000	620	857	484	234	116	139	330
10	123	1,100	600	400	1,400	550	844	430	193	123	141	270
11	118	766	350	350	1,000	500	802	430	215	113	162	230
12	131	535	400	300	850	450	1,370	457	241	173	286	300
13	205	488	500	250	700	500	1,570	484	218	1,510	254	1,100
14	218	1,570	450	250	900	840	2,340	620	184	581	199	850
15	181	2,540	400	240	900	840	5,180	1,110	155	320	169	990
16	164	1,610	400	230	800	700	5,700	1,330	150	237	139	1,330
17	141	1,210	400	230	700	700	4,420	1,020	128	187	152	955
18	131	1,020	450	220	650	800	3,480	790	123	166	391	695
19	350	920	800	190	850	800	3,370	630	228	172	1,180	727
20	1,490	778	700	180	800	1,000	2,940	1,260	181	144	788	926
21	5,310	670	600	180	700	2,500	2,640	2,840	134	136	498	5,070
22	4,100	600	550	200	650	4,300	2,100	1,900	118	139	613	7,080
23	1,420	488	500	220	600	7,000	2,200	1,170	99	202	730	3,810
24	920	525	450	250	550	10,500	1,660	899	90	261	1,120	1,810
25	772	480	400	1,500	510	9,000	1,210	850	132	316	1,100	1,260
26	610	466	350	3,200	500	5,600	1,020	730	857	344	600	929
27	540	555	370	2,700	500	3,150	878	580	600	1,660	350	842
28	506	676	370	1,800	450	2,060	784	475	380	1,250	340	922
29	1,280	1,710	370	1,200	-	2,020	778	412	220	880	300	754
30	1,660	1,840	370	1,000	-	2,540	1,370	364	160	1,250	350	605
31	1,100	-	370	1,350	-	2,490	-	324	-	802	330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	22,706	5,310	111	732	1.53	1.76
November	26,450	2,540	466	882	1.84	2.05
December	16,869	1,130	350	544	1.14	1.31
Calendar year 1937	351,073	5,920	93	962	2.01	27.25
January	19,800	3,200	180	639	1.33	1.53
February	27,970	3,500	450	999	2.09	2.18
March	63,430	10,500	420	2,046	4.27	4.92
April	62,129	5,700	778	2,071	4.32	4.82
May	26,721	2,840	324	862	1.80	2.08
June	6,943	857	90	231	.482	.54
July	12,147	1,660	108	392	.818	.94
August	12,756	1,180	139	411	.858	.99
September	35,115	7,080	230	1,170	2.44	2.72
Water year 1937-38	333,036	10,500	90	912	1.90	25.84

Peak discharge.- Apr. 15 (10 p.m.) 6,120 sec.-ft.; Sept. 21 (12 m.) 12,200 sec.-ft.

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 673.15 feet above mean sea level.

Records available.- May 1931 to September 1938.

Extremes.- Maximum gage height observed during year, 10.99 feet Mar. 26; minimum observed, 6.76 feet Oct. 19, 20.
1931-38: 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 of readings for Dec. 13 to Mar. 21 taken from top of ice.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.30	8.45	9.22	9.40	9.20	-	10.48	10.11	10.04	-	9.12	-
2	7.27	-	9.25	-	-	9.80	10.30	10.10	10.02	-	9.14	8.80
3	7.25	8.48	9.27	9.40	9.20	-	10.20	10.10	9.98	-	9.11	-
4	7.22	8.48	9.28	9.40	-	9.82	10.14	10.09	9.94	-	9.04	-
5	7.20	8.50	9.28	9.40	9.20	-	10.08	10.08	-	-	9.02	-
6	7.18	8.51	9.30	-	-	-	10.02	10.08	9.88	-	9.02	-
7	7.15	8.54	9.30	9.40	9.20	9.98	9.99	10.08	9.86	-	-	-
8	7.12	8.56	9.32	-	-	-	9.96	10.07	9.84	-	9.00	-
9	7.09	8.58	9.34	-	9.20	9.98	9.94	10.06	9.82	-	8.88	-
10	7.06	8.60	9.36	9.40	-	9.94	9.94	10.02	9.80	-	8.87	-
11	7.02	8.62	9.38	-	9.20	-	9.96	10.04	9.76	-	-	-
12	6.98	8.64	9.39	9.40	-	9.94	9.99	10.04	9.74	-	8.84	-
13	6.95	8.67	9.40	-	-	-	10.04	10.04	9.76	-	-	-
14	6.92	8.74	9.40	9.40	9.20	9.94	10.12	10.03	9.73	-	-	-
15	6.87	8.77	-	-	-	-	10.18	10.02	9.71	-	8.78	-
16	6.82	8.80	9.40	-	9.20	9.94	10.24	10.02	9.68	-	-	-
17	6.79	8.84	9.40	9.40	-	9.94	10.42	10.02	9.66	-	-	-
18	6.77	8.86	9.40	-	9.40	9.92	10.57	10.01	9.64	-	8.70	-
19	6.76	8.87	-	9.40	-	-	10.57	10.01	9.62	-	-	-
20	6.76	8.89	9.40	-	-	-	10.52	10.02	9.60	-	8.76	8.62
21	7.60	8.90	-	9.40	9.52	9.64	10.48	10.16	9.56	-	-	8.74
22	7.82	8.92	9.40	-	-	9.94	10.40	10.20	9.54	-	-	8.80
23	7.96	8.93	9.40	-	9.60	10.00	10.32	10.24	9.52	-	-	9.04
24	8.10	8.94	-	9.40	-	10.46	10.28	10.26	9.50	-	8.92	9.16
25	8.16	8.95	9.40	-	9.70	10.97	10.27	10.26	9.48	-	8.94	9.22
26	8.22	8.96	-	9.40	-	10.99	10.24	10.24	-	9.02	8.92	9.28
27	8.27	8.97	9.40	-	-	10.90	10.18	10.22	-	9.02	8.78	9.34
28	-	8.98	-	9.40	9.76	10.72	10.16	10.18	-	9.04	8.78	9.36
29	8.34	9.14	9.40	-	-	10.64	10.14	10.16	-	9.02	8.78	9.36
30	8.37	9.17	9.40	9.40	-	10.52	10.12	10.12	-	9.10	8.78	9.35
31	8.42	-	9.40	-	-	10.44	-	10.08	-	9.12	8.79	-

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 1937 to September 1938

Date	Stream	Tributary to	Locality	Discharge (sec.-ft.)
Nov. 3	St. Louis River..	Lake Superior....	Floodwood, Minn.....	647
17	Little Clear Pond outlet.	Upper Saranac Lake.	At Saranac Inn railroad station, N. Y...	9.38
Jan. 12	.....do.....	.....do.....	.....do.....	6.58
Feb. 9	.....do.....	.....do.....	.....do.....	9.49
Mar. 22	.....do.....	.....do.....	.....do.....	5.45

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