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Water-Supply Paper 665

SURFACE WATER SUPPLY *of the* UNITED STATES 1928

PART V
HUDSON BAY AND UPPER MISSISSIPPI RIVER BASINS

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FIGURE 1. Typical gaging station 3

SURFACE WATER SUPPLY OF HUDSON BAY AND UPPER MISSISSIPPI RIVER BASINS, 1928

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1928.

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

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

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

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

Annual appropriations for the fiscal years ending June 30, 1895–1929

1895	$12, 500. 00	1918	$175 000. 00
1896	24, 500. 00	1919	148 244. 10
1897–1899	50, 000. 00	1920	175 000. 00
1900	70, 000. 00	1921–1923	180 000. 00
1901–2	100, 000. 00	1924–25	170 000. 00
1903–1906	200, 000. 00	1926	165 000. 00
1907	150, 000. 00	1927	151, 000. 00
1908–1910	100, 000. 00	1928	147, 000. 00
1911–1917	150, 000. 00	1929	270 500. 00

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

Measurements of stream flow have been made at about 5,480 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1928, 1,830 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements are

made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in the water-supply papers from time to time.

DEFINITION OF TERMS

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

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

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

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

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

The following terms not in common use are here defined:

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

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

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1927, and ending September 30, 1928. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, as underground water, and this

stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

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

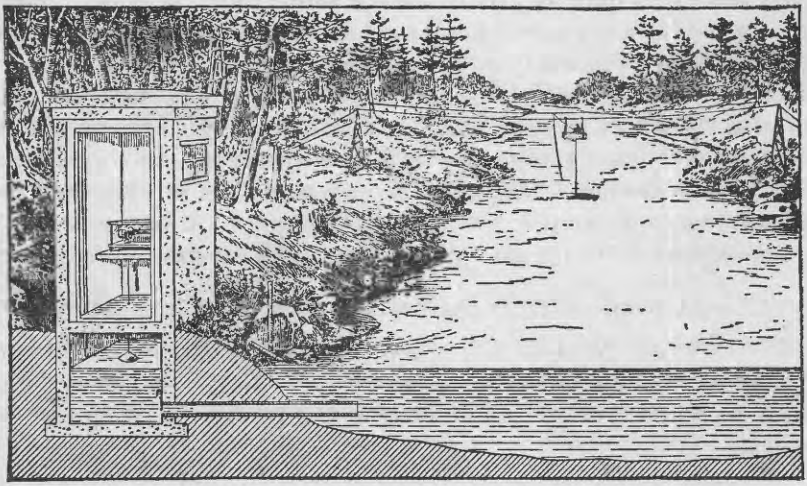

FIGURE 1.—Typical gaging station

A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

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

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

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records. The maximum discharge given under "Extremes" does not represent the

crest discharge unless a water-stage recorder was in operation or unless a nonrecording gage was read at the time of the crest.

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and 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.

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed

studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

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

PUBLICATIONS

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

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

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

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

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

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

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

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

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

Stream-flow records have been obtained at about 5,480 points in the United States, and the data obtained have been published in the reports tabulated below.

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

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to September, 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	

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

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

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

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1928. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part III are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899–1928

[For basins included, see p. 5]

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

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

COOPERATION

All stations in Montana were maintained jointly with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada, under the waterways treaty.

In Minnesota the work was carried on in the Red River drainage basin in cooperation with the Minnesota Department of Drainage and Waters, E. V. Willard, commissioner, and with the United States Department of State. Acknowledgment is due also to the Corps of Engineers, United States Army, for financial assistance in collecting records of the Mississippi River at Elk River and the Minnesota River near Montevideo; also to the Ford Motor Co. for records of the Mississippi River at St. Paul and the Minnesota River at Mankato.

The work in Wisconsin was done in cooperation with the Railroad Commission of Wisconsin, C. M. Larson, chief engineer; with the Northern States Power Co. (St. Croix River near Grantsburg, St. Croix River near Rush City, Red Cedar River near Colfax, and Red Cedar River at Menomonie), and Inter-County Park Association (Fox River near Mukwonago).

In Illinois work was carried on in cooperation with the Illinois Department of Purchases and Construction, division of waterways, William F. Mulvihill, supervisor. The Central Illinois Public Service Co. paid the salary of the observer on the South Fork of the Sangamon River at the power plant near Taylorville.

The work in Missouri was carried on in cooperation with the Missouri Bureau of Geology and Mines, through H. A. Buehler, State geologist.

DIVISION OF WORK

The data for the stations in the Hudson Bay Basin in Montana were collected and prepared for publication under direction of W. A. Lamb, district engineer, assisted by A. H. Tuttle, C. S. Heidel, G. C. Sanders, and Mrs. G. Thompson.

The data for stations in the Hudson Bay Basin in Minnesota and North Dakota were collected and prepared for publication under the direction of S. B. Soulé and C. L. Batchelder, district engineers, assisted by K. B. Nelson and E. F. Chandler.

For stations in the Mississippi River Basin in Wisconsin and Minnesota, the data were collected and prepared for publication under the direction of S. B. Soulé, district engineer, assisted by W. J. Parsons, jr., A. H. Frazier, A. O. Dahlen, and Jacob Schmidt.

The data for stations in Illinois were collected and prepared for publication under the direction of H. E. Grosbach, district engineer, assisted by F. L. LeMert, P. J. Houser, and E. F. Rutkowski.

The data for stations in Missouri were collected and prepared for publication under the direction of H. C. Beckman, district engineer,

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The records were reviewed and manuscript assembled by William D. Mitchell.

GAGING-STATION RECORDS

HUDSON BAY DRAINAGE BASIN

ST. MARY RIVER NEAR KIMBALL, ALBERTA

LOCATION.—Water-stage recorder in SW. ¼ sec. 25, T. 1 N., R. 25 W. fourth meridian, 1 mile south and 1 mile west of Kimball, Alberta, and 5 miles north of international boundary. During winter a chain gage on highway bridge 3 miles downstream was used.

DRAINAGE AREA.—497 square miles.

RECORDS AVAILABLE.—January, 1913, to September, 1928. September, 1902, to December, 1912, records were obtained at point half a mile north of international boundary. Records of the two sites comparable.

EXTREMES.—Maximum discharge during year, 5,330 second-feet May 27 (gage height, 6.47 feet); minimum, 112 second-feet February 22.

1902–1928: Maximum discharge (estimated), 18,000 second-feet June 5, 1908; minimum, 46 second-feet December 1, 1919.

REMARKS.—Records good. Discharge November 11 to March 23 estimated because of ice. St. Mary Canal diverts water near Babb, Mont., to North Fork of Milk River. Regulation on tributary upstream. Station maintained in cooperation with the Department of the Interior, Canada.

Daily discharge, in second-feet, 1927–28.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,120	1,080					431	1,230	3,820	3,990	1,250	631
2	1,090	1,070					431	1,240	3,400	4,090	1,210	565
3	1,060	1,050					405	1,220	3,040	3,900	1,150	523
4	1,110	1,100					405	1,230	2,680	3,480	1,080	478
5	1,100	1,130	452	282	197	200	431	1,250	2,240	3,200	1,010	468
6	1,090	1,150					405	1,330	2,020	3,460	927	511
7	1,060	1,130					431	1,470	1,920	3,310	847	610
8	1,070	1,120					405	1,860	1,920	2,820	788	591
9	1,050	1,110					396	2,310	1,880	2,640	752	546
10	1,090	1,090					400	3,000	1,700	2,480	745	511
11	1,050						364	3,570	1,540	2,360	759	478
12	1,020						346	3,760	1,420	2,180	730	448
13	992						360	3,920	1,390	2,050	694	458
14	1,010						405	4,050	1,400	1,970	687	463
15	1,070	818	256	314	169	319	419	4,050	1,420	1,920	666	488
16	1,140						468	4,070	1,430	2,020	624	505
17	1,220						483	4,120	1,460	2,050	578	494
18	1,280						488	4,220	2,330	2,130	534	488
19	1,320						494	4,260	2,080	2,070	511	478
20	1,350						494	4,330	2,030	1,950	488	463
21	1,360					1,160	505	4,450	1,890	1,800	473	458
22	1,350						529	4,640	1,990	1,710	463	453
23	1,340						578	4,810	2,400	1,630	463	443
24	1,330					431	680	5,090	2,460	1,520	483	429
25	1,280	594	249	247	145	487	745	5,110	2,890	1,440	617	419
26	1,240					431	854	5,110	3,050	1,400	666	410
27	1,200					381	993	5,250	2,980	1,360	716	405
28	1,170					405	1,100	5,250	3,020	1,420	666	405
29	1,130					431	1,080	5,110	3,040	1,380	578	386
30	1,100				-------	458	1,120	4,850	3,290	1,340	597	382
31	1,050	-------			-------	431	-------	4,370	-------	1,320	716	------

Monthly discharge, in second-feet, of St. Mary River near Kimball, Alberta, 1927–28

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,360	992	1,160	71,300
November	1,150		838	49,900
December			317	19,500
January			280	17,200
February			171	9,840
March			418	25,700
April	1,120	346	555	33,000
May	5,250	1,220	3,570	220,000
June	3,820	1,390	2,270	135,000
July	4,090	1,320	2,270	140,000
August	1,250	463	725	44,600
September	631	382	480	28,600
The year	5,250		1,090	795,000

ST. MARY CANAL AT INTAKE, NEAR BABB, MONT.

LOCATION.—Water-stage recorder in NW. ¼ NE. ¼ sec. 27, T. 36 N., R 14 W. 600 feet below intake of canal on Blackfeet Indian Reservation, 1 mile east of Babb. Staff gage at same site used June 4 to August 1.

RECORDS AVAILABLE.—Irrigation seasons, 1918–1928.

REMARKS.—Records good. This canal diverts from west bank of St. Mary River near Babb and discharges into North Fork of Milk River. The water then flows in the natural channel of Milk River through Canada and is finally used for irrigation in Milk River Valley, east of Havre, Mont Water may be returned to St. Mary River at St. Mary crossing. Station maintained in cooperation with the Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	0	591	424	235	16	639	319	479	0
2	0	578	435	234	17	630	319	479	0
3	0	578	444	233	18	606	319	479	0
4	182	561	459	232	19	602	319	476	0
5	369	327	459	221	20	600	330	476	0
6	458	0	461	128	21	598	342	476	0
7	494	110	470	0	22	597	339	475	0
8	500	306	480	0	23	608	352	473	0
9	494	312	480	0	24	603	365	475	0
10	531	319	479	0	25	612	373	472	0
11	562	319	477	0	26	612	390	477	0
12	600	318	477	0	27	612	391	479	0
13	629	318	479	0	28	606	390	479	0
14	633	318	479	0	29	606	387	479	0
15	634	318	480	0	30	606	396	354	0
					31		406	238	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
June 4–30	639	182	564	30,200
July	591	0	355	21,800
August	480	238	460	28,300
September 1–6	235	128	214	2,550
The period				82,800

NOTE.—Canal was opened June 4 and closed Sept. 6.

ST. MARY CANAL AT ST. MARY CROSSING, NEAR BABB, MONT.

LOCATION.—Water-stage recorder in NE. ¼ sec. 30, T. 37 N., R. 13 W. Montana meridian, 500 feet east of outlet of St. Mary River siphon, 10 miles below intake, and 9 miles north of Babb.

RECORDS AVAILABLE.—Irrigation seasons, 1918–1928.

REMARKS.—Records good. Station maintained in cooperation with the Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	0	522	365	226	16	547	281	408	2.7
2	0	513	365	226	17	552	281	408	2.2
3	0	505	378	200	18	549	282	408	2.1
4	48	501	385	197	19	530	281	408	0
5	276	469	397	192	20	526	282	408	0
6	369	59	401	136	21	518	299	408	0
7	431	23	405	17.6	22	516	297	406	0
8	438	255	410	6.6	23	524	299	403	0
9	437	271	412	5.6	24	528	318	403	0
10	448	284	410	5.6	25	535	323	410	0
11	484	284	410	5.6	26	539	336	414	0
12	505	282	410	4.6	27	530	340	416	0
13	520	281	410	5.6	28	520	343	414	0
14	534	277	410	4.2	29	516	338	414	0
15	541	276	408	2.9	30	526	336	365	0
					31	-------	352	321	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
June 4–30	552	48	481	25,800
July	522	23	316	19,400
August	416	321	400	24,600
September 1–18	226	2.1	69.0	2,460
The period	----------	----------	----------	72,300

NOTE.—Canal was opened June 4 and closed Sept. 6. Flow Sept. 7–18 represents return seepage.

ST. MARY CANAL AT HUDSON BAY DIVIDE, NEAR BROWNING, MONT.

LOCATION.—Water-stage recorder in sec. 5, T. 37 N., R. 11 W., on Blackfeet Indian Reservation, 3 miles above canal outlet and 30 miles north of Browning.

RECORDS AVAILABLE.—Irrigation seasons, 1917–1928.

REMARKS.—Records good. Discharge estimated June 5; interpolated August 4. Station maintained in cooperation with the Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	0	543	345	202	16	525	280	396	0
2	0	513	350	193	17	547	277	394	0
3	0	500	363	191	18	574	291	392	0
4	0	494	368	189	19	547	280	390	0
5	60	483	381	188	20	534	273	390	0
6	297	297	383	178	21	521	273	392	0
7	359	100	386	102	22	519	287	388	0
8	410	47	398	45	23	515	287	390	0
9	420	246	400	19.6	24	517	298	390	0
10	416	277	402	12.2	25	528	304	402	0
11	445	280	404	0	26	523	312	400	0
12	483	277	392	0	27	517	322	402	0
13	496	277	394	0	28	513	328	400	0
14	510	274	395	0	29	500	334	400	0
15	523	269	396	0	30	534	322	390	0
					31	-------	322	281	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
June 5-30	574	60	474	24,400
July	543	47	312	19,200
August	404	281	386	23,700
September 1-10	202	12.2	132	2,620
The period	----------	----------	----------	69,900

SWIFTCURRENT CREEK AT MANY GLACIER, MONT.

LOCATION.—Water-stage recorder in sec. 12, T. 35 N., R. 16 W., at outlet of McDermott Lake at Many Glacier, in Glacier National Park, 14 miles southwest of Babb.

DRAINAGE AREA.—31.4 square miles.

RECORDS AVAILABLE.—June, 1912, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,120 second-feet May 23 (gage height, 4.92 feet); minimum, 32.1 second-feet September 30 (gage height, 1.57 feet).

1912–1928: Maximum discharge, 1,550 second-feet June 17, 1916; maximum gage height, that of May 23, 1928; minimum discharge, 10 second-feet November 6 and 7, 1921 (gage height, 1.22 feet).

REMARKS.—Records good. Discharge estimated October 1–4, 6, 7, 22–31, May 1–3, August 3–7, and August 30 to September 4. No record November 1 to April 30. No diversions or regulation. Station maintained in cooperation with the Department of the Interior, Canada.

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

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	102	100	365	752	214	110	16	456	676	449	354	87	71
2	100	105	319	654	188	110	17	363	808	365	326	80	69
3	98	110	306	544	183	110	18	293	867	511	303	81	64
4	96	113	356	503	177	110	19	248	786	490	303	83	61
5	94	125	417	462	172	110	20	218	765	420	275	83	60
6	88	229	453	429	167	101	21	197	863	391	266	83	53
7	79	483	459	419	161	94	22		1,020	528	272	83	52
8	68	758	391	412	156	85	23		1,110	644	288	81	52
9	94	693	344	406	156	74	24		997	564	300	83	50
10	171	630	322	383	153	64	25		916	623	306	90	50
11	155	623	309	351	156	60	26	125	974	7.1	297	92	47.2
12	128	662	340	342	146	58	27		1,040	662	288	90	45.8
13	149	768	417	358	136	58	28		848	650	297	80	43
14	389	700	504	364	119	55	29		740	661	288	74	44.4
15	437	623	532	370	101	69	30		704	656	275	95	36
							31		504	------	244	105	------

Month	Maximum	Minimum	Mean	Per square mile	Inches	Run-off in acre-feet
October	456	68	170	5.41	6.24	10,500
May	1,110	100	656	20.9	24.10	40,300
June	711	306	472	15.0	16.74	28,100
July	752	244	369	11.8	13.60	22,700
August	214	74	121	3.85	4.44	7,440
September	110	36	68.9	2.19	2.44	4,100

SHERBURNE LAKE RESERVOIR AT SHERBURNE, MONT.

LOCATION.—Staff gage on gate house in sec. 35, T. 36 N., R. 15 W., at Sherburne Dam, 5 miles southwest of Babb. Zero of gage 4,700.0 feet above mean sea level.

DRAINAGE AREA.—64 square miles.

RECORDS AVAILABLE.—May to June, 1915; May, 1917, to September, 1928.

EXTREMES.—Maximum storage recorded during year ending September 30, 1928, 51,700 acre-feet July 1 (gage height, 79.2 feet).

1915, 1917–1928: Maximum storage recorded during period, 60,420 acre-feet June 20, 1925 (gage height, 84.6 feet).

REMARKS.—Records good except those for 1919–1920, which are taken from storage curves. Complete records furnished by United States Bureau of Reclamation.

Daily storage, in acre-feet, of Sherburne Lake Reservoir at Sherburne, Mont., 1915, 1917–1928

Day	May	June	Day	May	June	Day	May	June
1915			1915			1915		
1		1,900	11		3,450	21		4,040
2		1,870	12		3,820	22		4,020
3		1,980	13		3,830	23		4,160
4		2,360	14		3,830	24		4,370
5		2,700	15		3,900	25		4,500
6		3,060	16		3,910	26		4,500
7		3,190	17		3,970	27		4,420
8		3,270	18		4,140	28		4,360
9		3,250	19		4,140	29		4,360
10		3,300	20		4,120	30	884	4,360
						31	1,680	

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1917						1917					
1		4,190	4,900	4,090	4,420	16	4,960	4,960	4,730	4,490	4,530
2		4,220	4,900	4,020	4,390	17	5,580	5,100	4,730	4,490	4,490
3		4,390	4,760	4,020	4,390	18	5,440	5,650	4,760	4,560	4,490
4		4,290	4,760	4,190	4,320	19	4,290	5,650	4,660	4,630	4,490
5		4,220	4,700	4,220	4,290	20	3,640	5,540	4,560	4,660	4,420
6		4,260	4,630	4,630	4,260	21	3,190	5,370	4,460	4,660	4,420
7		4,490	4,630	4,760	4,220	22	3,100	5,440	4,460	4,630	4,410
8		4,960	4,530	4,760	4,290	23	3,160	5,100	4,390	4,560	4,340
9		5,860	4,490	4,590	4,320	24	3,570	4,760	4,390	4,490	4,420
10		6,640	4,390	4,460	4,460	25	4,160	4,760	4,390	4,420	4,460
11		7,010	4,425	4,390	4,530	26	4,570	4,760	4,390	4,350	4,490
12		6,500	4,425	4,390	4,560	27	4,630	4,650	4,320	4,350	4,460
13		5,750	4,290	4,390	4,630	28	4,630	4,490	4,320	4,290	4,460
14	3,760	5,000	4,220	4,420	4,690	29	4,730	4,760	4,360	4,320	4,460
15	4,220	4,960	4,530	4,420	4,590	30	4,590	4,960	4,190	4,390	4,490
						31	4,360		4,190	4,390	

Day	Oct.	Dec.	Jan.	Feb.	Mar.	May	June	July	Aug.	Sept.
1917–18										
1	4,460		6,000	4,260	6,450		4,520	3,860	4,090	4,220
2	4,460		7,520	4,360			4,190	3,960	4,250	4,360
3	4,530		7,740	4,490			3,860	3,930	4,430	4,380
4	4,530		7,370				3,860	3,990	4,520	4,380
5	4,560		5,510	4,630		7,740	3,830	3,990	4,510	4,330
6	4,630		4,290	4,690		7,590	3,860	3,900	4,420	4,290
7	4,560		2,880	4,760		6,860	4,110	3,800	4,380	4,260
8	4,460		1,740		6,820	5,860	4,020	3,740	4,280	4,240
9	4,360		1,180	5,000		4,860	4,220	3,750	4,230	4,240
10	4,290			5,100		4,020	4,930	3,880	4,190	4,260
11	4,360				7,100	3,990	5,860	4,060	4,100	4,280
12	4,320		1,180	5,240	7,190	4,190	6,430	4,220	4,160	4,260
13	4,290		1,680			4,360	6,750	4,340	4,320	4,260
14	4,320		1,930		7,220	4,660	6,820	4,380	4,460	4,280
15	4,220		2,040	5,510	6,970	4,960	6,860	4,420	4,420	4,280
16	4,290		2,290		6,750	4,660	6,460	4,490	4,590	4,260
17	4,360		2,470			4,360	5,790	4,540	4,410	4,230
18	4,420		2,580			4,190	5,130	4,590	4,170	4,180
19	4,460		2,760			4,220	4,690	4,690	4,020	4,120
20	4,530		2,880			4,220	4,320	4,720	3,950	4,090
21	4,420		3,010			4,090	4,160	4,720	3,860	4,060
22	4,420		3,070	6,040		4,020	3,950	4,620	3,860	4,030
23	4,460		3,280			3,960	4,560	4,460	3,840	4,020
24	4,490		3,380			3,800	4,320	4,360	3,890	4,000
25	4,460		3,500			3,680	3,930	4,190	3,840	3,990
26	4,460	3,220	3,670			3,730	4,120	4,020	3,920	3,990
27	4,460		3,830	6,360		3,710	3,990	3,910	4,020	3,950
28	4,460	3,730				3,760	3,960	3,860	4,120	3,920
29			3,960			3,880	4,000	3,860	4,200	3,880
30		4,360	3,990			3,990	3,990	3,900	4,180	3,920
31		5,030				4,420		3,990	4,180	

Daily storage, in acre-feet, of Sherburne Lake Reservoir at Sherburne, Mont., 1915, 1917–1928—Continued

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1919						1919					
1		7,200				16					
2						17					
3						18					
4						19					
5						20		22,400	28.500	13,000	
6						21					
7						22					
8						23					
9						24					
10		14,700	28,800	17,300	1,300	25	4,200				
11						26					
12						27					
13						28					
14						29					
15					0	30		28,800			
						31			21,600	4,800	

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1920						1920					
1						16					
2						17					
3						18					
4						19					
5						20	0	5,500	27,000	5,000	5,000
6						21					
7						22					
8						23					
9						24		4,800			
10		3,500	24,900	9,000	5,000	25					
11						26					
12						27					
13						28					
14						29					
15			28,500	5,200	5,000	30		10.900			5,000
						31	980		15,000	5,000	

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1921					1921				
1		19,240	30,460	29,340	16		29,220	30,180	28,220
2		21.200	30,460	29,280	17		29,460	30,180	28,110
3		22,300	30,410	29,220	18		29,700	30,180	28,060
4		22,930	30,360	29,280	19		29,820	30,240	28,000
5		23,810	30,300	29,100	20	4,220	29,940	30,180	27,890
6		24,800	30,180	29,100	21	5,100	30,060	30,060	27,840
7		25,500	30,180	29,040	22	7,150	30,180	30,060	27,670
8		26,460	30,180	28,990	23	8,560	30,300	29,940	27,620
9		27,230	30,180	28,940	24	9,960	30,410	29,880	27,560
10		28,000	30,180	28,770	25	11,500	30,410	29,820	27,500
11		28,330	30,240	28,770	26	13,520	30,520	29,700	27,450
12		28,550	30,240	28,660	27	14,720	30,520	29,520	27,400
13		28,770	30,240	28,550	28	16,100	20,520	29,460	27,400
14		28,990	30,180	28,500	29	17,430	30,520	29,340	27,340
15		29,100	30,180	28,330	30	18,300	30,520	29,340	27,340
					31		30,520	29,220	

Daily storage, in acre-feet, of Sherburne Lake Reservoir at Sherburne, Mont., 1915, 1917–1928—Continued

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1921–22								
1	26,460	1,430	5,240	-------	8,950	15,530	23,430	8,870
2	25,400	306	5,370	-------	8,490	16,500	23,370	8,640
3	25,300	-------	5,440	-------	8,340	17,250	23,370	8,340
4	24,800	-------	5,580	-------	8,720	18,100	23,270	8,120
5	23,920	820	5,650	-------	9,490	18,880	23,150	7,820
6	22,820	1,090	5,760	-------	10,000	19,700	23,040	7,440
7	21,800	1,280	5,860	-------	10,100	20,500	22,930	7,080
8	21,100	1,630	5,930	-------	9,570	21,300	22,500	6,720
9	19,950	1,840	6,000	-------	8,720	22,200	22,100	6,360
10	19,900	2,060	5,650	-------	7,960	23,150	21,600	6,000
11	17,700	2,290	5,540	-------	6,930	23,920	21,100	5,580
12	16,890	2,410	5,440	-------	6,360	24,580	21,000	5,240
13	15,800	2,630	5,580	-------	6,140	25,200	20,100	4,960
14	14,990	2,820	5,650	-------	6,070	25,600	19,510	4,630
15	14,180	3,070	5,760	-------	6,000	26,350	18,730	4,360
16	12,750	3,190	5,790	-------	5,790	27,010	18,000	4,090
17	12,060	3,320	5,720	204	5,580	27,670	17,160	3,830
18	11,180	3,500	5,370	3,010	5,300	28,000	16,200	3,500
19	10,300	3,640	5,030	4,960	4,960	27,890	15,350	3,320
20	9,020	3,670	4,830	6,790	4,420	27,890	14,630	3,010
21	8,490	3,830	4,490	9,800	5,510	27,670	13,840	2,760
22	7,930	3,960	4,220	10,290	6,720	27,450	13,100	2,520
23	7,150	4,090	4,020	11,500	8,040	26,900	12,220	2,230
24	6,720	4,220	3,640	12,300	9,180	26,350	11,520	1,840
25	5,860	4,390	3,130	12,220	10,100	25,800	11,130	1,680
26	5,240	4,560	2,700	12,570	10,940	25,400	10,730	1,430
27	4,690	4,760	2,410	12,840	11,820	24,900	10,450	1,180
28	3,900	4,960	1,840	12,570	12,750	24,360	10,130	1,045
29	2,820	5,030	1,580	11,980	13,680	23,810	9,800	418
30	2,180	5,100	1,140	11,020	14,630	23,700	9,430	-------
31	1,680	-------	730	9,880	-------	23,590	9,100	-------

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1923											
1	-------	2,520	28,550	44,300	30,740	16	-------	13,360	37,920	39,870	13,440
2	-------	3,380	29,820	44,750	29,700	17	-------	14,450	38,310	39,350	11,100
3	-------	3,760	30,850	44,600	28,990	18	-------	15,530	38,570	38,700	9,720
4	-------	3,640	31,760	44,450	27,780	19	-------	16,600	38,830	38,050	8,340
5	-------	3,500	32,600	44,380	26,350	20	-------	17,610	39,220	37,530	6,970
6	-------	3,440	33,260	44,220	25,500	21	-------	18,700	39,610	37,160	5,100
7	-------	3,570	33,940	44,080	23,810	22	-------	19,700	40,000	36,860	3,830
8	-------	3,700	34,060	43,860	22,450	23	-------	20,800	40,520	36,560	2,520
9	-------	3,760	35,160	43,720	21,000	24	-------	21,900	41,040	36,070	1,330
10	-------	4,090	35,680	43,300	19,850	25	-------	22,710	41,560	35,350	136
11	-------	4,360	36,320	42,810	18,840	26	-------	23,810	41,950	34,840	-------
12	-------	6,570	36,680	42,210	17,700	27	-------	24,800	42,470	34,180	-------
13	-------	8,720	37,040	41,560	16,600	28	-------	25,600	42,880	33,480	-------
14	-------	10,450	37,400	40,910	15,900	29	3,130	26,460	43,160	32,880	-------
15	-------	12,140	37,660	40,260	13,920	30	2,580	27,120	43,440	32,000	-------
						31	2,410	-------	43,860	31,180	-------

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1924											
1	-------	17,250	47,500	22,400	------	16	-------	36,920	38,180	13,920	------
2	-------	18,100	47,650	21,800	------	17	-------	38,700	37,400	13,280	------
3	-------	19,060	47,580	21,100	6,000	18	-------	40,260	36,440	12,840	------
4	-------	20,300	47,280	20,700	------	19	5,100	41,040	35,160	12,220	------
5	-------	21,300	46,900	20,200	5,370	20	-------	41,690	33,940	11,420	------
6	-------	22,300	46,340	19,600	5,030	21	7,080	42,740	32,820	10,780	------
7	-------	23,700	46,060	19,060	4,830	22	8,120	43,440	31,640	9,960	4,290
8	-------	25,200	45,500	18,300	------	23	9,100	44,300	30,520	-------	------
9	-------	26,570	44,750	17,700	------	24	10,040	45,050	29,340	9,020	------
10	-------	27,780	43,730	17,160	4,490	25	-------	45,500	28,220	8,490	------
11	-------	28,660	42,880	16,800	------	26	12,480	45,920	27,120	-------	------
12	-------	30,060	41,950	16,200	4,490	27	13,520	46,340	25,400	8,490	------
13	-------	31,640	40,910	15,620	------	28	14,450	47,050	24,470	8,340	------
14	-------	33,260	40,000	14,990	4,460	29	15,170	47,350	23,700	7,890	3,860
15	-------	35,160	39,350	14,450	------	30	15,900	47,350	23,150	7,590	------
						31	16,600	-------	22,710	7,150	------

Daily storage, in acre-feet, of Sherburne Lake Reservoir at Sherburne, Mont., 1915, 1917–1928—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1924–25												
1									49,450	52,840		
2									49,000	49,900	56,100	35,680
3								25,100	48,400	49,900		35,550
4									48,400		55,140	35,420
5	3,730											
6								28,880	48,400	53,600	54,350	
7					3,190					53,900		35,160
8									49,150	54,500	53,000	
9										54,820		
10									49,900	55,140	51,400	33,040
11										55,940		
12					3,320			25,800		56,740	49,900	31,520
13				730						57,700	49,150	
14	3,670							28,880	50,650	58,550	48,400	29,820
15								31,400	50,650	59,230		
16								32,600		59,400	46,900	28,440
17							15,530		50,800			
18								35,680	50,800	60,080	45,780	27,010
19				1,180					50,950	60,250		
20								41,300	51,250	60,420	44,600	
21									51,400	60,250		24,900
22								46,480	51,560	59,910	43,020	
23					3,640				51,560	59,740	42,080	23,370
24	3,570							49,000	51,400	59,400		
25									51,100	59,060		22,000
26									51,100	58,720	40,390	21,200
27								49,150	50,950	58,380		20,600
28					3,900				51,400	58,040	39,220	19,800
29							22,200	49,450	52,040	57,700		19,060
30		3,700							52,520	57,380	37,400	18,300
31	3,500		775	2,410		5,580		49,900		57,060	35,940	

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1925–26											
1	17,520							15,260	15,800	11,900	
2								15,800		11,820	
3	15,900							16,200	15,170	11,740	
4	15,170							16,600	14,900	11,500	
5	14,450							17,610	14,720	11,260	
6	13,760							18,300	14,450	11,100	
7	12,930		2,060					19,060	14,450	10,860	
8	11,500							19,420	14,450	10,370	
9	9,650							19,600	14,180	10,130	
10	7,740		2,350						14,000	9,720	
11	6,000						8,420		13,840	9,260	1,180
12	4,360		2,470					19,900	13,680	8,950	1,480
13	2,880			4,360				19,600	13,280	8,640	1,735
14	1,790		2,630					19,420	12,930	8,120	1,955
15	820							19,150	12,660	7,440	
16	170						10,540	18,880	12,480	6,860	2,350
17	306							18,500	12,140	6,430	
18							12,390	18,300	11,820	5,720	
19							13,020	18,200	11,580	5,030	
20							13,520	17,900	11,660	4,090	
21			3,190				13,520	17,520	11,660	3,700	
22							13,520	17,430	11,740	3,070	
23							13,440	17,340	11,740	2,350	
24							13,520	17,250	11,900	1,680	
25							13,440	17,070	11,980	910	
26							13,440	16,800	12,060		
27		910					13,520	16,700	12,140		
28						5,860	13,680	16,700	12,220		
29							14,000	16,600	12,220		
30		1,090					14,630	16,300	12,060		5,790
31			3,830	5,030		7,820		16,000			

Daily storage, in acre-feet, of Sherburne Lake Reservoir at Sherburne, Mont., 1915, 1917–1928—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1926–27												
1	------	------	------	23,150	26,900	28,000	28,880	32,820	30,520	49,000	4[illegible],900	38,860
2	------	------	------	23,260	27,010	28,000	28,990	31,640	30,300	50,500	4[illegible],900	38,960
3	------	------	------	23,370	27,120	28,000	28,990	30,300	30,060	50,500	4[illegible],600	39,220
4	------	------	------	23,480	27,230	28,000	29,100	30,300	30,300	50,500	4[illegible],300	39,220
5	------	------	------	23,700	27,340	28,110	29,100	30,180	30,180	50,500	4[illegible],000	39,220
6	------	------	------	23,810	27,340	28,110	29,220	30,060	30,410	50,500	48,850	39,220
7	------	------	------	23,920	27,450	28,110	29,220	29,820	31,400	50,350	4[illegible],400	39,220
8	------	------	------	24,030	27,450	28,110	29,340	29,940	32,120	50,350	47,950	39,220
9	------	------	------	24,140	27,450	28,220	29,340	30,060	32,120	50,350	47,650	39,220
10	------	------	------	24,250	27,560	28,220	29,460	29,820	32,000	50,200	47,350	39,090
11	------	------	------	24,360	27,560	28,220	29,460	29,820	31,880	49,900	4[illegible],900	38,460
12	11,900	------	------	24,470	27,560	28,220	29,580	29,940	32,000	49,750	46,340	38,460
13	------	------	------	24,580	27,560	28,330	29,580	30,300	31,400	49,900	45,920	39,740
14	------	------	------	24,690	27,670	28,330	29,700	30,740	30,960	50,050	45,500	40,780
15	------	------	------	24,800	27,670	28,330	29,700	31,180	31,180	50,200	44,900	41,560
16	------	------	------	24,900	27,670	28,330	29,820	31,760	31,760	50,500	44,450	41,820
17	------	------	------	25,000	27,670	28,440	29,820	32,600	32,120	50,650	44,150	42,080
18	------	------	------	25,100	27,670	28,440	29,940	32,360	32,600	50,650	43,720	42,080
19	------	------	------	25,200	27,780	28,440	29,940	31,520	32,600	50,800	43,440	41,690
20	------	------	------	25,300	27,780	28,440	30,060	30,520	32,710	50,650	43,160	41,560
21	------	------	------	25,400	27,780	28,550	30,060	29,820	32,820	50,500	42,880	41,430
22	------	------	------	25,500	27,780	28,550	30,180	29,340	33,040	50,200	42,600	40,910
23	------	------	------	25,600	27,780	28,550	30,520	29,100	33,820	49,900	42,080	40,650
24	------	------	------	25,700	27,890	28,660	30,960	28,000	35,550	49,900	41,820	39,220
25	------	------	------	25,800	27,890	28,660	32,240	29,100	38,570	49,900	41,170	38,960
26	------	------	------	25,910	27,890	28,770	33,480	29,340	40,520	49,900	40,780	38,830
27	------	------	------	26,020	27,890	28,770	34,180	29,580	42,340	49,750	40,130	38,700
28	23,920	------	------	26,240	27,890	28,770	34,540	29,820	44,000	49,900	39,480	39,090
29	------	------	------	26,460	------	28,880	34,540	30,740	46,060	49,900	39,220	38,960
30	------	24,800	------	26,680	------	28,880	33,940	31,180	47,500	49,900	38,960	38,830
31	24,140	------	23,150	26,900	------	28,880	------	30,850	------	49,900	38,700	------
1927–28												
1	38,830	36,800	25,800	23,700	26,900	26,900	26,900	28,550	34,420	51,700	4[illegible],600	38,700
2	38,700	36,200	25,600	------	------	------	------	------	34,420	50,950	4[illegible],450	38,700
3	38,830	35,550	25,600	------	------	------	------	------	34,300	50,350	4[illegible],300	38,830
4	39,090	34,900	25,500	------	------	------	------	------	34,180	50,050	4[illegible],000	38,830
5	39,350	34,300	25,400	------	------	------	------	------	33,700	50,050	4[illegible],700	38,830
6	39,610	33,700	25,200	------	------	------	------	------	33,940	49,900	4[illegible],700	38,830
7	40,000	33,150	25,100	------	------	------	------	------	34,300	49,750	4[illegible],100	38,700
8	39,870	32,600	25,000	------	------	------	------	------	34,780	49,600	47,800	38,570
9	39,740	32,000	24,900	------	------	------	------	------	35,030	49,600	47,350	38,570
10	39,610	31,400	24,800	------	------	------	------	------	35,030	49,600	47,050	38,700
11	39,480	30,850	24,690	------	------	------	------	33,940	35,030	49,300	4[illegible],620	38,830
12	39,350	30,300	24,690	------	------	------	------	33,480	35,290	49,300	46,200	38,760
13	39,220	29,700	24,580	------	------	------	------	33,150	35,420	49,600	45,640	38,700
14	39,090	29,100	24,580	------	------	------	------	33,040	35,550	49,600	45,200	38,700
15	38,960	28,550	24,470	------	------	------	------	32,710	35,680	50,050	44,900	37,920
16	38,830	28,000	24,470	------	------	------	------	32,240	36,440	50,200	44,450	37,660
17	38,700	27,450	24,360	------	------	------	------	32,360	37,160	50,350	44,000	37,660
18	38,440	26,900	24,360	------	------	------	------	32,600	38,050	50,350	43,300	37,660
19	38,180	26,790	24,250	------	------	------	------	32,710	40,000	50,350	42,840	38,180
20	38,050	26,680	24,250	------	------	------	------	32,710	39,610	50,350	42,340	38,570
21	37,920	26,570	24,140	------	------	------	------	32,820	40,130	50,200	41,950	38,310
22	37,790	26,460	24,140	------	------	------	------	32,710	40,780	50,050	41,430	38,050
23	37,660	26,350	24,030	------	------	------	------	34,540	41,690	49,900	4[illegible],780	37,790
24	37,530	26,240	24,030	------	------	------	------	35,290	42,600	49,900	4[illegible],130	37,530
25	37,400	26,130	23,920	------	------	------	------	35,680	44,150	50,050	3[illegible],740	37,280
26	37,280	26,020	23,920	------	------	------	------	35,940	45,500	50,050	3[illegible],350	37,040
27	37,160	25,910	23,810	------	------	------	------	36,320	46,620	50,050	3[illegible],960	36,800
28	37,040	25,800	23,810	------	------	------	------	36,320	47,950	50,200	3[illegible],570	36,800
29	36,920	25,800	23,700	------	26,900	26,900	------	35,940	49,000	50,350	3[illegible],310	36,920
30	36,800	25,800	23,700	------	------	------	29,100	35,550	50,200	50,350	3[illegible],180	37,040
31	36,800	------	23,700	26,900	------	26,900	------	34,780	------	50,050	3[illegible],440	------

SWIFTCURRENT CREEK AT SHERBURNE, MONT.

LOCATION.—Water-stage recorder in sec. 35, T. 36 N., R. 15 W., 800 feet below spillway of Sherburne Lake Dam at Sherburne.

DRAINAGE AREA.—64 square miles.

RECORDS AVAILABLE.—July, 1912, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,830 second-feet May 11 (gage height, 7.44 feet); minimum, 4.2 second-feet September 11 (gage height, 0.56 foot).

1912–1928: Maximum discharge, 2,280 second-feet June 17, 1916 (gage height, 7.85 feet); no flow at various times when gates in dam were closed.

REMARKS.—Records good. No record November 1 to May 5. No diversions. Flow regulated by gate operations at dam. Station maintained in cooperation with the Department of the Interior, Canada.

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

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	292	------	736	925	399	141	16	290	989	301	451	364	106
2	288	------	674	1,240	399	147	17	306	998	303	451	362	106
3	280	------	663	946	399	147	18	315	998	307	451	382	106
4	272	------	582	732	399	147	19	320	1,000	305	451	389	107
5	265	------	454	732	327	124	20	317	998	305	448	389	107
6	267	208	407	706	315	96	21	320	1,000	307	445	386	107
7	260	265	410	666	338	61	22	320	1,010	309	445	389	107
8	253	472	412	579	348	17.5	23	313	1,020	313	389	394	107
9	248	1,060	415	579	358	6.0	24	306	1,030	317	351	391	107
10	248	1,650	415	576	394	5.6	25	302	1,100	319	353	389	107
11	249	1,520	415	496	394	5.4	26	296	1,170	266	353	389	107
12	248	1,130	415	367	394	55	27	278	1,230	234	355	389	106
13	244	1,010	415	333	394	112	28	278	1,250	236	355	386	106
14	254	998	417	379	394	108	29	267	1,280	239	353	384	106
15	276	994	351	431	376	107	30	265	1,160	394	389	284	107
							31	457	855	------	410	189	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	457	244	287	17,600
May 6–31	1,650	208	1,020	52,600
June	736	234	388	23,100
July	1,240	333	521	32,000
August	399	189	370	22,800
September	147	5.4	96.0	5,710

CANYON CREEK NEAR MANY GLACIER, MONT.

LOCATION.—Water-stage recorder at edge of heavy timber area, Glacier National Park, half a mile above mouth and 2 miles southeast of Many Glacier, Glacier County.

DRAINAGE AREA.—7.0 square miles.

RECORDS AVAILABLE.—July, 1918, to September, 1928.

EXTREMES.—Maximum discharge during year, 153 second-feet May 27 (gage height, 1.89 feet); minimum, 8.2 second-feet September 28–30 (gage height, 0.65 foot).

1918–1928: Maximum discharge (estimated), 500 second-feet May 16, 1922 (gage height, 3.34 feet); minimum, 3.3 second-feet October 4, 1919 (gage height, 0.56 foot).

REMARKS.—Records good except those for estimated periods, which are fair. Discharge estimated October 1–4, 10–31, June 2–7, 25, 26, July 5–8, August 4–7, and August 22. No record October 31 to May 26. No diversions. Station maintained in cooperation with the Department of the Interior, Canada.

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

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	20	------	49	105	39.2	22.7	16		------	60	72	16.1	25.0
2	19	------	40	95	34.3	22.7	17		------	50	72	15.2	20.6
3	18	------	35	85	32.6	22.7	18		------	60	89	14.7	18.0
4	17	------	45	81	31.8	21.6	19		------	57	83	14.7	16.6
5	16.6	------	50	76	31.0	20.6	20		------	56	65	14.2	14.7
6	16.9	------	60	74	30.3	18.5	21		------	64	59	13.3	13.3
7	15.8	------	70	72	29.7	17.6	22		------	127	56	13.3	12.9
8	15.8	------	69	70	29.0	16.1	23	45	------	124	56	13.3	12.4
9	22.9	------	45.1	68	29.0	14.2	24		------	111	55	14.2	11.1
10		------	48	67	28.3	12.9	25		------	120	55	16.6	10.7
11		------	48	64	27.7	11.6	26		------	115	53	19.0	9.5
12	45	------	54	65	26.3	11.1	27		145	111	51	22.7	8.8
13		------	65	71	22.7	11.1	28		124	107	54	21.6	8.5
14		------	80	71	20.1	13.3	29		109	116	51	22.7	8.2
15		------	78	65	17.6	24.3	30		86	109	47	23.8	8.2
							31		59	------	42.1	23.2	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	------	------	37.2	5.31	6.12	2,290
May 27–31	145	59	105	15.0	2.79	1,040
June	127	35.0	74.1	10.6	11.83	4,410
July	105	42.1	67.4	9.63	11.10	4,140
August	39.2	13.3	22.8	3.26	3.76	1,400
September	25.0	8.2	15.3	2.19	2.44	910

BOIS DES SIOUX RIVER NEAR TENNEY, MINN.

LOCATION.—Staff gage near center of sec. 22, T. 130 N., R. 47 W., at Soo Railway bridge 5 miles west of Tenney.

DRAINAGE AREA.—1,460 square miles.

RECORDS AVAILABLE.—April, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 40 second-feet March 24 to April 5 (gage heignt, 3.5 feet); no flow November 11 to March 16 and September 3–16.

1919–1928: Maximum discharge, 390 second-feet April 22, 1922; no flow during several long periods.

REMARKS.—Records poor. A correction for backwater due to obstruction in channel was applied throughout the year.

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

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3	2	0	40	22	5	4	3	2
2	3	2	0	40	22	5	4	3	1
3	3	2	0	40	22	5	4	3	0
4	3	1	0	40	22	4	4	3	0
5	3	1	0	40	22	3	4	3	0
6	4	1	0	35	19	3	3	2	0
7	4	1	0	35	16	3	3	2	0
8	4	1	0	35	16	2	3	2	0
9	3	1	0	35	16	2	3	2	0
10	2	1	0	35	16	2	3	2	0
11	2	0	0	32	16	2	3	2	0
12	2	0	0	29	16	2	3	2	0
13	2	0	0	25	16	3	3	2	0
14	2	0	0	22	16	4	3	2	0
15	2	0	0	22	16	5	3	2	0
16	2	0	0	22	15	5	3	2	0
17	2	0	2	22	14	5	3	2	1
18	2	0	5	22	14	5	3	2	1
19	2	0	10	22	13	5	3	2	1
20	2	0	25	22	13	5	3	2	1
21	2	0	30	22	13	5	3	2	1
22	2	0	35	22	13	5	3	2	1
23	2	0	35	22	13	5	3	2	1
24	2	0	40	22	13	5	3	2	1
25	2	0	40	22	13	5	3	2	1
26	2	0	40	22	13	5	3	2	1
27	2	0	40	22	10	5	3	2	1
28	2	0	40	22	8	5	3	2	1
29	2	0	40	22	5	5	3	2	1
30	2	0	40	22	5	5	3	2	1
31	2	-------	40	-------	5	-------	3	2	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	4	2	2.4	148
November	2	0	.4	23.8
March	40	0	14.9	916
April	40	22	27.8	165
May	22	5	14.6	898
June	5	2	4.2	250
July	4	3	3.2	197
August	3	2	2.2	135
September	2	0	.6	35.7
The year	40	0	5.9	2,768.5

NOTE.—No flow during December, January, and February.

RED LAKE RIVER AT THIEF RIVER FALLS, MINN.

LOCATION.—Inclined staff gage in sec. 33, T. 154 N., R. 43 W., one-third mile below dam at Thief River Falls and 1 mile below mouth of Thief River.

DRAINAGE AREA.—3,430 square miles.

RECORDS AVAILABLE.—July, 1909, to September, 1918, and March, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,640 second-feet April 6; maximum gage height, 9.0 feet March 25; minimum not determined.

1909–1918, 1920–1928: Maximum discharge (estimated because of ice effect), 8,000 second-feet April 16, 1916 (gage height, 15.0 feet) superseding figures published in previous water-supply papers; no flow July 17 and August 27, 1911, owing to regulation.

REMARKS.—Records fair except those for period of ice effect (November 12 to March 30), which are poor. At low stages river is subject to diurnal fluctuation caused by power plant just above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	541	800					1,180	900	850	1,120	800	1,180
2	541	800					1,390	1,060	755	1,060	800	1,060
3	541	800					1,780	950	800	1,060	800	1,000
4	622	800					1,780	1,000	900	950	800	1,000
5	710	800					1,780	1,180	850	1,060	850	900
6	665	622					2,640	850	622	1,000	850	800
7	665	391					2,020	950	900	1,000	800	850
8	710	226					1,390	950	1,060	950	622	900
9	710	23					1,390	800	800	1,060	755	900
10	665	257				500	1,780	900	800	1,120	665	1,060
11	622	665					1,320	900	850	1,060	581	1,060
12	622	622					1,180	800	1,060	1,120	1.120	1,000
13	622						1,060	900	950	1,060	755	900
14	622						1,060	1,000	1,180	1,000	755	1,000
15	710				440		800	850	1,390	800	850	1,060
16	622		500	400			800	1,060	1,460	850	1.700	1,180
17	710						950	850	2,550	950	1.390	1,250
18	665					710	900	900	1,860	800	1.320	1,180
19	665					755	665	1,060	1,780	800	1.120	900
20	665					850	665	950	2,370	900	1.060	900
21	665	475				900	850	1,060	2,550	850	1.060	900
22	665					1,320	427	1,060	2,550	800	900	850
23	665					1,460	850	1,000	2,550	900	800	800
24	755					1,700	850	950	2,200	800	800	900
25	755					2,550	800	950	1,860	850	850	850
26	755					2,460	850	900	1,860	850	800	850
27	665					1,700	900	850	1,780	850	850	850
28	755					1,540	900	950	1,540	850	850	850
29	710					1,620	900	1,000	1,460	800	900	850
30	755				-------	1,940	900	850	1,390	800	1.180	800
31	581	-------			-------	1,700	-------	950	-------	800	1.250	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	755	541	665	May	1,180	800	946
November	800	-------	512	June	2,550	622	1,450
December	-------	-------	500	July	1,120	800	931
January	-------	-------	400	August	1,700	531	924
February	-------	-------	440	September	1,250	800	953
March	2,550	-------	958				
April	2,640	427	1,160	The year	2,640	-------	820

RED LAKE RIVER AT CROOKSTON, MINN.

LOCATION.—Chain gage in sec. 30, T. 150 N., R. 46 W., in Crookston, a quarter of a mile below dam and power house of Crookston Light, Water & Power Co.

DRAINAGE AREA.—5,320 squre miles.

RECORDS AVAILABLE.—May, 1901, to September, 1928.

EXTREMES.—Maximum discharge during year, 3,830 second-feet April 7 (gage height, 9.1 feet); minimum, during period of ice effect.

1901–1928: Maximum discharge, 14,700 second-feet July 5, 1919; minimum, 5 second-feet August 6–8, 1925, owing to regulation.

REMARKS.—Records poor. Stage subject to diurnal fluctuation from power plant just above station. An estimated correction to gage heights for backwater effect from vegetation in the channel during summer and from ice during winter has been applied.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	800	845					2,980	1,690	1,140	1,560	990	1,690
2	845	890					3,050	1,620	1,090	1,560	940	1,620
3	845	845					2,690	1,690	1,040	1,500	845	1,560
4	800	845					2,900	1,620	1,040	1,500	990	1,320
5	800	890					3,200	1,620	990	1,260	990	1,320
6	845	845					3,510	1,620	990	1,200	940	1,260
7	800	845					3,830	1,500	1,040	1,500	845	1,260
8	845	755					3,750	1,560	1,040	1,500	845	1,260
9	845	755					3,120	1,560	990	1,500	800	1,140
10	845	590					2,830	1,500	1,040	1,500	670	1,090
11	890	[a] 492				550	2,480	1,380	1,040	1,440	800	1,140
12	890	395					2,280	1,380	1,320	1,320	755	1,140
13	890	360					1,950	1,380	1,320	1,200	800	1,040
14	940	360					1,760	1,380	1,380	1,140	670	1,260
15	890	[a] 360			470		990	1,320	1,500	1,140	800	1,260
16	845	360	550	450			1,040	1,320	2,080	1,090	1,090	1,320
17	845	[a] 580					1,330	1,320	2,140	1,090	1,820	1,820
18	845	800					1,620	1,320	2,340	890	1,500	1,820
19	890	630					1,500	1,320	2,410	890	1,440	1,820
20	800	[a] 630					1,200	1,320	2,760	800	1,260	1,760
21	890	630					1,140	1,320	3,120	890	1,260	1,760
22	890	[a] 630					1,260	1,380	3,280	845	1,260	1,690
23	845	630					1,500	1,380	3,430	845	1,260	1,760
24	755	[a] 702					1,380	1,320	3,120	1,040	890	1,880
25	800	[a] 773					1,380	1,200	2,830	845	845	1,500
						3,000						
26	845	845					1,620	1,200	2,760	845	890	1,560
27	800	[a] 758					1,620	1,200	2,550	[a] 860	890	1,500
28	800	670					1,560	1,200	2,340	[a] 875	890	1,440
29	800	[a] 630					1,620	1,140	2,140	890	940	1,090
30	845	590			-------	2,980	1,620	1,200	1,880	990	1,040	1,090
31	940	-------			-------	2,980	-------	1,260	-------	1,090	1,320	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet	Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	940	755	845	52,000	May	1,690	1,140	1,390	85,500
November	890	360	664	39,500	June	3,430	990	1,870	111,000
December	--------	--------	550	33,800	July	1,560	800	1,150	70,700
January	--------	--------	450	27,700	August	1,820	670	1,010	62,100
February	--------	--------	470	27,000	September	1,880	1,040	1,440	85,700
March	--------	--------	1,340	82,400					
April	3,830	990	2,090	124,000	The year	3,830	360	1,100	800,300

[a] Interpolated.

SOUTH FORK OF TWO RIVERS AT PELAN, MINN.

LOCATION.—Chain gage in SW. ¼ sec. 30, T. 160 N., R. 44 W., one-fourth mile west of Pelan.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during period, 45 second-feet August 31 (gage height, 2.06 feet); minimum, 3.9 second-feet September 30 (gage height, 1.20 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		44	11	11	7.8	21	11	6.0
2		34	12	8.4	7.8	22	8.4	5.6
3		32	13	7.2	7.8	23	7.8	5.6
4		30	14	7.2	7.8	24	11	5.6
5		22	15	8.4	9.0	25	12	5.2
6		16	16	7.8	11	26	11	4.7
7		12	17	9.8	11	27	7.8	4.7
8	22	9.8	18	13	9.0	28	6.6	4.7
9	18	9.0	19	15	6.0	29	6.0	4.7
10	15	8.4	20	14	5.6	30	12	3.9
						31	45	

Month	Maximum	Minimum	Mean
August 8-31	45	6.0	12.3
September	44	3.9	11.7

ROSEAU RIVER AT MALUNG, MINN.

LOCATION.—Staff gage in sec. 18, T. 161 N., R. 39 W., half a mile north of Malung post office.

RECORDS AVAILABLE.—August to September, 1928. (Discharge measurements May, 1911, to September, 1914).

EXTREMES.—Maximum discharge during period, 45 second-feet August 2 (gage height, 2.70 feet); minimum, 19 second-feet August 13, 14, 28, and September 8 (gage height, 2.00 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		31	11	23	27	21	33	35
2	45	33	12	21	27	22	31	35
3	40	35	13	19	29	23	27	35
4	36	33	14	19	31	24	25	33
5	33	31	15	21	35	25	23	33
6	30	29	16	23	39	26	23	33
7	29	23	17	31	39	27	21	33
8	27	19	18	31	39	28	19	33
9	25	23	19	31	39	29	23	33
10	24	27	20	35	37	30	29	31
						31	33	

Month	Maximum	Minimum	Mean
August 2-31	45	19	27.7
September	39	19	32.0

ROSEAU RIVER AT ROSS, MINN.

LOCATION.—Staff gage in SW. ¼ sec. 27, T. 163 N., R. 41 W., one-fourth mile north of Ross, Minn. Zero of gage is 1,018.44 feet above mean sea level.

DRAINAGE AREA.—1,030 square miles.

RECORDS AVAILABLE.—July to September, 1928.

EXTREMES.—Maximum discharge during period, 778 second-feet July 31 (gage height, 8.03 feet); minimum, 88 second-feet September 30 (gage height, 1.94 feet).

REMARKS.—Records good. Discharge interpolated August 6, 14, and September 9.

Daily and monthly discharge, in second-feet, 1928

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1		742	162	11		220	106	21		211	114
2		710	170	12		194	106	22		202	106
3		665	170	13		170	106	23		178	106
4		594	162	14		154	106	24		170	106
5		553	154	15		138	122	25		146	99
6		502	138	16		154	130	26		138	99
7		450	130	17		170	138	27		130	99
8		426	122	18		170	130	28		122	92
9		342	114	19		170	130	29		114	88
10		277	106	20		202	114	30		130	88
								31	778	154	

Month	Maximum	Minimum	Mean
August	742	114	281
September	170	88	120

ROSEAU RIVER AT CARIBOU, MINN.

LOCATION.—Chain gage in sec. 34, T. 164 N., R. 45 W., at highway bridge in Caribou, 1 mile south of international boundary.

DRAINAGE AREA.—1,650 square miles.

RECORDS AVAILABLE.—April to October, 1917; April, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,670 second-feet July 6; maximum gage height, 10.4 feet April 2; minimum discharge occurred during estimated period.

1917, 1920–1928: Maximum discharge, 3,160 second-feet May 24, 1927 (gage height, 12.8 feet); minimum, 4 second-feet September 10–12, 29, 30, 1917 (gage height, 3.15 feet).

REMARKS.—Records good except those for period of ice effect (November 6 to April 2), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	134					1,220	164	185	1,440	1,280	164
2	46	160	80				1,600	178	185	1,440	1,280	171
3	51	180					1,280	178	178	1,480	1,120	171
4	51	187					977	185	178	1,520	977	185
5	51	194	70				908	185	178	1,620	782	178
6	56	194					843	185	171	1,670	672	164
7	68	187		45			753	178	171	1,620	573	164
8	79	187	60				672	178	171	1,620	528	152
9	91	187			32		573	178	185	1,570	424	138
10	97	187				30	485	171	213	1,570	369	126
11	103	187	55				405	171	242	1,570	319	114
12	97	187					352	164	335	1,520	257	102
13	103	180					272	152	387	1,520	213	102
14	103	177					213	152	550	1,520	178	114
15	109	173					164	152	646	1,520	178	126
16	109						145	158	782	1,520	171	126
17	103						132	158	843	1,520	171	126
18	103		50	40			108	158	875	1,520	171	126
19	97	145					83	158	1,010	1,520	178	126
20	97					41	58	164	1,050	1,520	178	126
21	97					41	65	164	1,050	1,520	192	114
22	97					73	72	171	1,120	1,570	199	114
23	103	115			28	97	102	171	1,160	1,520	199	102
24	103					121	102	178	1,200	1,520	185	102
25	103					154	114	178	1,240	1,520	171	102
26	103	95	45			187	126	185	1,280	1,520	158	96
27	103			32		292	126	192	1,320	1,480	152	96
28	103					326	138	199	1,360	1,440	138	90
29	103					360	152	192	1,360	1,400	152	90
30	109				-------	536	158	192	1,400	1,360	158	90
31	115	-------			-------	712	-------	192	-------	1,360	164	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	115	46	90.3	May	199	152	174
November	194	--------	150	June	1,400	171	701
December	--------	--------	55	July	1,670	1,360	1,520
January	--------	--------	40	August	1,280	138	383
February	--------	--------	30.2	September	185	90	127
March	712	--------	113				
April	1,600	58	413	The year	1,670	--------	318

SOUTH FORK OF ROSEAU RIVER NEAR MALUNG, MINN.[1]

LOCATION.—Staff gage in center of sec. 7, T. 161 N., R. 39 W., 1 mile northwest of Malung.

DRAINAGE AREA.—265 square miles.

RECORDS AVAILABLE.—May, 1911, to September, 1914; July to September, 1928.

EXTREMES.—Maximum discharge during year, 53 second-feet August 3 (gage height, 3.05 feet); minimum, 5.3 second-feet September 27–30 (gage height, 1.86 feet).

1911–1914, 1928: Maximum discharge, 1,040 second-feet October 1, 1912 (gage height, 10.3 feet, present datum); no flow occasionally during winter.

REMARKS.—Records good. Discharge interpolated August 1.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	43.0	10.9	11	8.5	6.6	21	13.9	7.3
2	45.0	12.3	12	8.1	6.6	22	12.3	6.6
3	53.0	14.5	13	7.3	6.6	23	10.9	6.3
4	36.0	13.4	14	7.3	5.6	24	9.4	5.9
5	28.0	12.3	15	9.4	7.7	25	9.4	5.9
6	23.0	10.4	16	10.4	9.9	26	9.0	5.6
7	18.0	8.5	17	9.9	10.9	27	8.1	5.3
8	15.0	7.0	18	9.9	10.9	28	7.0	5.3
9	13.4	7.0	19	11.8	9.9	29	7.0	5.3
10	10.4	6.6	20	15.0	7.0	30	8.1	5.3
						31	8.5	-------

Month	Maximum	Minimum	Mean
August	53.0	7.0	15.7
September	14.5	5.3	8.11

[1] Formerly called West Branch of Roseau River.

PINE CREEK NEAR PINE CREEK, MINN.

LOCATION.—Staff gage in NW. ¼ sec. 35, T. 164 N., R. 41 W., 2 miles northeast of Pine Creek post office and half a mile south of international boundary. Zero of gage is 1,046.27 feet above mean sea level.

DRAINAGE AREA.—76 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during period, 46 second-feet August 4 (gage height, 2.66 feet); minimum, 14 second-feet frequently during August and September (gage height, 1.60 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		22	11	21	14	21	37	14
2		20	12	19	14	22	44	14
3		19	13	16	18	23	25	14
4	46	18	14	16	15	24	19	14
5	37	16	15	15	14	25	18	15
6	25	15	16	22	14	26	18	15
7	36	14	17	16	15	27	16	15
8	40	14	18	22	14	28	14	15
9	37	15	19	22	14	29	15	14
10	25	14	20	25	14	30	19	14
						31	16	

Month	Maximum	Minimum	Mean
August 4–31	46	14	24.3
September	22	14	15.2

SOURIS (MOUSE) RIVER AT MINOT, N. DAK.

LOCATION.—At Ann Street footbridge, northeast of Great Northern Railway roundhouse, Minot, Ward County.

DRAINAGE AREA.—10,270 square miles.

RECORDS AVAILABLE.—May, 1903, to March, 1924; April, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,940 second-feet April 12 (gage height, 18.35 feet); minimum, 13 second-feet September 11–18 (gage height, 3.85 feet).

1903–1924, 1927–28: Maximum discharge, 12,000 second-feet April 20, 1904 (gage height, 21.9 feet); minimum, 0.1 second-foot February 28, 1913 (gage height, 1.8 feet).

REMARKS.—Discharge, October 1, 1927, to March 31, 1928, and April 22 to June 30, 1928, obtained from Valker bridge record; April 1–21 and July 9 to September 30, 1928, from Foot viaduct record; July 1–8, 1928, from Saugstad bridge record. Records for 1927 and 1928 furnished by Robert E. Kennedy, State engineer.

Daily and monthly discharge, in second-feet, of Souris (Mouse) River at Minot, N. Dak., 1927–28

Day	Apr.	May	June	Day	Apr.	May	June	Day	Apr.	May	June
1927											
1	------	3,650	1,620	11	1,020	2,590	1,480	21	2,000	1,760	------
2	------	3,600	1,690	12	1,100	2,400	1,310	22	2,200	1,710	------
3	------	3,550	1,730	13	1,240	2,280	1,140	23	2,420	1,710	------
4	562	3,550	1,780	14	1,340	2,170	------	24	2,710	1,650	------
5	600	3,500	1,800	15	1,440	2,090	------	25	2,980	1,540	------
6	660	3,300	1,820	16	1,540	2,020	------	26	3,250	1,460	------
7	700	3,060	1,820	17	1,620	1,950	------	27	3,500	1,360	------
8	740	2,940	1,800	18	1,710	1,890	------	28	3,700	1,320	------
9	820	2,860	1,710	19	1,800	1,820	------	29	3,800	1,320	------
10	920	2,710	1,600	20	1,890	1,780	------	30	3,900	1,420	------
								31	------	1,520	------

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1927–28												
1	100	92					1,320	730	18[illegible]	276	820	50
2	100	92					1,710	682	18[illegible]	419	780	43
3	92	86					1,760	706	170	386	700	37
4	100	80					1,840	694	157	342	620	31
5	100	75	30		10		2,000	706	157	309	544	24
6	100	75					2,170	706	145	287	490	19
7	92	75					2,380	706	145	276	436	19
8	100	80					2,590	706	157	840	400	17
9	100	80					2,680	682	157	329	364	16
10	100	86			10.5		2,740	644	145	295	346	14
11	100	80				10	2,860	596	157	382	329	13
12	108	80					2,940	540	145	454	295	13
13	108						2,860	460	135	400	261	13
14	100						2,710	420	135	278	261	13
15	100		20	12			2,530	440	135	364	220	13
16	108						2,330	440	135	312	204	13
17	100						2,110	440	135	346	164	13
18	100						1,890	420	135	382	134	13
19	100						1,580	380	135	640	120	14
20	108				10		1,280	360	145	580	107	16
21	100	50					1,080	340	157	580	95	17
22	108						935	340	170	562	84	21
23	108						830	320	28[illegible]	562	74	26
24	100					150	744	320	320	544	70	28
25	100						706	266	400	544	61	31
26	100		15				694	248	480	580	57	28
27	92						706	214	480	640	54	26
28	92						730	198	500	720	57	24
29	86					1,000	744	198	440	780	57	26
30	92				------		744	184	420	820	57	26
31	86	------			------		------	184	------	840	57	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
1927				
April 4–30	3,900	562	1,860	99,600
May	3,650	1,320	2,270	140,000
June 1–13	1,820	1,140	1,640	42,300
The period	------	------	------	282,000
1927–28				
October	108	86	99.4	6,110
November	92	------	62.7	3,730
December	------	------	21.5	1,320
January	------	------	12.0	738
February	------	------	10.0	575
March	------	------	169	10,400
April	2,940	694	1,740	104,000
May	730	184	460	28,300
June	500	135	221	13,200
July	840	276	486	29,900
August	820	57	268	16,500
September	50	13	21.9	1,300
The year	2,940	------	297	216,000

KAWISHIWI RIVER NEAR WINTON, MINN.

LOCATION.—In lot 3, sec. 20, T. 63 N., R. 11 W., at power plant of Minnesota Power & Light Co., just above Fall Lake and 2½ miles east of Winton.

DRAINAGE AREA.—1,200 square miles.

RECORDS AVAILABLE.—June, 1905, to June, 1907; October, 1912, to September, 1919; September, 1923, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 4,240 second-feet September 20; no flow several days during period October to April.

1905–1907, 1912–1919, 1923–1928: Maximum mean daily discharge, 6,030 second-feet April 26, 1927; no flow at times in 1905–1907 and 1923–1928.

REMARKS.—Records good except those for periods of high water, which are fair. Flow is entirely regulated by several reservoirs. Discharge obtained from power-house records furnished by Minnesota Power & Light Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	204	204	230	0	466	788	0	971	920	2,210	1,840	2,340
2	50	204	233	298	466	690	175	1,080	956	2,210	1,840	2,580
3	204	204	233	680	466	204	175	1,150	936	2,200	1,810	2,910
4	402	204	0	960	466	0	214	1,690	956	2,160	1,760	3,020
5	205	204	148	960	0	160	186	1,630	1,290	2,140	1,720	3,320
6	205	0	176	148	231	195	257	1,740	2,240	2,000	1,690	3,260
7	205	204	189	142	547	552	148	1,980	2,190	2,030	1,660	3,170
8	205	204	168	0	561	147	0	1,990	1,470	1,770	1,660	3,060
9	0	204	140	148	561	147	159	2,170	948	1,530	1,530	2,920
10	204	204	135	148	470	176	175	2,340	408	1,140	1,220	2,870
11	204	204	0	148	148	160	175	2,640	824	1,060	1,110	2,720
12	204	204	140	148	0	256	214	2,940	940	1,320	1,120	2,570
13	204	0	148	148	148	198	302	3,000	1,170	1,410	1,120	2,450
14	204	204	205	148	150	156	302	3,090	3,020	1,680	1,090	2,420
15	204	204	205	129	514	146	302	3,030	924	1,730	1,280	2,570
16	0	576	205	148	564	146	393	3,120	920	1,880	1,420	2,930
17	204	968	161	148	355	146	312	3,120	1,590	1,940	1,430	3,110
18	204	239	0	148	148	0	396	3,100	1,570	1,960	1,770	3,520
19	204	116	148	148	0	158	476	2,890	920	2,000	1,850	3,950
20	204	0	228	148	176	158	505	2,810	1,760	2,000	1,940	4,240
21	210	113	237	148	530	158	512	2,810	1,970	1,910	2,030	3,410
22	204	97	645	0	748	244	625	2,790	2,360	1,900	2,090	4,150
23	0	98	686	148	748	161	840	2,710	2,270	1,860	2,080	3,970
24	204	34	418	149	483	173	1,200	1,760	2,330	1,860	2,060	3,830
25	204	89	0	148	0	0	1,270	1,520	2,330	1,850	2,010	3,660
26	203	89	0	148	143	147	1,100	900	2,200	1,850	1,950	3,310
27	204	0	148	148	516	154	893	1,520	2,210	1,850	1,900	3,090
28	258	89	148	148	790	183	821	1,340	2,240	1,840	1,900	3,020
29	204	89	148	0	789	202	821	1,450	2,240	1,840	1,970	3,060
30	35	89	148	148	------	181	855	1,300	2,240	1,840	2,100	3,050
31	204	------	148	233	------	173	------	908	------	1,840	2,100	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	402	0	182	May	3,120	900	2,110
November	968	0	178	June	3,020	408	1,610
December	686	0	188	July	2,210	1,060	1,830
January	960	0	205	August	2,100	1,090	1,710
February	790	0	386	September	4,240	2,340	3,150
March	788	0	205				
April	1,270	0	460	The year	4,240	0	1,020

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER ABOVE SANDY RIVER, NEAR LIBBY, MINN.

LOCATION.—Water-stage recorder in SE. ¼ sec. 2, T. 50 N., R. 24 W., 4 miles north of Libby post office and 4 miles above mouth of Sandy River. Zero of gage is 1,200.00 feet above mean sea level.

DRAINAGE AREA.—4,560 square miles.

RECORDS AVAILABLE.—August, 1925, to May, 1928.

EXTREMES.—Maximum discharge during year, 3,190 second-feet April 6 (gage height, 23.9 feet); minimum, 700 second-feet November 30 (gage height, 19.3 feet).

1925–1928: Maximum discharge, 5,180 second-feet April 24, 1927 (gage height, 27.2 feet); minimum, 411 second-feet August 17, 1926 (gage height, 18.20 feet).

REMARKS.—Records fair. Discharge not determined January 1 to March 31 because of ice conditions. Flow regulated by three Government reservoirs upstream; total capacity, 82 billion cubic feet.

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

Day	Oct.	Nov.	Dec.	Apr.	May	Day	Oct.	Nov.	Dec.	Apr.	May
1	2,190	1,780	828	2,030	2,310	16	2,190	1,680	1,090	2,190	1,830
2	2,250	1,730	871	2,250	2,630	17	2,080	1,630	1,040	2,190	1,730
3	2,250	1,730	1,040	2,560	2,700	18	1,930	1,780	1,040	2,030	1,730
4	2,310	1,730	1,140	2,770	2,910	19	1,880	1,780	1,140	1,930	1,730
5	2,310	1,680	1,140	3,120	2,910	20	1,880	1,730	914	1,980	1,580
6	2,430	1,730	914	3,190	2,840	21	1,880	1,630	785	2,030	1,530
7	2,560	1,730	871	3,120	2,840	22	1,830	1,380	1,000	2,030	1,480
8	2,560	1,680	914	3,120	2,770	23	1,830	1,280	1,090	2,130	1,380
9	2,560	1,730	1,090	3,050	2,630	24	1,880	1,240	1,090	2,190	1,330
10	2,630	1,730	1,240	2,840	2,490	25	1,780	1,090	1,190	2,190	1,380
11	2,700	1,680	1,240	2,840	2,430	26	1,780	1,000	1,240	2,130	1,330
12	2,700	1,480	1,240	3,120	2,310	27	1,780	957	871	2,130	1,630
13	2,560	1,280	1,240	3,190	2,080	28	1,780	1,000	785	2,130	1,880
14	2,430	1,430	1,240	2,700	2,030	29	1,730	828	957	2,190	1,830
15	2,250	1,680	1,240	2,250	1,880	30	1,780	700	1,000	2,190	1,830
						31	1,780	-------	1,090	-------	1,830

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,700	1,730	2,140	0.469	0.54
November	1,780	700	1,480	.325	.36
December	1,240	785	1,050	.230	.27
April	3,190	1,930	2,460	.539	.60
May	2,910	1,330	2,060	.452	.52

MISSISSIPPI RIVER NEAR ROYALTON, MINN.

LOCATION.—In lot 2, sec. 20, T. 39 N., R. 32 W., at power plant of Minnesota Power & Light Co., 5 miles northwest of Royalton and 5 miles below mouth of Swan River.

DRAINAGE AREA.—11,600 square miles.

RECORDS AVAILABLE.—March, 1924, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 7,790 second-feet March 28; minimum, 850 second-feet January 7.

1924–1928: Maximum mean daily discharge, 12,600 second-feet April 22, 1927; minimum, 351 second-feet January 4, 1925.

REMARKS.—Records good except those for periods of high water, which are fair. Flow largely regulated by Government reservoirs on headwaters. Discharge obtained from power-house records furnished by Minnesota Power & Light Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,770	3,850	1,520	1,440	1,620	1,540	5,690	5,200	3,400	3,600	3,810	5,190
2	4,100	4,070	1,500	1,270	1,420	1,670	4,190	5,440	3,130	4,110	3,830	5,330
3	3,720	3,420	1,750	1,680	1,450	1,820	5,570	5,070	3,140	3,990	3,680	5,360
4	4,100	3,560	1,460	1,720	1,510	1,240	5,170	5,270	2,900	3,450	3,610	4,910
5	4,170	3,250	1,400	1,350	1,500	1,350	7,020	5,600	2,940	3,480	3,330	5,190
6	4,030	3,320	1,530	1,080	1,330	1,610	6,620	5,440	3,190	3,520	3,820	4,980
7	4,000	3,030	1,530	850	1,380	1,630	6,180	4,990	3,160	3,560	3,640	4,720
8	4,170	3,570	1,540	1,220	1,510	1,720	6,140	5,060	3,180	4,480	3,540	4,350
9	4,200	2,710	1,600	1,150	1,450	1,610	5,360	5,240	2,680	4,550	3,400	4,470
10	4,200	2,200	1,460	1,400	1,480	1,600	5,290	5,360	2,720	4,760	3,500	4,230
11	4,200	2,100	1,430	1,330	1,390	1,260	5,540	5,180	2,920	4,810	3,400	4,350
12	4,170	2,680	1,380	1,340	1,460	1,390	6,770	4,640	3,060	4,770	3,150	4,370
13	4,180	2,700	1,340	1,420	1,500	1,620	5,380	4,200	3,290	4,640	3,050	4,470
14	4,200	2,200	1,550	1,440	1,480	1,510	5,380	4,320	3,220	4,400	3,200	5,020
15	4,200	1,720	1,590	1,410	1,660	1,500	5,260	4,880	3,020	3,960	3,900	5,360
16	4,200	1,540	1,540	1,500	1,600	1,430	5,240	4,150	3,220	3,850	3,800	5,470
17	4,160	1,980	1,460	1,540	1,660	1,880	5,340	3,830	3,590	3,870	3,730	5,810
18	4,100	1,590	1,420	1,550	1,660	1,480	5,540	3,820	3,760	3,630	4,180	5,910
19	3,800	1,410	1,330	1,690	1,660	1,340	5,830	3,500	3,600	3,630	4,580	6,440
20	3,900	1,360	1,380	1,390	1,600	1,730	5,100	3,440	4,190	3,720	4,920	6,180
21	3,490	1,830	1,400	1,480	1,760	2,040	5,430	3,170	4,060	4,140	4,710	6,790
22	3,840	1,750	1,430	1,680	1,770	2,360	5,370	3,340	4,460	4,440	4,940	7,080
23	3,320	1,920	1,460	1,500	1,720	3,350	5,400	3,080	4,580	4,360	4,630	7,360
24	3,360	1,750	1,430	1,360	1,610	3,200	6,070	3,720	4,470	4,410	5,190	7,410
25	3,870	2,130	1,190	1,640	1,580	5,170	7,320	2,970	4,720	3,850	4,830	7,200
26	3,390	2,080	1,270	1,570	1,550	6,360	5,530	2,690	4,420	3,850	5,060	7,620
27	3,830	2,010	1,400	1,520	1,520	6,800	5,710	2,940	4,290	3,830	4,860	7,700
28	3,400	2,420	1,490	1,540	1,560	7,790	5,090	2,460	3,940	3,720	4,790	7,430
29	3,500	2,140	1,460	1,460	1,380	7,160	4,930	3,330	3,570	3,280	5,100	7,230
30	3,700	1,700	1,470	1,700	-------	6,730	4,030	3,130	3,500	3,460	5,430	7,220
31	3,220	-------	1,320	1,290	-------	6,550	-------	3,240	-------	3,620	5,460	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,200	3,220	3,890	0.335	0.39
November	4,070	1,360	2,400	.207	.23
December	1,750	1,190	1,450	.125	.14
January	1,720	850	1,440	.124	.14
February	1,770	1,330	1,540	.133	.14
March	7,790	1,240	2,850	.246	.28
April	7,320	4,030	5,580	.481	.54
May	5,600	2,460	4,150	.358	.41
June	4,720	2,680	3,540	.305	.34
July	4,810	3,280	3,990	.344	.40
August	5,460	3,050	4,160	.359	.41
September	7,700	4,230	5,840	.503	.56
The year	7,790	850	3,400	.293	3.98

MISSISSIPPI RIVER AT ELK RIVER, MINN.

LOCATION.—Chain gage in sec. 3, T. 121 N., R. 23 W., at highway bridge in town of Elk River, 2,500 feet below mouth of Elk River.

DRAINAGE AREA.—14,500 square miles.

RECORDS AVAILABLE.—July, 1915, to September, 1928.

EXTREMES.—Maximum discharge during year, 15,700 second-feet March 27 (gage height, 7.46 feet); minimum, 1,340 second-feet December 3.

1915–1928: Maximum discharge, 27,000 second-feet April 7, 1916 (gage height, 10.8 feet); minimum, 633 second-feet February 10, 1926.

REMARKS.—Records fair. Discharge estimated because of ice effect November 7 to March 23 from records of power plant at Coon Rapids. Flow partly regulated by Government reservoirs on headwaters.

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

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

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,400	4,620	5,870	0.405	0.47
November	5,800	1,710	3,360	.232	.26
December	2,170	1,340	1,890	.130	.15
January	2,160	1,470	1,890	.130	.15
February	2,640	1,720	2,160	.149	.16
March	14,700	2,100	5,700	.393	.45
April	11,400	7,620	8,940	.617	.69
May	8,560	3,030	5,750	.397	.46
June	5,800	3,030	4,280	.295	.33
July	6,400	3,610	5,150	.355	.41
August	7,620	3,400	5,420	.374	.43
September	11,100	5,800	8,070	.557	.62
The year	14,700	1,340	4,870	.336	4.58

MISSISSIPPI RIVER AT ST. PAUL, MINN.

LOCATION.—Water-stage recorder 300 feet above Robert Street Bridge, St. Paul, 6 miles below mouth of Minnesota River. Zero of gage is 684.16 feet above mean sea level by the 1912 adjustment.

DRAINAGE AREA.—35,700 square miles.

RECORDS AVAILABLE.—March, 1887, to September, 1928.

EXTREMES.—Maximum discharge during year, 33,600 second-feet March 30 (gage height, 11.4 feet); minimum, 2,140 second-feet January 12–13 (gage height, −2.1 feet).

1887–1928: Maximum discharge, 80,800 second-feet April 6, 1897 (gage height, 18.0 feet); minimum, 1,060 second-feet February 4, 1895.

Maximum known discharge, 117,000 second-feet July 22, 1867.

REMARKS.—Records good except those for period of ice effect (December 1 to February 12), which are fair, and those during extremely high stages, which are poor. Flow regulated by Government reservoirs on headwaters.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,800	5,480			3,020	4,300	27,000	14,600	5,960	5,320	4,860	11,000
2	5,800	5,800			3,220	4,040	24,900	13,100	5,480	6,970	6,120	11,000
3	5,960	5,640			2,920	3,910	22,300	14,200	5,640	6,800	5,800	10,800
4	5,960	5,800			3,120	4,040	20,200	15,000	5,480	6,460	6,290	10,600
5	5,960	5,800		2,630	2,920	4,170	19,000	15,800	5,480	6,460	6,460	10,800
6	6,120	5,480			2,730	4,430	19,000	16,500	4,710	6,460	6,120	10,000
7	6,460	5,320				4,170	18,500	17,500	5,010	5,960	7,480	9,620
8	6,460	5,010				4,430	17,700	17,500	5,160	6,970	7,310	8,900
9	6,290	4,860				5,160	16,500	17,200	4,860	6,970	7,310	8,540
10	6,460	5,160		2,550	3,140	3,790	15,400	16,100	4,860	7,480	6,630	8,180
11	6,290	5,160		2,300		3,550	14,800	15,200	4,570	7,480	6,800	8,000
12	6,460	5,010		2,140		6,120	14,200	13,900	4,570	7,310	6,290	8,000
13	6,800	4,860		2,140	4,040	7,140	14,600	13,300	4,710	7,650	6,120	8,000
14	6,460	5,010		2,550	4,430	7,820	14,600	12,100	4,860	7,820	5,480	8,360
15	6,290	4,860		2,460	5,800	8,900	13,700	11,400	4,570	7,650	5,640	9,260
16	6,120	3,790	2,660	2,300	6,120	9,440	13,300	10,800	4,860	7,310	5,480	10,200
17	6,120	3,120		2,730	6,460	10,800	13,100	10,200	5,010	6,630	5,960	11,000
18	5,800	2,920		2,820	6,970	11,400	12,900	10,000	5,480	5,960	6,290	10,800
19	6,120	2,730		2,820	7,140	12,300	13,100	9,440	5,800	6,290	6,290	11,200
20	6,120	2,820			8,540	13,500	15,400	9,080	6,120	5,800	6,460	11,400
21	5,960	3,120			9,260	14,800	17,500	8,540	6,290	5,800	7,650	12,000
22	5,800	3,790			8,360	18,200	18,200	8,000	6,970	5,800	8,180	12,000
23	5,640	3,220			7,820	21,500	19,000	7,650	6,800	6,290	8,000	12,000
24	5,160	3,020			7,310	25,300	19,200	7,650	6,970	6,460	8,540	12,000
25	5,010	3,440		2,710	6,800	29,000	19,700	7,140	7,820	6,630	8,900	12,100
26	5,320	4,040			5,960	32,400	20,500	7,480	7,310	6,460	10,000	12,000
27	5,320	4,040			5,480	32,400	20,500	6,800	7,140	6,120	10,000	12,000
28	5,160	4,040			5,320	33,000	18,500	6,290	7,140	5,320	10,000	12,100
29	5,640	4,170			4,300	33,000	17,200	5,640	6,970	5,320	11,200	12,000
30	5,640	3,330			-------	32,400	16,100	5,480	6,800	5,480	11,000	11,800
31	5,320	-------			-------	30,000	--------	5,640	-------	5,160	11,200	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,800	5,010	5,930	0.166	0.19
November	5,800	2,730	4,360	.122	.14
December	----------	----------	2,660	.0745	.09
January	----------	----------	2,610	.0731	.08
February	9,260	----------	5,060	.142	.15
March	33,000	3,550	14,000	.392	.45
April	27,000	12,900	17,600	.493	.55
May	17,500	5,480	11,300	.317	.37
June	7,820	4,570	5,780	.162	.18
July	7,820	5,160	6,470	.181	.21
August	11,200	4,860	7,410	.208	.24
September	12,100	8,000	10,500	.294	.33
The year	33,000	----------	7,800	.218	2.98

MISSISSIPPI RIVER AT PRESCOTT, WIS.

LOCATION.—Staff gage in lot 4, in SE. ¼ sec. 9, T. 26 N., R. 20 W., on Chicago, Burlington & Quincy Railway bridge over St. Croix River.

DRAINAGE AREA.—44,000 square miles.

RECORDS AVAILABLE.—June, 1928, to September, 1928.

EXTREMES.—Maximum discharge during period, 21,400 second-feet September 22, 23 (gage height, 7.0 feet); minimum, 8,050 second-feet June 11, 12 (gage height, 1.30 feet).

REMARKS.—Records good. Gage read to tenths once daily. Very little diurnal fluctuation. Rating curve well defined.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-------	12,800	10,900	14,600	16	8,250	13,300	10,100	14,400
2	-------	12,800	11,100	14,800	17	8,660	12,600	10,300	15,500
3	9,890	12,000	11,500	14,600	18	8,450	12,600	10,100	17,100
4	9,270	11,300	11,500	14,100	19	8,660	12,600	10,100	18,400
5	9,060	11,100	11,300	14,100	20	9,060	12,400	9,890	20,200
6	9,060	11,100	11,100	14,600	21	9,890	12,000	10,100	20,800
7	8,660	11,500	11,500	14,600	22	10,500	12,000	10,700	21,400
8	8,660	12,200	11,500	14,400	23	11,100	12,400	11,700	21,400
9	8,660	11,500	11,500	13,700	24	12,000	12,800	11,700	20,800
10	8,450	12,000	11,300	13,000	25	12,000	13,700	12,000	20,800
11	8,050	12,800	11,100	12,800	26	12,400	14,100	12,400	20,200
12	8,050	13,500	10,700	12,800	27	12,600	14,100	12,600	19,900
13	8,250	13,700	10,500	12,800	28	12,800	13,700	12,800	19,600
14	8,250	14,100	10,300	13,000	29	12,600	13,300	13,300	19,600
15	8,450	14,100	10,300	13,700	30	12,600	12,000	14,100	19,000
					31	-------	11,100	14,600	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
June 3-30	12,800	8,050	9,800	0.223	0.23
July	14,100	11,100	12,600	.286	.33
August	14,600	9,890	11,400	.259	.30
September	21,400	12,800	16,000	.364	.41

MISSISSIPPI RIVER AT WINONA, MINN.

LOCATION.—Staff gage in lot 1, sec. 23, T. 107 N., R. 7 W., in crib connected with pivot pier of Chicago & Northwestern Railway bridge at Winona. Zero of gage is 660.3 feet above mean sea level.

DRAINAGE AREA.—58,500 square miles.

RECORDS AVAILABLE.—June, 1928, to September, 1928.

EXTREMES.—Maximum discharge during period, 37,700 second-feet September 22–24 (gage height, 6.3 feet); minimum, 15,600 second-feet June 14–17 (gage height, 2.0 feet).

REMARKS.—Records good. Gage read to half tenths twice daily. Flow regulated somewhat by reservoirs at headwaters, in interests of navigation.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		21,300	18,300	22,400	16	15,600	19,500	18,300	26,700
2		22,900	19,900	22,400	17	15,600	19,500	18,300	29,000
3		24,000	20,300	22,400	18	15,900	19,500	17,900	30,800
4		25,600	20,800	22,400	19	15,900	19,900	17,500	33,200
5		24,000	21,300	21,800	20	15,900	19,900	17,500	34,400
6		22,900	20,800	20,800	21	15,900	19,900	18,700	36,300
7		21,300	20,300	20,800	22	16,200	19,900	19,500	37,700
8		20,800	20,300	20,800	23	16,800	19,900	20,800	37,700
9		20,800	20,300	21,300	24	17,500	19,500	24,000	37,700
10	16,800	20,300	20,300	21,800	25	18,300	19,100	24,500	37,000
11	16,500	19,900	20,300	23,400	26	18,700	19,100	24,500	35,700
12	16,200	19,100	20,300	24,000	27	18,700	19,100	24,500	34,400
13	15,900	19,100	19,900	24,000	28	19,900	19,100	24,000	33,200
14	15,600	19,100	19,500	24,000	29	20,300	19,100	22,900	32,000
15	15,600	19,100	18,700	25,100	30	20,800	19,100	23,400	31,400
					31		18,700	22,900	

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
June 10–30	20,800	15,600	17,100	0.292	0.23
July	25,600	18,700	20,400	.349	.40
August	24,500	17,500	20,700	.354	.41
September	37,700	20,800	28,200	.482	.54

MINNESOTA RIVER NEAR MONTEVIDEO, MINN.

LOCATION.—Chain gage in sec. 17, T. 117 N., R. 40 W., at highway bridge 500 feet below mouth of Chippewa River and 1 mile south of Montevideo.

DRAINAGE AREA.—6,300 square miles.

RECORDS AVAILABLE.—July, 1909, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,060 second-feet April 8 (gage height, 6.3 feet); minimum, 56 second-feet October 1 (gage height, 1.76 feet).

1909–1928: Maximum discharge, 22,000 second-feet June 25, 1919 (gage height, 18.8 feet); minimum, 6.8 second-feet February 9, 1912.

REMARKS.—Records good. Discharge not determined during period of ice effect, November 12 to April 6.

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

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	56	108	--------	595	114	93	146	219
2	62	120	--------	419	114	88	168	210
3	78	108	--------	518	103	108	168	219
4	78	120	--------	419	93	139	168	192
5	74	120	--------	493	88	139	160	168
6	83	132	--------	468	93	126	153	153
7	74	108	1,060	419	93	139	168	132
8	78	88	1,060	371	83	132	160	132
9	83	103	906	371	126	132	146	139
10	83	108	759	371	103	139	139	132
11	70	120	731	371	83	108	126	126
12	88	--------	788	347	83	190	103	126
13	132	--------	731	301	108	132	74	126
14	108	--------	703	248	139	126	83	126
15	70	--------	675	279	98	190	83	176
16	88	--------	621	268	83	114	103	210
17	70	--------	621	279	70	126	168	219
18	70	--------	621	301	83	132	108	219
19	66	--------	731	279	93	108	83	219
20	70	--------	648	268	93	132	120	219
21	88	--------	648	301	98	201	176	219
22	78	--------	703	238	98	210	201	192
23	78	--------	731	219	93	219	324	201
24	83	--------	703	201	93	134	347	201
25	74	--------	675	201	93	201	324	192
26	70	--------	648	192	88	134	324	184
27	74	--------	621	210	93	210	268	184
28	78	--------	595	168	83	138	301	153
29	83	--------	569	176	93	153	324	139
30	88	--------	621	139	103	139	324	126
31	108	--------	--------	126	--------	114	238	--------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	132	56	80.1	0.0127	0.01
November 1–11	132	88	112	.0178	.01
April 7–30	1,060	569	715	.113	.10
May	595	126	308	.0489	.06
June	139	70	95.9	.0152	.02
July	219	88	149	.0237	.03
August	347	74	186	.0295	.03
September	219	126	175	.0278	.03

MINNESOTA RIVER AT MANKATO, MINN.

LOCATION.—Water-stage recorder in sec. 7, T. 108 N., R. 26 W., at Main Street highway bridge in Mankato, 2 miles below mouth of Blue Earth River.

DRAINAGE AREA.—14,600 square miles.

RECORDS AVAILABLE.—March, 1922, to September, 1928, at present site; May, 1903, to October, 1921, at Sibley Park, 2 miles upstream. Drainage area practically same at two sites.

EXTREMES.—Maximum discharge during year, 10,700 second-feet March 20 (gage height, 14.0 feet); minimum, 180 second-feet December 1 (gage height, 3.10 feet).

1903–1928: Maximum discharge, 43,800 second-feet June 26, 1908 (gage height at old site, 21.2 feet); minimum, 89 second-feet August 31 and September 2, 1911.

A discharge of about 65,000 second-feet occurred in 1881 (gage height at old site, about 27 feet).

REMARKS.—Records poor. Observations discontinued December 2 to February 8.

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

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	330	308	220	-------	1,350	4,440	2,750	715	430	405	2,840
2	355	330	-------	-------	1,350	3,960	2,480	715	405	938	3,210
3	380	330	-------	-------	1,590	3,680	2,480	680	515	1,510	2,840
4	380	330	-------	-------	2,230	3,400	3,300	562	458	1,820	2,480
5	380	308	-------	-------	2,660	3,210	4,830	610	380	1,980	2,140
6	405	355	-------	-------	2,480	3,020	5,220	562	405	2,140	1,980
7	430	308	-------	-------	2,480	2,930	4,930	545	405	2,140	1,820
8	380	330	-------	-------	2,480	2,660	4,150	545	430	2,060	1,660
9	380	330	-------	1,510	2,480	2,310	3,770	545	430	1,820	1,660
10	380	355	-------	1,660	2,400	2,140	3,210	515	485	1,590	1,350
11	380	330	-------	2,310	2,310	2,140	2,660	430	458	1,510	1,350
12	355	330	-------	3,580	2,930	2,310	2,400	515	430	1,200	1,510
13	355	308	-------	4,630	4,930	2,400	2,060	515	405	1,200	2,230
14	405	308	-------	4,930	6,200	2,480	1,820	485	430	1,200	2,140
15	380	308	-------	4,630	6,600	2,140	1,660	458	355	1,200	1,980
16	330	262	-------	4,540	7,310	1,980	1,660	458	355	1,050	1,900
17	330	220	-------	4,250	8,170	1,900	1,660	515	405	975	1,820
18	330	240	-------	3,960	8,740	1,980	1,590	458	380	938	1,660
19	330	262	-------	3,770	9,470	3,020	1,660	355	380	938	1,660
20	355	330	-------	3,490	9,590	4,050	1,660	458	380	938	1,510
21	330	285	-------	3,020	8,980	5,220	1,510	715	380	938	1,280
22	330	308	-------	2,750	8,510	5,900	1,510	645	405	900	1,280
23	308	308	-------	2,400	7,950	6,100	1,350	645	355	2,140	1,280
24	285	308	-------	2,140	7,950	5,900	1,350	515	405	3,400	1,200
25	262	308	-------	2,060	7,730	5,410	1,280	515	405	3,020	1,200
26	285	330	-------	1,980	7,210	4,830	1,130	515	405	3,400	1,050
27	285	308	-------	1,740	6,500	4,400	975	458	405	3,960	1,050
28	285	285	-------	1,510	6,100	4,050	838	562	430	3,860	975
29	285	308	-------	1,350	5,610	3,400	862	545	405	3,400	938
30	285	262	-------	-------	5,320	3,210	715	485	430	3,210	750
31	285	-------	-------	-------	4,830	-------	750	-------	405	3,020	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	430	262	341	0.0234	0.03
November	355	220	306	.0210	.02
February 9–28	4,930	1,350	2,960	.203	.16
March	9,590	1,350	5,300	.363	.42
April	6,100	1,900	3,490	.239	.27
May	5,220	715	2,200	.151	.17
June	715	355	541	.0371	.04
July	515	355	411	.0282	.03
August	3,960	405	1,900	.130	.15
September	3,210	750	1,690	.116	.13

ST. CROIX RIVER AT SWISS, WIS.

LOCATION.—Chain gage in sec. 33, T. 42 N., R. 15 W., at highway bridge near Swiss, 10 miles northeast of Danbury. Namakagon River enters 3½ miles above station.

DRAINAGE AREA.—1,550 square miles.

RECORDS AVAILABLE.—March, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 3,690 second-feet September 17 (gage height, 3.80 feet); minimum, 640 second-feet December 1–5, 11, 12, and January 28.

1914–1928: Maximum discharge, 8,480 second-feet April 22, 1916 (gage height, 6.73 feet); minimum, 518 second-feet several times during August, 1925 (gage height, 0.22 foot).

REMARKS.—Records good except those for period of ice effect (November 13 to March 31), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	810	875	640	810	695	810	2,420	2,220	940	1,150	1,400	1,150
2	810	875	640	750	720	810	2,220	2,320	1,080	1,080	1,310	1,310
3	940	875	640	750	750	810	2,220	3,020	1,010	1,010	1,310	1,310
4	875	1,010	640	750	780	810	2,920	3,240	940	1,010	1,310	1,230
5	875	940	640	720	810	780	3,350	3,240	875	1,010	1,230	1,080
6	810	940	695	695	810	750	3,240	3,130	810	1,010	1,230	1,150
7	810	875	695	720	810	780	3,020	3,240	810	1,010	1,230	1,080
8	810	875	695	750	780	810	3,020	3,020	875	1,670	1,230	1,080
9	875	875	695	750	750	810	3,020	2,920	1,080	2,120	1,230	1,010
10	810	875	695	750	780	810	2,920	2,720	1,010	1,940	1,150	1,230
11	810	810	640	780	810	810	2,920	2,620	940	1,760	1,150	1,490
12	810	810	640	810	840	810	2,820	2,420	1,010	1,580	1,010	1,940
13	810	810	695	840	875	875	2,720	2,220	1,150	1,490	875	2,420
14	810	810	720	875	875	940	2,720	1,940	1,230	1,400	875	2,720
15	810	750	750	840	875	975	2,420	1,760	1,230	1,310	1,080	3,240
16	810	750	810	810	910	1,010	2,120	1,670	1,230	1,150	1,010	3,460
17	810	750	875	810	940	1,010	1,940	1,580	1,310	1,150	1,010	3,690
18	875	695	875	810	940	1,010	2,030	1,580	1,310	1,310	1,010	3,570
19	940	695	875	780	940	1,010	2,030	1,580	1,400	1,400	940	3,460
20	940	695	875	750	910	1,010	2,120	1,580	1,580	2,120	940	3,240
21	875	695	875	750	875	1,300	2,220	1,490	1,760	2,120	1,010	3,020
22	875	695	875	750	875	1,580	2,320	1,400	1,760	2,120	1,010	2,920
23	810	695	875	720	875	1,670	2,420	1,400	1,760	2,030	1,080	2,720
24	810	695	875	695	875	1,760	2,420	1,310	1,670	2,120	1,080	2,520
25	810	640	875	695	875	1,850	2,420	1,230	1,670	2,120	1,010	2,320
26	750	640	875	695	840	1,850	2,420	1,150	1,580	2,030	1,010	2,120
27	750	640	875	670	810	1,940	2,320	1,150	1,580	1,940	1,080	1,940
28	750	640	875	640	810	2,030	2,320	1,080	1,490	1,760	1,080	1,760
29	750	640	875	670	810	2,120	2,320	1,080	1,400	1,670	1,230	1,670
30	810	640	875	695	-------	2,220	2,320	1,010	1,230	1,490	1,230	1,580
31	810	-------	875	695	-------	2,320	-------	1,010	-------	1,400	1,230	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	940	750	827	0.534	0.62
November	1,010	640	774	.499	.56
December	875	640	776	.501	.58
January	875	640	749	.483	.56
February	940	695	836	.539	.58
March	2,320	750	1,230	.794	.92
April	3,350	1,940	2,520	1.63	1.82
May	3,240	1,010	1,980	1.28	1.48
June	1,760	810	1,260	.813	.91
July	2,120	1,010	1,560	1.01	1.16
August	1,400	875	1,120	.723	.83
September	3,690	1,010	2,110	1.36	1.52
The year	3,690	640	1,310	.845	11.54

ST. CROIX RIVER NEAR GRANTSBURG, WIS.

LOCATION.—Chain gage near center of sec. 30, T. 40 N., R. 18 W., at Norway Point ferry, half a mile below mouth of Sand Creek and 10 miles north of Grantsburg.

DRAINAGE AREA.—2,820 square miles.

RECORDS AVAILABLE.—April, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 8,500 second-feet April 1 (gage height, 9.0 feet); minimum, 985 second-feet December 31 and January 5. 1923–1928: Maximum discharge, 13,300 second-feet March 18, 1927 (gage height, 11.4 feet); minimum (estimated), 695 second-feet December 6, 1925.

REMARKS.—Records fair, except those for period of ice effect (November 14 to March 31), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,500	1,670	1,120	1,050	1,260	1,260	7,930	3,560	1,940	2,240	2,140	2,140
2	1,580	1,670	1,050	1,050	1,260	1,260	6,100	3,710	1,940	2,340	2,140	2,140
3	1,580	1,760	1,120	1,050	1,120	1,190	5,200	4,510	1,940	2,140	2,140	1,940
4	1,580	1,760	1,260	1,050	1,260	1,260	5,560	5,920	1,940	2,140	2,140	1,940
5	1,580	1,760	1,190	985	1,260	1,260	6,460	7,000	1,760	2,040	1,940	1,850
6	1,580	1,760	1,260	1,050	1,120	1,190	7,360	7,000	1,760	1,940	1,940	1,850
7	1,580	1,340	1,260	1,050	1,190	1,260	7,360	6,640	1,760	2,040	1,940	1,760
8	1,670	1,670	1,190	1,120	1,260	1,260	6,280	6,280	1,940	2,780	1,850	1,760
9	1,670	1,760	1,050	1,190	1,260	1,190	5,560	6,280	1,940	3,710	1,850	1,670
10	1,580	1,670	1,050	1,050	1,260	1,340	5,380	6,100	1,940	4,180	1,760	1,760
11	1,580	1,760	1,050	1,120	1,340	1,340	5,200	5,560	1,850	4,020	1,760	1,940
12	1,670	1,760	1,120	1,190	1,260	1,340	5,200	4,850	1,850	3,560	1,580	2,440
13	1,580	1,670	1,120	1,190	1,420	1,340	4,850	4,340	2,140	3,020	1,580	3,280
14	1,580	1,580	1,190	1,260	1,420	1,420	4,510	4,180	2,140	2,660	1,580	4,180
15	1,580	1,420	1,120	1,190	1,260	1,340	4,020	3,560	2,140	2,340	1,760	4,850
16	1,580	1,340	1,260	1,260	1,340	1,500	3,710	3,280	2,240	2,240	1,580	5,740
17	1,580	1,340	1,190	1,260	1,340	1,500	3,560	3,150	2,440	2,140	1,580	6,280
18	1,580	1,260	1,260	1,190	1,260	1,420	3,560	3,020	2,340	2,440	1,500	6,640
19	1,580	1,260	1,120	1,260	1,340	1,580	3,860	3,020	2,550	2,550	1,500	6,460
20	1,670	1,260	1,120	1,190	1,340	1,580	4,020	3,020	2,780	3,420	1,580	6,100
21	1,670	1,260	1,190	1,050	1,120	1,580	4,180	3,020	3,020	4,850	1,500	5,740
22	1,580	1,260	1,120	1,190	1,260	1,850	4,850	2,900	3,280	5,560	1,580	5,920
23	1,580	1,260	1,120	1,190	1,260	2,140	5,200	2,780	3,280	5,380	1,670	4,850
24	1,580	1,260	1,120	1,120	1,190	2,550	5,560	2,660	3,280	4,510	1,670	4,340
25	1,580	1,260	1,120	1,190	1,260	2,900	5,200	2,550	3,150	3,860	1,670	3,860
26	1,580	1,260	1,190	1,190	1,260	3,420	5,020	2,440	3,020	3,420	1,670	3,860
27	1,580	1,260	1,190	1,120	1,260	4,020	4,510	2,240	2,780	3,020	1,580	3,420
28	1,580	1,260	1,260	1,190	1,260	4,680	4,340	2,140	2,660	2,780	1,850	3,020
29	1,580	1,260	1,260	1,190	1,260	5,380	4,020	2,140	2,550	2,550	1,940	2,780
30	1,580	1,190	1,120	1,120	-------	6,280	3,860	2,140	2,340	2,240	1,940	2,780
31	1,580	-------	985	1,120	-------	7,000	-------	2,040	-------	2,140	2,040	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,670	1,500	1,590	0.564	0.65
November	1,760	1,190	1,470	.521	.58
December	1,260	985	1,150	.408	.47
January	1,260	985	1,140	.404	.47
February	1,420	1,120	1,270	.450	.49
March	7,000	1,190	2,210	.784	.90
April	7,930	3,560	5,080	1.80	2.01
May	7,000	2,040	3,940	1.40	1.61
June	3,280	1,760	2,360	.837	.93
July	5,560	1,940	3,040	1.08	1.24
August	2,140	1,500	1,770	.628	.72
September	6,640	1,670	3,580	1.27	1.42
The year	7,930	985	2,380	.84	11.49

ST. CROIX RIVER NEAR RUSH CITY, MINN.

LOCATION.—Chain gage in SW. ¼ sec. 8, T. 37 N., R. 20 W., at Northern Pacific Railway bridge 5 miles east of Rush City and 10 miles below mouth of Snake River.

DRAINAGE AREA.—5,120 square miles.

RECORDS AVAILABLE.—April, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 16,700 second-feet April 1; maximum gage height, 9.7 feet March 28; minimum discharge, 1,190 second-feet November 15 (gage height, 2.7 feet).

1923–1928: Maximum discharge, 26,700 second-feet March 18, 1927 (gage height, 10.2 feet); minimum, 820 second-feet several days in August and December, 1925, and January and March, 1926.

REMARKS.—Records fair except those for period of ice effect (November 16 to March 30) and those from July 2 to September 30, which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,580	1,800	1,580	1,580	1,380	1,580	16,700	6,590	2,030	2,780	2,580	2,820
2	1,580	1,800	1,580	1,580	1,380	1,580	16,300	6,280	2,030	2,820	2,820	2,820
3	1,800	1,800	1,580	1,580	1,380	1,580	16,300	7,220	2,030	2,820	3,070	2,580
4	1,800	1,800	1,580	1,580	1,380	1,580	15,900	10,200	2,030	2,580	3,070	2,350
5	1,800	1,800	1,580	1,580	1,380	1,580	15,600	11,200	2,030	2,580	2,820	2,350
6	1,800	2,030	1,580	1,580	1,380	1,580	14,800	10,900	1,800	2,350	2,580	2,120
7	1,800	2,030	1,580	1,580	1,380	1,580	14,400	10,500	1,800	2,350	2,580	2,120
8	1,800	2,030	1,580	1,580	1,580	1,580	13,000	9,860	2,030	3,600	2,350	2,120
9	1,800	1,800	1,580	1,580	1,580	1,580	11,900	9,200	2,030	4,740	2,350	2,120
10	1,800	1,800	1,580	1,580	1,800	1,380	11,200	8,210	2,030	5,630	2,350	2,120
11	1,800	2,030	1,580	1,580	1,800	1,380	10,900	7,220	2,030	5,630	2,120	2,350
12	1,800	2,030	1,580	1,580	1,800	1,380	10,200	6,900	2,030	5,030	2,120	2,820
13	1,800	1,800	1,580	1,580	2,030	1,580	9,860	6,280	2,270	4,450	2,120	4,160
14	1,580	1,800	1,580	1,580	2,030	1,800	9,530	5,660	2,270	3,880	1,900	5,330
15	1,580	1,190	1,580	1,580	2,030	1,800	8,540	5,060	2,270	3,330	1,900	6,860
16	1,580	1,190	1,580	1,580	2,030	2,030	7,550	4,470	2,270	3,070	1,900	8,720
17	1,580	1,380	1,580	1,580	2,030	2,030	7,220	4,180	2,780	2,820	1,900	9,140
18	1,580	1,580	1,580	1,580	2,030	2,030	7,550	4,180	3,050	2,820	1,900	9,400
19	1,580	1,580	1,580	1,380	2,030	2,030	8,210	3,890	3,050	3,330	1,900	9,140
20	1,580	1,580	1,580	1,380	2,030	2,270	8,540	3,610	3,890	4,160	2,120	9,010
21	1,580	1,580	1,580	1,380	1,800	3,330	8,870	3,610	3,890	6,860	1,900	8,720
22	1,580	1,580	1,580	1,380	1,800	4,470	8,870	3,330	4,180	8,550	1,900	8,340
23	1,580	1,580	1,580	1,580	1,800	5,660	9,200	3,330	4,180	8,550	2,120	8,100
24	1,580	1,580	1,580	1,380	1,580	6,900	9,200	3,330	4,470	6,860	1,900	7,500
25	1,580	1,580	1,580	1,380	1,580	8,210	9,530	3,330	4,470	5,930	1,900	6,860
26	1,580	1,580	1,580	1,380	1,580	9,530	9,530	3,050	4,180	5,030	1,900	5,630
27	1,580	1,580	1,580	1,380	1,580	10,900	9,530	3,050	3,890	4,450	1,900	5,030
28	1,580	1,580	1,580	1,380	1,580	12,300	8,870	2,780	3,610	3,880	2,820	4,450
29	1,580	1,580	1,580	1,380	1,580	13,700	7,550	2,520	3,330	3,600	3,070	4,160
30	1,580	1,580	1,580	1,380	------	15,200	6,900	2,270	3,330	3,330	2,820	3,880
31	1,800	------	1,580	1,380	------	16,700	------	2,270	------	2,820	2,820	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,800	1,580	1,670	0.326	0.38
November	2,030	1,190	1,690	.330	.37
December	1,580	1,580	1,580	.309	.36
January	1,580	1,380	1,500	.293	.34
February	2,030	1,380	1,700	.332	.36
March	16,700	1,380	4,540	.887	1.02
April	16,700	6,900	10,700	2.09	2.33
May	11,200	2,270	5,630	1.10	1.27
June	4,470	1,800	2,840	.555	.62
July	8,550	2,350	4,210	.822	.95
August	3,070	1,900	2,310	.451	.52
September	9,400	2,120	5,100	.996	1.11
The year	16,700	1,190	3,620	.707	9.63

ST. CROIX RIVER NEAR ST. CROIX FALLS, WIS.

LOCATION.—In sec. 18, T. 34 N., R. 18 W., at power plant of Northern States Power Co. near St. Croix Falls.

DRAINAGE AREA.—5,930 square miles.

RECORDS AVAILABLE.—January, 1910, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 21,800 second-feet March 30; minimum, 347 second-feet February 12.

1910–1928: Maximum mean daily discharge, 35,800 second-feet March 26, 1920; minimum, 75 second-feet July 17, 1910 (caused by regulation).

REMARKS.—Records good. Discharge computed from power-house records. Low-water flow controlled by operation of gates of power plant and by operation at Never's Dam, 10 miles upstream. Daily-discharge records furnished by Northern States Power Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,000	2,710	2,490	1,540	1,830	1,900	17,900	6,920	2,640	2,800	3,920	3,040
2	1,240	2,090	2,220	1,420	1,710	1,930	16,400	6,990	2,030	626	3,690	1,790
3	2,420	2,300	1,980	2,300	1,740	1,880	14,700	6,860	1,040	3,260	3,690	2,050
4	2,360	2,390	7,290	2,170	1,780	520	12,600	9,640	2,440	2,780	3,040	3,910
5	2,280	2,800	1,980	1,720	873	2,310	13,200	11,400	2,210	3,590	1,880	3,660
6	2,270	1,810	2,060	1,840	2,130	2,290	13,500	13,100	2,520	5,480	3,150	3,440
7	2,230	2,270	2,180	1,590	1,840	1,900	14,000	10,800	2,500	3,300	2,420	2,970
8	2,360	2,260	1,880	992	1,840	1,760	17,200	9,180	2,480	2,070	2,650	2,200
9	1,460	2,220	1,840	2,360	1,800	1,360	11,200	9,060	2,060	4,570	2,600	1,120
10	2,480	2,420	1,860	2,130	2,190	1,940	9,730	8,580	1,200	5,850	2,420	3,150
11	2,430	2,280	819	1,860	2,060	559	9,820	7,910	2,460	6,110	3,070	2,780
12	2,540	2,270	2,270	1,730	347	2,730	10,000	7,370	2,850	5,960	1,310	3,430
13	2,180	640	1,890	1,710	2,380	2,030	9,310	6,560	2,590	6,550	2,980	3,720
14	2,680	2,300	1,870	2,160	2,120	2,040	9,700	5,480	2,460	4,360	2,750	4,430
15	2,540	1,800	1,910	800	2,330	1,670	8,590	5,840	2,430	1,600	2,810	4,980
16	1,120	1,660	1,920	2,410	2,210	2,030	5,900	5,010	2,590	3,900	2,420	8,520
17	3,160	559	2,130	2,420	1,960	2,120	6,700	5,430	1,200	4,290	2,450	9,080
18	2,000	1,670	871	2,080	2,290	1,040	6,780	5,230	2,800	4,940	1,920	9,240
19	2,070	2,040	2,470	2,220	478	2,490	7,750	3,940	3,690	3,330	1,030	10,300
20	2,120	564	2,560	2,020	2,540	2,890	8,160	1,900	3,520	3,950	3,520	9,540
21	2,050	2,380	1,860	2,390	2,630	2,990	9,310	3,570	4,170	5,750	3,190	9,490
22	2,430	2,380	1,900	950	2,070	4,140	12,200	3,900	4,430	7,000	2,610	9,150
23	1,730	2,550	1,910	2,120	1,880	6,310	9,890	3,950	5,890	6,180	2,260	9,160
24	2,220	1,540	2,210	2,060	2,050	5,830	10,100	4,150	2,750	7,330	2,570	7,350
25	1,980	3,740	1,360	1,850	1,920	14,700	11,600	4,500	5,660	7,310	2,670	7,260
26	2,180	2,960	1,390	1,900	464	18,300	10,000	2,980	4,410	6,770	875	7,120
27	2,020	1,130	2,430	2,120	2,410	20,800	9,130	2,600	4,410	6,120	2,640	6,700
28	2,100	2,560	2,460	2,040	2,160	21,400	7,930	3,660	4,390	4,030	3,470	7,100
29	2,210	2,630	2,040	826	2,010	21,700	8,240	3,700	4,250	1,900	3,510	5,500
30	1,690	2,520	2,060	2,080	-------	21,800	7,900	1,640	6,320	3,430	3,300	3,200
31	2,450	-------	2,120	1,880	-------	19,900	--------	3,050	-------	3,680	3,140	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,160	1,120	2,160	0.364	0.42
November	3,740	559	2,110	.356	.40
December	7,290	819	2,140	.361	.42
January	2,420	800	1,860	.314	.36
February	2,630	347	1,860	.314	.34
March	21,800	520	6,300	1.06	1.22
April	17,900	5,900	10,600	1.79	2.00
May	13,100	1,640	5,960	1.01	1.16
June	6,320	1,040	3,150	.531	.59
July	7,330	626	4,480	.756	.87
August	3,920	875	2,710	.457	.53
September	10,300	1,120	5,510	.929	1.04
The year	21,800	347	4,070	.687	9.35

NAMAKAGON RIVER NEAR TREGO, WIS.

LOCATION.—In SW. ¼ sec. 17, T. 40 N., R. 12 W., at power-house of Wisconsin Hydro-Electric Co.

DRAINAGE AREA.—476 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1928. Records collected at Trego, 5 miles farther upstream (drainage area, 420 square miles), March, 1914, to September, 1927.

EXTREMES.—Maximum mean daily discharge during year, 1,360 second-feet September 14; minimum, 123 second-feet January 22. Both maximum and minimum are the result of regulation.

REMARKS.—Records fair. Discharge computed from hourly records of load and head at power plant.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		374	203	216	345	358	446		491	250	735	571
2	280	268	155	416	345	301	573		505	413	475	491
3		426	175	369	342	340	374		424	482	540	548
4	276	397	130	303	319	216	1,070	735	418	425	580	440
5	391	408	175	340	140	378	966		589	512	531	456
6	370	312	139	383	481	361	629		512	405	763	459
7	420	401	135	364	227	372	913		411	493	806	477
8	373	371	300	131	338	362	865	740	495	389	589	524
9	297	333	234	481	437	374	889	815	507	469	597	281
10	424	331	279	366	468	401	864	804	309	469	614	437
11	378	303	219	344	421	292	828	805	468	470	500	800
12	388	307	356	331	216	356	703	786	449	332	354	1,170
13	496	197	322	375	529	447	525	472	487	461	424	1,120
14	388	499	369	444	332	502	529	534	942	471	430	1,360
15	260	425	350	241	440	452	499	552	584	353	404	1,270
16	262	298	380	551	422	431	462	558	360	391	380	1,150
17	379	297	411	371	417	403	514	557	302	385	381	1,270
18	578	297	288	383	367	318	612	683	423	428	378	1,290
19	434	347	427	409	131	417	616	681	653	463	257	1,120
20	316	379	538	389	483	423	682	514	475	533	430	1,050
21	324	412	321	362	367	420	749	561	711	647	499	810
22	354	368	276	123	352	374	723	497	634	517	520	819
23	321	378	300	481	357	703	760	530	600	624	470	659
24	348	197	373	348	356	638	762	537	704	665	451	837
25	342	396	367	340	385	716	761	410	519	610	384	832
26	367	406	385	357	207	945	761	455	585	579	262	673
27	357	348	317	354	502	981	759	370	598	607	445	683
28	378	428	334	320	310	778	743	463	544	553	433	677
29	366	417	367	147	351	734	702	399	486	502	439	692
30	349	284	372	481	-------	802	729	362	472	714	448	508
31	378	-------	431	344	-------	582	-------	432	-------	603	525	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	578	260	360	0.756	0.87
November	499	197	353	.742	.83
December	538	130	304	.639	.74
January	551	123	350	.735	.85
February	529	131	358	.752	.81
March	981	216	490	1.03	1.19
April	1,070	374	700	1.47	1.64
May	815	362	602	1.26	1.45
June	942	302	522	1.10	1.23
July	714	250	491	1.03	1.19
August	806	257	485	1.02	1.18
September	1,360	281	782	1.64	1.83
The year	1,360	123	483	1.01	13.81

APPLE RIVER NEAR SOMERSET, WIS.

LOCATION.—In sec. 21, T. 31 N., R. 19 W., at power plant of Northern States Power Co. 3½ miles below Somerset.

DRAINAGE AREA.—550 square miles.

RECORDS AVAILABLE.—January, 1901, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 1,160 second-feet March 27; minimum, 88 second-feet December 3.

1904–1928: Maximum mean daily discharge, 2,280 second-feet in June, 1905; minimum discharge, 7 second-feet August 21, 1927, caused by regulation.

REMARKS.—Records fair. Discharge computed from power-house records by engineers of Northern States Power Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	194	199	182	237	175	153	689	478	247	239	183	287
2	137	234	147	218	160	229	465	385	182	251	261	155
3	182	307	88	232	173	131	440	406	177	316	202	297
4	229	345	205	234	144	207	524	533	194	278	192	208
5	235	283	236	201	166	199	576	630	153	325	190	246
6	282	155	252	190	195	166	493	600	204	210	235	227
7	202	195	213	207	144	172	572	538	165	306	263	185
8	262	184	194	222	219	213	449	695	124	411	262	178
9	185	217	152	190	219	219	569	637	169	356	244	151
10	203	174	221	195	194	192	484	578	172	439	168	250
11	226	242	256	178	204	190	330	539	231	353	144	241
12	308	123	218	207	311	300	357	358	130	289	174	420
13	90	252	142	197	160	317	498	222	205	215	150	269
14	204	252	170	243	242	392	396	416	361	275	133	242
15	242	271	176	202	294	307	453	423	299	282	163	301
16	169	169	176	253	283	253	598	337	228	271	174	204
17	226	186	193	249	190	227	505	393	199	294	179	394
18	182	235	153	213	182	242	329	375	264	353	202	331
19	205	260	207	214	196	353	415	348	129	303	132	341
20	229	210	158	173	182	437	543	374	278	289	191	383
21	183	287	187	183	195	647	654	320	465	244	172	297
22	172	248	128	215	172	852	634	288	207	259	232	283
23	153	236	224	237	225	1,100	854	276	291	210	248	243
24	175	135	215	232	195	1,120	651	254	273	150	231	325
25	256	330	239	192	196	1,140	644	253	222	172	230	229
26	233	165	216	211	194	1,120	607	325	379	172	213	161
27	277	230	187	158	228	1,160	436	209	378	236	278	184
28	223	323	168	155	204	1,060	495	283	337	182	263	174
29	225	220	215	170	220	1,000	363	284	315	229	172	283
30	242	187	185	207	------	944	579	130	233	194	242	186
31	141	------	208	136	------	852	------	239	------	201	201	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	308	90	209	0.380	0.44
November	345	123	228	.415	.46
December	256	88	191	.347	.40
January	253	136	205	.373	.43
February	311	144	202	.367	.40
March	1,160	131	513	.933	1.08
April	854	329	520	.945	1.05
May	695	130	391	.711	.82
June	465	124	240	.436	.49
July	439	150	268	.487	.56
August	278	132	204	.371	.43
September	420	151	256	.465	.52
The year	1,160	88	286	.519	7.08

CHIPPEWA RIVER AT BISHOPS BRIDGE, NEAR WINTER, WIS.

LOCATION.—Chain gage in sec. 23, T. 39 N., R. 6 W., at highway bridge 3 miles below Chippewa Reservoir dam and 4 miles northwest of Winter.

DRAINAGE AREA.—775 square miles.

RECORDS AVAILABLE.—February, 1912, to September, 1928.

EXTREMES.—Maximum discharge during year, 3,660 second-feet September 17–18 (gage height, 7.75 feet); minimum, 33 second-feet October 21–25 (gage height, 3.50 feet). Both caused by regulation.

1912–1928: Maximum discharge, 6,940 second-feet April 22, 1916 (gage height, 9.56 feet; minimum, 14 second-feet April 17–20 and May 1–5, 1925 (gage height, 3.25 feet).

REMARKS.—Records good except those for low stages, which are fair. Flow regulated by storage at Chippewa Reservoir and at another reservoir 16 miles above station; total capacity of both, 10½ billion cubic feet.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	520	250	790	790	1,350	1,450	79	41	1,350	1,350	750	445
2	262	250	710	790	1,350	1,450	66	41	1,350	1,000	750	470
3	74	250	580	790	1,450	1,550	56	176	1,350	750	750	470
4	66	250	520	960	1,550	1,200	56	187	1,350	750	750	470
5	52	250	470	960	1,550	1,100	56	136	1,350	750	750	470
6	44	232	520	1,250	1,550	1,000	107	107	1,350	750	750	710
7	44	232	790	1,250	1,550	1,000	240	93	1,350	750	750	710
8	44	250	1,100	1,250	1,550	1,000	198	352	1,350	750	750	710
9	44	250	1,100	1,250	1,550	1,000	74	1,760	1,350	750	750	710
10	44	250	1,150	1,250	1,550	915	56	3,080	1,350	750	750	710
11	44	250	1,200	1,250	1,550	830	56	2,820	1,350	750	750	870
12	44	250	1,250	1,250	1,550	750	56	2,090	470	750	750	870
13	44	250	1,200	1,250	1,550	675	56	1,350	77	750	750	870
14	44	250	1,200	1,250	1,550	790	204	830	77	750	790	1,050
15	44	250	1,200	1,350	1,550	830	121	830	77	750	790	1,250
16	44	250	1,200	1,350	1,550	710	66	830	77	750	790	2,090
17	44	250	1,200	1,350	1,550	675	59	830	77	750	790	3,080
18	44	250	1,200	1,350	1,650	580	56	830	99	750	790	3,510
19	44	250	1,250	1,350	1,650	495	121	830	104	445	790	3,510
20	38	250	1,250	1,350	1,650	495	79	675	104	236	790	2,440
21	33	290	1,250	1,350	1,650	495	93	550	104	77	52	1,350
22	33	330	1,250	1,250	1,650	258	107	550	104	77	87	1,000
23	33	290	1,250	1,250	1,650	93	101	550	104	77	87	870
24	33	250	1,250	1,350	1,650	107	93	675	420	201	87	870
25	33	232	1,200	1,450	1,650	107	66	830	1,150	445	87	870
26	115	290	1,200	1,450	1,550	136	59	830	1,350	495	87	870
27	250	290	1,200	1,450	1,450	136	56	830	1,350	610	87	870
28	250	290	1,200	1,450	1,450	136	59	830	1,350	750	87	870
29	250	790	790	1,450	1,450	136	56	1,050	1,350	750	87	710
30	250	1,250	790	1,450	-------	136	47	1,350	1,350	750	87	610
31	250	-------	790	1,450	-------	107	-------	1,350	-------	750	232	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	520	33	102	May	3,080	41	880
November	1,250	232	309	June	1,350	77	821
December	1,250	470	1,030	July	1,350	77	646
January	1,450	790	1,260	August	790	52	527
February	1,650	1,350	1,550	September	3,510	445	1,140
March	1,550	93	656				
April	240	47	87	The year	3,510	33	748

CHIPPEWA RIVER NEAR BRUCE, WIS.

LOCATION.—Chain gage in sec. 4, T. 35 N., R. 7 W., 1 mile east of Bruce, just below mouth of Thornapple River.

DRAINAGE AREA.—1,600 square miles.

RECORDS AVAILABLE.—December, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,950 second-feet March 27; maximum gage height, 10.6 feet March 26; minimum discharge, 275 second-feet October 21–25 (gage height, 1.15 feet), caused by regulation.

1914–1928: Maximum discharge, 14,900 second-feet April 10, 1922 (gage height, 13.7 feet); minimum, 200 second-feet August 7–9, 1925 (gage height, 1.00 foot).

REMARKS.—Records good except those for period of ice effect (December 1 to March 26), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	800	570	500	1,240	1,460	1,750	2,520	1,190	1,660	1,750	1,100	535
2	840	680	760	1,100	1,370	1,750	2,720	1,280	1,660	1,750	1,100	882
3	925	642	760	1,060	1,460	1,750	3,120	1,840	1,660	1,370	1,190	840
4	605	605	640	1,100	1,460	1,560	3,720	3,820	1,560	1,280	1,140	840
5	535	605	570	1,100	1,560	1,560	4,140	5,860	1,560	1,190	1,140	800
6	502	535	605	1,240	1,560	1,560	4,240	4,880	1,560	1,140	1,100	925
7	440	470	640	1,370	1,750	1,560	3,320	3,220	1,560	1,140	1,100	1,060
8	410	502	720	1,460	1,840	1,460	2,520	2,320	1,660	1,140	1,100	1,060
9	410	535	800	1,560	1,840	1,370	1,840	2,520	1,660	1,190	1,100	1,060
10	382	502	840	1,560	1,940	1,370	1,750	4,140	1,750	1,140	1,060	1,190
11	382	535	1,060	1,560	1,940	1,370	2,130	4,460	1,660	1,100	1,010	3,120
12	355	642	1,560	1,560	2,040	1,370	1,940	3,820	1,660	1,100	1,010	3,420
13	355	680	1,560	1,660	2,130	1,370	1,560	2,920	1,190	1,100	968	3,930
14	328	680	1,560	1,750	2,130	1,280	1,370	2,040	800	1,100	925	4,560
15	328	605	1,560	1,750	2,130	1,240	1,370	1,560	605	1,100	968	5,420
16	328	535	1,560	1,750	2,040	1,240	1,560	1,560	535	1,100	1,100	5,530
17	328	570	1,560	1,750	1,840	1,100	1,190	1,560	535	1,100	1,190	5,970
18	300	680	1,560	1,660	1,750	1,100	1,140	1,460	605	1,100	925	6,200
19	300	720	1,560	1,560	1,660	1,140	2,520	1,560	1,460	925	925	5,530
20	300	720	1,560	1,560	1,560	1,140	2,920	1,370	2,420	925	1,280	4,980
21	275	760	1,560	1,560	1,560	1,370	2,920	1,280	2,920	925	925	2,820
22	275	720	1,560	1,560	1,660	1,460	3,420	1,100	1,840	760	760	2,320
23	275	680	1,560	1,560	1,750	1,750	4,140	925	2,320	535	470	1,940
24	275	570	1,560	1,560	1,840	2,420	3,620	968	2,520	605	502	1,660
25	275	502	1,560	1,560	1,940	3,820	2,820	1,190	2,420	760	470	1,560
26	300	470	1,560	1,370	1,940	5,860	2,130	1,280	2,520	760	470	1,560
27	300	535	1,460	1,370	1,940	7,950	1,750	1,190	2,320	760	470	1,370
28	382	642	1,370	1,280	1,940	5,970	1,460	1,190	2,130	1,010	502	1,370
29	470	680	1,370	1,370	1,940	3,930	1,370	1,190	1,940	1,060	760	1,370
30	502	535	1,370	1,560	-------	3,020	1,190	1,280	1,840	1,100	882	1,370
31	535	-------	1,370	1,560	-------	2,520	-------	1,560	-------	1,100	605	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	925	275	420	0.262	0.30
November	760	470	603	.377	.42
December	1,560	500	1,230	.769	.89
January	1,750	1,060	1,470	.919	1.06
February	2,130	1,370	1,790	1.12	1.21
March	7,950	1,100	2,200	1.38	1.59
April	4,240	1,140	2,410	1.51	1.68
May	5,860	925	2,150	1.34	1.54
June	2,920	535	1,680	1.05	1.17
July	1,750	535	1,070	.669	.77
August	1,280	470	911	.569	.66
September	6,200	535	2,510	1.57	1.75
The year	7,950	275	1,530	.956	13.04

CHIPPEWA RIVER AT CHIPPEWA FALLS, WIS.

LOCATION.—In SE. ¼ sec. 6, T. 28 N., R. 8 W., at Chippewa Falls, 2,500 feet below mouth of Duncan Creek.

DRAINAGE AREA.—5,600 square miles.

RECORDS AVAILABLE.—June, 1888, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 30,100 second-feet March 26; minimum, 100 second-feet several holidays in October, December, June, and July. Both maximum and minimum are result of regulation.

1888–1928: Maximum discharge, 78,000 second-feet March 27, 1920 (gage height, 17.0 feet); minimum, 40 second-feet February 4, 1917.

Maximum stage known, 26.94 feet September 10, 1884; probably due, in part, to backwater from log jams.

REMARKS.—Records of daily discharge poor. Discharge computed from power records at Wissota plant plus estimated inflow between power plant and gaging station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,750	3,230	2,980	210	3,690	5,330	10,400	7,070	4,040	100	2,680	4,410
2	3,280	3,030	2,580	1,420	3,590	5,250	10,200	7,520	4,740	3,720	3,930	706
3	6,130	4,330	1,820	4,160	3,760	4,580	11,600	7,170	158	6,010	3,380	437
4	6,220	5,380	589	3,530	3,320	2,720	12,000	11,200	3,010	293	3,510	2,760
5	5,220	5,270	2,600	3,960	967	4,180	14,400	14,000	4,320	4,990	587	3,700
6	5,280	3,220	3,230	3,270	3,360	4,640	20,200	18,100	3,700	5,000	3,700	4,190
7	6,300	2,590	3,380	2,970	4,290	4,310	16,800	18,900	3,620	2,800	4,430	4,510
8	5,280	2,230	3,140	826	4,430	3,380	12,100	15,300	2,950	193	4,510	2,620
9	1,300	2,360	3,080	3,920	4,330	2,560	9,890	10,600	2,390	3,050	4,770	346
10	4,760	3,120	1,970	4,120	3,740	3,150	11,900	9,430	103	3,320	4,100	3,440
11	4,180	3,410	828	4,150	3,500	2,150	8,930	10,300	3,560	3,280	2,700	4,570
12	3,980	3,150	3,580	4,070	1,250	3,940	9,840	9,190	5,210	3,510	493	6,710
13	4,740	3,420	3,620	4,030	4,860	3,140	12,800	5,070	4,680	3,330	3,380	8,490
14	3,780	3,600	3,840	3,970	4,140	2,780	9,710	8,600	3,230	3,590	3,060	15,400
15	3,540	4,770	3,850	864	4,450	2,640	5,330	7,650	3,420	100	2,890	14,500
16	127	4,130	4,640	4,600	4,400	2,690	9,460	7,140	2,550	3,890	2,260	9,790
17	2,250	2,120	4,670	4,240	4,120	2,920	9,200	6,520	100	4,200	2,700	15,700
18	2,370	2,700	1,350	4,130	4,340	1,820	9,860	7,080	3,360	3,940	2,610	15,100
19	2,880	3,270	4,280	4,170	917	3,310	10,300	6,710	3,420	3,960	1,720	13,900
20	2,480	1,590	4,860	4,660	4,550	4,950	12,800	1,410	4,670	3,640	5,700	11,900
21	2,820	3,540	4,070	3,840	4,550	6,640	11,900	4,380	6,240	3,630	5,580	10,200
22	1,580	4,090	4,110	947	4,160	6,040	15,800	5,210	6,510	632	5,110	9,460
23	100	5,120	4,530	3,940	4,010	4,930	19,500	5,860	4,570	3,490	5,420	4,120
24	2,640	4,830	4,670	4,150	4,020	7,930	19,200	5,340	3,510	3,500	3,570	6,350
25	2,580	5,100	100	4,080	3,580	26,200	16,300	4,980	7,640	3,260	2,730	4,640
26	2,540	4,290	100	3,630	938	30,100	13,600	6,260	7,100	2,830	262	4,950
27	2,390	274	4,880	3,100	3,925	28,600	11,700	355	7,520	2,170	2,350	4,960
28	2,410	3,290	4,280	2,840	4,460	25,200	9,610	3,830	7,000	2,060	2,890	5,140
29	3,450	4,080	4,180	984	4,790	21,800	6,870	3,360	6,840	896	3,320	4,600
30	100	4,430	4,410	3,450	-------	17,700	9,690	970	4,310	2,610	3,680	1,160
31	2,360	-------	4,490	3,450	-------	11,800	-------	3,790	-------	2,880	3,610	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,300	100	3,190	0.570	0.66
November	5,380	274	3,530	.630	.70
December	4,880	100	3,250	.580	.67
January	4,660	210	3,280	.586	.68
February	4,860	917	3,670	.655	.71
March	30,100	1,820	8,300	1.48	1.71
April	20,200	5,330	12,100	2.16	2.41
May	18,900	355	7,530	1.34	1.54
June	7,640	100	4,150	.741	.83
July	6,010	100	2,930	.523	.60
August	5,700	262	3,280	.586	.68
September	15,700	346	6,630	1.18	1.32
The year	30,100	100	5,140	.918	12.51

CHIPPEWA RIVER AT DURAND, WIS.

LOCATION.—Chain gage in SW. ¼ sec. 21, T. 25 N., R. 13 W., at Durand.
DRAINAGE AREA.—9,010 square miles.
RECORDS AVAILABLE.—July to September, 1928.
EXTREMES.—Maximum discharge during year, 27,300 second-feet September 17 (gage height, 8.80 feet); minimum, 2,470 second-feet September 4 (gage height, 1.80 feet).
REMARKS.—Records fair. Considerable diurnal fluctuation due to operation of power plants.

Daily and monthly discharge, in second-feet, 1928

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-------	4,530	6,240	11	4,530	7,040	4,760	21	6,500	8,160	17,400
2	-------	5,490	6,240	12	5,490	5,000	6,770	22	5,240	9,300	13,800
3	-------	5,990	3,460	13	4,760	2,660	10,700	23	3,250	11,400	13,400
4	-------	5,990	2,470	14	5,740	4,530	13,000	24	5,740	13,800	7,600
5	-------	6,500	5,000	15	4,760	5,000	16,500	25	5,490	11,800	9,010
6	-------	3,250	5,490	16	3,050	5,000	24,100	26	5,490	6,500	7,320
7	-------	5,490	5,990	17	5,000	4,530	26,400	27	5,990	4,080	8,160
8	-------	7,040	6,240	18	6,500	4,080	25,000	28	4,300	4,530	7,320
9	5,000	7,600	5,000	19	5,990	5,000	21,400	29	3,870	5,000	7,600
10	4,760	7,880	3,460	20	5,990	4,530	20,100	30	2,850	5,990	7,320
								31	5,490	5,990	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
July 9–31	6,500	2,850	5,030	0.558	0.48
August	13,800	2,660	6,250	.694	.80
September	26,400	2,470	10,600	1.18	1.32

FLAMBEAU RIVER AT FLAMBEAU RESERVOIR, WIS.

LOCATION.—Chain gage in NE. ¼ sec. 3, T. 41 N., R. 2 E., a quarter of a mile below dam of Flambeau Reservoir.

DRAINAGE AREA.—620 square miles.

RECORDS AVAILABLE.—September, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,410 second-feet February 14 (gage height, 5.8 feet); minimum, 335 second-feet April 1–2 (gage height, 3.96 feet).

REMARKS.—Records excellent. Flow regulated by storage in Flambeau Reserv oi

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

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	659	659	659	860	800	800	335	531	632	659	632	860
2	------	659	659	659	860	800	742	335	531	632	659	632	860
3	------	484	659	659	860	800	742	376	531	632	659	632	860
4	------	556	659	659	860	800	742	376	531	632	659	632	742
5	------	659	659	659	860	800	714	376	531	632	659	632	606
6	------	659	659	659	860	800	714	376	531	632	659	632	606
7	------	659	659	659	800	860	714	376	531	860	860	632	606
8	------	659	659	659	800	925	686	439	556	860	860	632	606
9	------	659	659	659	800	800	686	439	606	860	860	632	606
10	------	659	659	659	800	800	686	439	606	860	860	925	606
11	------	659	659	659	800	1,060	659	439	606	860	860	800	606
12	------	659	659	659	800	1,200	659	439	606	860	860	925	484
13	------	659	659	659	1,270	1,270	659	484	686	860	860	925	355
14	------	659	659	659	1,130	1,340	659	484	686	860	860	925	355
15	686	659	659	659	990	1,270	632	484	686	860	860	925	355
16	686	659	659	659	860	925	632	484	508	860	860	925	355
17	686	659	659	659	800	800	606	484	508	860	860	925	355
18	686	659	659	659	800	800	606	508	508	860	860	925	355
19	686	659	659	659	800	800	606	508	714	860	580	925	355
20	686	659	659	659	800	800	606	508	714	860	580	925	355
21	686	659	659	659	800	742	580	508	714	659	580	925	355
22	659	659	659	659	742	742	580	508	632	659	580	925	355
23	659	659	659	659	742	800	580	508	632	659	632	860	484
24	659	659	659	659	742	800	531	508	632	659	632	860	556
25	659	659	659	659	742	800	418	508	632	659	632	860	580
26	659	659	659	714	742	742	556	508	632	659	632	925	556
27	659	659	659	990	742	800	484	508	632	659	632	990	580
28	659	659	659	1,200	800	800	484	531	632	659	632	990	580
29	659	659	659	1,060	800	800	484	531	632	659	632	860	580
30	659	659	659	860	800	------	508	531	632	659	632	860	659
31	------	659	------	860	800	------	508	------	632	------	632	860	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1927					
September 15–30	686	659	671	1.08	0.64
1927–28					
October	659	484	650	1.05	1.21
November	659	659	659	1.06	1.18
December	1,200	659	715	1.15	1.33
January	1,270	742	834	1.35	1.56
February	1,340	742	878	1.42	1.53
March	800	418	621	1.00	1.15
April	531	335	461	.744	.83
May	714	508	605	.976	1.13
June	860	632	747	1.20	1.34
July	860	580	719	1.16	1.34
August	990	632	828	1.34	1.54
September	860	355	539	.869	.97
The year	1,340	335	688	1.11	15.11

FLAMBEAU RIVER NEAR BUTTERNUT, WIS.

LOCATION.—Chain gage in lot 10, sec. 28, T. 41 N., R. 1 E., 6 miles southeast of Butternut and 7 miles upstream from Park Falls.

DRAINAGE AREA.—660 square miles.

RECORDS AVAILABLE.—July, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,770 second-feet May 5 (gage height, 4.53 feet); minimum, 382 second-feet April 1 (gage height, 1.63 feet).

1914–1928: Maximum discharge, 5,430 second-feet April 22 and 23, 1916 (gage height, 9.0 feet); minimum, 91 second-feet September 18 and 19, 1925 (gage height, 0.25 foot).

REMARKS.—Records good except those for period of ice effect (December 1 to March 31), which are fair. Flow regulated by storage in Flambeau Reservoir 9 miles above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	717	672					382	902	672	717	628	1,000
2	762	672					432	950	672	762	628	950
3	672	672					585	1,150	672	717	628	950
4	585	717					762	1,530	672	717	628	808
5	628	672					1,100	1,770	672	717	628	672
6	717	672					950	1,470	628	808	585	672
7	717	672					762	1,150	855	902	585	672
8	808	672					672	1,000	950	950	672	672
9	672	672					628	950	950	950	855	672
10	672	672					672	950	950	950	762	717
11	672	672					717	902	950	950	808	762
12	672	717					628	855	950	950	855	585
13	672	717					672	1,470	1,050	950	950	628
14	672	672					628	1,530	1,050	950	950	585
15	628	717			900		585	1,530	1,000	950	950	585
16	628	717	745	860		655	672	902	950	950	950	544
17	628	717					628	902	950	950	950	544
18	628	672					628	902	950	950	950	505
19	628	672					585	855	1,050	672	950	486
20	628	672					585	855	1,150	717	950	432
21	628	672					628	855	902	1,100	1.000	432
22	628	672					628	1,150	902	628	1.000	432
23	628	672					717	1,250	902	628	950	432
24	628	672					762	762	902	628	950	505
25	628	672					717	717	855	628	950	672
26	628	672					717	672	808	672	950	672
27	628	672					717	672	808	762	950	672
28	628	672					717	672	762	672	950	672
29	628	672					762	672	762	628	1.000	672
30	528	672			-------		717	628	762	628	1.000	672
31	672	-------			-------		-------	672	-------	628	1.000	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	808	585	657	0.995	1.15
November	717	672	681	1.03	1.15
December	----------	----------	745	1.13	1.30
January	----------	----------	860	1.30	1.50
Feburary	----------	----------	900	1.36	1.47
March	----------	----------	655	.992	1.14
April	1,100	382	678	1.03	1.15
May	1,770	628	1,010	1.53	1.76
June	1,150	628	870	1.32	1.47
July	1,100	628	799	1.21	1.40
August	1,000	585	857	1.30	1.50
September	1,000	432	642	.973	1.09
The year	1,770	382	779	1.18	16.08

FLAMBEAU RIVER NEAR LADYSMITH, WIS.

LOCATION.—In sec. 35, T. 36 N., R. 5 W., at Big Falls power plant of Lake Superior District Power Co., 14 miles above Ladysmith.

DRAINAGE AREA.—1,910 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1928. January, 1914, to September, 1923, at a station 8 miles below present site; February, 1903, to December, 1906, at Ladysmith, 14 miles below present site.

EXTREMES.—Maximum mean daily discharge during year, 8,120 second-feet April 6; minimum, 479 second-feet January 22.

1903–1906, 1914–1928: Maximum discharge, 19,500 second-feet April 11, 1922; minimum, 176 second-feet August 30, 1925, caused by regulation.

REMARKS.—Records good. Discharge computed from power-house records. Flow regulated by operation of power plants and storage in Flambeau Reservoir. Daily discharge record furnished by Lake Superior District Power Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,280	1,300	957	962	1,060	1,090	3,860	3,260	1,180	1,350	1,180	1,780
2	1,270	1,320	990	1,070	1,120	1,180	4,380	3,130	1,180	1,460	1,360	1,550
3	1,740	1,540	1,050	1,110	1,110	1,140	5,190	3,630	822	1,380	1,270	1,440
4	1,980	1,670	665	1,240	1,150	741	5,770	5,630	1,160	776	1,350	1,520
5	1,620	1,350	1,260	1,270	807	1,000	8,010	6,490	1,100	1,340	1,760	1,690
6	1,460	954	1,190	1,260	1,120	1,050	8,120	6,280	1,060	1,180	1,550	1,570
7	1,360	1,290	1,180	1,320	1,040	985	7,030	4,830	1,060	1,100	1,320	1,370
8	1,220	1,340	1,080	908	1,050	929	4,570	4,450	1,340	730	1,260	1,000
9	933	1,200	1,050	1,300	1,190	923	3,780	3,600	1,350	1,440	1,210	638
10	1,250	1,380	972	1,220	1,280	968	3,470	3,280	1,660	1,390	1,250	1,320
11	1,330	1,400	897	1,260	1,220	743	3,830	2,900	1,640	1,310	1,220	3,160
12	1,280	1,210	1,310	1,300	774	991	4,200	2,640	1,580	1,330	780	4,950
13	1,030	914	1,250	1,420	1,180	1,040	3,740	2,240	2,140	1,540	1,160	5,940
14	1,230	1,610	1,280	1,400	1,160	934	3,130	2,860	2,260	1,420	1,080	6,070
15	1,180	1,100	1,360	745	1,280	970	3,070	3,020	1,930	997	1,120	6,610
16	914	837	1,380	1,340	1,340	1,210	3,300	2,290	1,570	1,410	1,370	6,210
17	1,240	1,440	1,380	1,260	1,350	1,180	2,580	1,970	1,670	1,290	1,580	5,380
18	979	1,520	697	1,250	1,300	720	3,020	2,100	1,930	1,440	1,350	4,510
19	1,070	1,340	1,200	1,330	609	995	3,220	1,990	1,830	1,600	820	3,780
20	1,110	1,160	1,140	1,420	1,120	1,020	3,260	1,770	2,400	1,560	1,560	3,370
21	1,230	1,710	1,220	1,230	1,080	1,210	3,420	1,780	2,410	1,350	1,480	2,810
22	1,210	1,530	1,500	479	1,100	1,240	4,000	1,800	2,170	1,760	1,380	2,460
23	563	1,550	1,370	1,250	1,100	1,800	4,640	1,910	2,460	1,460	1,400	2,170
24	1,050	885	1,160	1,140	1,160	2,590	4,740	2,040	2,520	1,050	1,460	1,860
25	1,010	1,510	971	1,160	1,090	3,520	4,700	1,750	2,380	1,310	1,400	2,040
26	1,010	1,230	828	1,260	748	4,230	4,170	1,300	2,230	1,230	849	2,070
27	1,060	1,330	1,100	1,270	1,080	3,750	3,670	1,040	1,880	1,360	1,140	2,050
28	1,170	1,630	1,100	1,200	1,030	3,940	3,400	1,640	1,760	1,730	1,440	1,920
29	1,070	1,460	1,260	703	991	4,310	3,380	1,340	1,620	1,260	1,570	1,860
30	482	1,140	1,430	1,200	-------	3,810	2,880	522	1,600	1,500	1,630	1,390
31	1,230	-------	1,290	1,100	-------	3,630	-------	1,330	-------	1,320	1,690	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,980	482	1,180	0.618	0.71
November	1,710	837	1,330	.696	.78
December	1,500	665	1,150	.602	.69
January	1,420	479	1,170	.613	.71
February	1,350	609	1,090	.571	.62
March	4,310	720	1,740	.911	1.05
April	8,120	2,580	4,220	2.21	2.47
May	6,490	522	2,740	1.43	1.65
June	2,520	821	1,730	.906	1.01
July	1,760	730	1,330	.696	.80
August	1,760	780	1,320	.691	.80
September	6,610	638	2,820	1.48	1.65
The year	8,120	479	1,810	.948	12.94

JUMP RIVER AT SHELDON, WIS.

LOCATION.—Chain gage in sec. 26, T. 33 N., R. 5 W., at highway bridge in Sheldon 11 miles above mouth.

DRAINAGE AREA.—510 square miles.

RECORDS AVAILABLE.—July, 1915, to September, 1928.

EXTREMES.—Maximum discharge during year, 9,530 second-feet March 26 (gage height, 9.45 feet); minimum, 30 second-feet August 19 (gage height, 2.80 feet).

1915–1928: Maximum discharge, 15,600 second-feet March 26, 1920 (gage height, 11.48 feet); minimum (estimated), 14 second-feet January 25–31, 1924.

REMARKS.—Records good except those for period of ice effect (November 12 to March 23), which are poor, and those for extremely low water, which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	177	177	145	125	60	105	2,160	970	124	113	90	90
2	330	240	145	125	60	105	2,040	890	113	151	106	100
3	240	380	145	125	60	105	2,560	1,050	100	136	100	113
4	435	490	145	125	60	125	2,840	1,220	100	177	100	80
5	680	435	145	125	75	125	4,190	2,560	100	208	100	69
6	855	305	145	125	75	145	5,180	3,640	74	185	100	62
7	970	255	145	145	75	145	4,970	3,470	90	136	124	69
8	930	221	125	145	75	145	4,570	2,420	136	124	124	74
9	890	221	125	145	90	165	3,300	1,810	113	151	136	74
10	970	221	125	165	105	165	2,040	1,500	113	164	113	69
11	890	208	125	165	125	165	1,920	970	100	185	90	143
12	820	185	125	165	125	185	2,700	680	113	151	74	615
13	615	165	125	165	145	185	2,840	490	136	124	69	1,500
14	380	145	125	165	165	210	2,160	490	136	305	62	2,560
15	330	145	125	165	165	230	2,160	435	136	280	45	3,140
16	280	145	125	145	165	255	1,700	490	136	221	45	3,300
17	230	145	125	145	165	280	1,500	330	113	177	49	2,840
18	240	145	125	145	145	330	1,600	305	164	136	45	2,040
19	230	145	125	145	145	435	1,810	330	151	143	34	1,360
20	240	145	125	125	145	550	2,160	408	221	194	106	890
21	221	145	125	125	125	890	2,840	330	270	208	100	680
22	194	145	125	105	125	1,400	4,000	330	280	208	106	550
23	136	145	125	105	105	2,160	3,820	240	408	164	100	490
24	100	165	125	105	105	6,280	3,470	208	550	143	95	280
25	113	165	125	105	105	6,980	3,140	194	490	164	90	270
26	106	185	145	90	105	9,000	2,700	151	355	124	90	255
27	100	185	145	90	105	6,740	2,040	164	270	113	100	255
28	90	185	145	90	105	5,390	1,500	177	230	124	80	230
29	113	185	145	75	105	3,640	1,400	136	151	106	80	185
30	136	185	145	75	------	2,990	1,130	100	136	124	80	164
31	100	------	125	75	------	2,160	------	100	------	100	90	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	970	90	392	0.769	0.89
November	490	145	207	.406	.45
December	145	125	133	.261	.30
January	165	75	126	.247	.28
February	165	60	111	.218	.24
March	9,000	105	1,670	3.27	3.77
April	5,180	1,130	2,680	5.25	5.86
May	3,640	100	858	1.68	1.94
June	550	74	187	.367	.41
July	305	100	163	.320	.37
August	136	34	87.8	.172	.20
September	3,300	62	752	1.47	1.64
The year	9,000	34	613	1.20	16.35

RED CEDAR RIVER NEAR COLFAX, WIS.

LOCATION.—Water-stage recorder in sec. 27, T. 30 N., R. 11 W., at highway bridge 4½ miles north of Colfax. Trout Creek enters 3½ miles above station.

DRAINAGE AREA.—1,100 square miles.

RECORDS AVAILABLE.—March, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,550 second-feet March 24 (gage height, 5.34 feet); minimum, 270 second-feet June 11 (gage height, 0.92 foot).

1914–1928: Maximum discharge, 7,610 second-feet March 26, 1920 (gage height, 6.95 feet); minimum, 218 second-feet November 23, 1925 (gage height, 0.55 foot).

REMARKS.—Records fair except those for period of ice effect (November 16–22 and November 30 to March 20), which are poor, and those for estimated periods as indicated by braced figures in table. Flow regulated by four storage reservoirs upstream.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		716	700	480	570	700	1,030	1,110	510	510	565	565
2		654	600	405	665	540	956	654	485	623	565	
3		748	540	355	630	600	885	1,030	538	748	623	510
4	735	623	455	540	600	540	1,110	1,270	346	594	538	458
5		594	430	455	480	665	1,190	1,640	594	538	538	623
6		654	380	480	480	840		1,640	510	510	458	684
7		510	355	540	540	880		1,640	484	565	654	594
8	850	684	405	540	665	805		1,540	594	623	716	684
9	782	654	480	455	960	960		1,360	538	434	565	
10	623	538	600	355	1,500	1,080		1,110	510	510	510	
11	815	716	540	405	1,130	1,310		716	325	538	484	700
12	716	716	630	600	600	1,310		654	654	538	565	
13	654	684	665	730	430	1,400		654	716	594	410	
14	716	623	665	880	700	1,700	1,250	458	594	565	366	
15	623	594	665	805	1,040	1,500		594	565	565	484	885
16	594	630	630	840	805	1,500		623	538	366	484	850
17	458	665	455	665	960	1,600		623	565	410	484	956
18	594	770	540	665	1,040	1,900		623	458	565	458	684
19	623	880	600	600	840	2,120		623	654	538	434	782
20	594	920	630	600	665	2,580		594	716	538	458	716
21	510	880	770	455	380	1,540		410	623	538	594	623
22	565	805	805	455	480	3,320	1,940	565	815	432	594	748
23	565	684	730	510	540	4,260	1,840	594	885	325	538	
24	484	716	730	630	630	3,710	1,540	538	956	366	684	
25	538	510	730	600	730	2,590	1,740	510	885	484	748	625
26	538	716	730	570	600	2,040	1,450	565	538	538	594	
27	623	623	510	510	630	1,840	1,110	623	484	565	434	
28	594	594	805	455	730	1,540	1,030	484	594	510	410	
29	594	654	730	405	665	1,450	956	565	594	538	510	594
30	623	700	510	430	-------	1,270	782	538	623	410	654	594
31	623	-------	510	480	-------	1,190	-------	410	-------	388	623	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	850	458	647	0.588	0.68
November	920	510	682	.620	.69
December	805	355	598	.544	.63
January	880	355	545	.495	.57
February	1,500	380	713	.648	.70
March	4,260	540	1,590	1.45	1.67
April	----------	782	1,250	1.14	1.27
May	1,640	410	815	.741	.85
June	956	325	602	.547	.61
July	748	325	510	.464	.53
August	748	366	542	.493	.57
September	956	458	669	.608	.68
The year	4,260	325	763	.694	9.45

RED CEDAR RIVER AT MENOMONIE, WIS.

LOCATION.—Water-stage recorder in sec. 26, T. 28 N., R. 13 W., at Menomonie, 900 feet below power house of Northern States Power Co. and 1,000 feet below mouth or Wilson Creek.

DRAINAGE AREA.—1,810 square miles.

RECORDS AVAILABLE.—June, 1907, to September, 1908; May, 1913, to September, 1923; March, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 8,950 second-feet March 23 (gage height, 5.5 feet); minimum, 61 second-feet September 9 (gage height, 0.85 foot). Minimum due to regulation.

1907–8, 1913–1923, 1925–1928: Maximum discharge, 14,000 second-feet March 26, 1920 (gage height, 8.0 feet); minimum, that of September 9, 1928.

REMARKS.—Records good except those for July 14, which were estimated. Considerable diurnal fluctuation caused by operation of power plants at Menomonie and at Cedar Falls. Flow also regulated by storage in four reservoirs upstream.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,300	980	1,100	970	713	1,100	805	1,380	1,040	699	654	740
2	1,230	980	1,030	1,030	858	1,160	2,420	1,690	1,160	1,330	970	516
3	1,230	1,160	867	1,030	928	1,160	2,110	1,860	919	1,230	970	526
4	1,230	1,160	331	1,050	1,030	1,160	2,090	1,920	1,040	910	1.160	806
5	1,230	1,230	606	1,120	457	1,160	1,440	2,260	910	1,030	654	798
6	1,230	1,230	563	989	858	1,160	1,440	2,980	910	1,030	919	775
7	1,300	910	664	980	1,030	1,370	1,520	2,980	910	1,040	699	751
8	1,300	970	759	822	928	1,740	1,160	2,600	980	858	850	771
9	1,310	1,100	782	1,180	1,030	1,820	1,920	2,240	1,100	1,230	980	496
10	1,160	1,100	588	1,100	1,160	1,820	1,840	2,240	1,230	1,230	867	798
11	1,230	1,100	368	980	1,160	1,740	1,300	1,760	989	1,030	621	782
12	1,230	1,100	738	980	572	1,590	1,660	1,900	858	699	621	919
13	1,230	652	1,040	919	1,160	2,160	2,160	1,030	989	551	989	1,610
14	1,230	788	980	1,030	1,160	1,740	2,420	1,250	1,100	900	867	1,380
15	1,230	1,050	1,040	919	1,160	1,820	2,070	1,240	1,100	1,230	858	1,370
16	970	1,160	1,040	1,100	1,370	1,900	2,240	1,320	1,030	919	798	1,030
17	814	1,100	1,030	1,160	1,230	1,900	1,450	1,230	850	910	798	1,570
18	1,040	1,160	496	1,040	1,160	1,740	1,620	1,230	1,230	1,160	798	1,330
19	1,100	1,160	1,030	919	661	1,740	2,070	1,100	1,160	1,030	577	1,240
20	1,160	590	980	1,030	919	2,160	2,600	678	1,450	1,160	546	1,050
21	1,160	884	970	706	1,030	2,240	2,980	1,230	1,230	1,100	867	970
22	1,030	1,100	980	566	910	3,180	3,180	980	1,370	699	764	1,030
23	312	1,100	980	867	970	6,550	3,180	1,230	1,230	756	919	289
24	762	1,310	1,030	919	910	8,050	3,180	798	740	654	1.100	708
25	919	1,100	782	980	1,030	7,750	2,980	1,100	1,870	1,100	970	806
26	919	1,160	1,030	858	542	6,550	2,600	1,030	1,660	710	610	775
27	919	850	771	1,160	806	4,800	1,740	910	1,370	599	867	867
28	858	937	858	1,160	806	3,610	1,980	1,160	1,160	867	919	867
29	1,040	1,160	1,160	622	1,100	2,790	1,370	919	806	706	980	858
30	867	1,160	919	622	-------	2,600	1,710	980	910	980	910	689
31	1,030	-------	1,160	858	-------	2,160	-------	1,100	-------	566	858	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,310	312	1,080	0.597	0.69
November	1,310	590	1,050	.580	.65
December	1,160	331	860	.475	.55
January	1,180	566	957	.529	.61
February	1,370	457	953	.527	.57
March	8,050	1,100	2,660	1.47	1.70
April	3,180	805	2,040	1.13	1.26
May	2,980	678	1,490	.823	.95
June	1,870	740	1,110	.613	.68
July	1,330	551	933	.515	.59
August	1,160	546	837	.462	.53
September	1,610	289	904	.499	.56
The year	8,050	289	1,240	.685	9.34

BLACK RIVER AT NEILLSVILLE, WIS.

LOCATION.—Chain gage in sec. 15, T. 24 N., R. 2 W., at new highway bridge in Neillsville. O'Neill Creek enters 1 mile above gage, and Cunningham Creek 1½ miles below.

DRAINAGE AREA.—774 square miles.

RECORDS AVAILABLE.—April, 1905, to March, 1909; December, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 17,500 second-feet September 14 (gage height, 16.4 feet); minimum, 32 second-feet June 7 (gage height, 2.44 feet).

1905–1909, 1913–1928: Maximum discharge, 37,100 second-feet June 6, 1905 (gage height, 22.4 feet); minimum, 5 second-feet during February, 1918.

REMARKS.—Records good except those for period of ice effect (December 5 to March 21), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	260	328				1,040	620	83	83	47	486
2	717	404	229				928	574	68	100	151	328
3	2,370	574	201				984	552	54	175	820	229
4	2,370	552	229				1,100	2,550	54	140	873	175
5	1,780	424					2,730	5,090	42	91	574	15
						50						
6	1,280	346					3,030	3,990	36	91	486	129
7	1,630	276					2,640	2,460	32	68	1,420	119
8	1,630	215					1,700	1,420	36	75	1,350	109
9	1,560	201					1,160	984	42	188	1,100	91
10	1,420	215					1,100	668	47	109	574	3,660
1	1,160	260					2,280	529	36	68	328	1,780
12	873	404					3,550	424	32	68	201	3,036
13	620	620					3,030	346	54	229	151	3,440
14	508	574					1,940	244	68	100	109	11,700
15	444	2,280			150		1,280	215	60	75	83	10,200
16	328	2,190		130		2,000	1,160	188	60	60	75	6,620
17	276	1,560					1,280	175	68	60	620	4,460
18	244	928	125				2,550	229	54	1,040	1,160	2,460
19	201	620					4,960	820	60	229	574	1,700
20	188	444					3,880	508	54	140	293	984
21	163	444					3,990	310	109	100	11,100	668
22	163	424				4,220	3,990	244	83	151	8,020	465
23	151	574				6,470	3,990	188	119	188	4,220	384
24	129	668				8,850	3,230	129	100	119	1,940	293
25	140	574				7,700	2,460	100	100	109	984	201
26	129	552				6,470	1,780	119	119	100	620	175
27	109	552				4,220	1,280	100	100	68	444	175
28	100	574				3,030	984	83	91	68	293	151
29	119	574				2,280	820	83	91	60	293	119
30	119	529			-------	1,630	717	68	75	60	620	129
31	260	-------			-------	1,280	-------	75	-------	47	574	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,370	100	692	0.894	1.03
November	2,280	201	627	.810	.90
December	----------	----------	141	.182	.21
January	----------	----------	130	.168	.19
February	----------	----------	150	.194	.21
March	8,850	----------	2,210	2.86	3.30
April	4,960	717	2,190	2.83	3.16
May	5,090	68	777	1.00	1.15
June	119	32	67.6	.0873	.10
July	1,040	47	137	.177	.20
August	11,100	47	1,290	1.67	1.92
September	11,700	91	1,820	2.35	2.62
The year	11,700	32	853	1.10	14.99

LA CROSSE RIVER NEAR WEST SALEM, WIS.

LOCATION.—Chain gage in sec. 32, T. 17 N., R. 6 W., at highway bridge 2 miles west of West Salem and 6 miles below mouth of Dutch Creek.

DRAINAGE AREA.—412 square miles.

RECORDS AVAILABLE.—December, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,780 second-feet September 15. Maximum gage height, 11.1 feet March 13, due to ice jam (gage height, 9.8 feet); minimum discharge (estimated), 90 second-feet December 18 and January 31.

1913–1928: Maximum discharge, that of September 15, 1928; maximum gage height, that of March 13, 1928; minimum discharge 56 second-feet February 20, 1927 (gage height, 2.40 feet).

REMARKS.—Records fair except those for period of ice effect (December 6 to March 15), which are poor. Slight diurnal fluctuation caused by operation of power plants a few miles above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	366	186	226	185	100	300	292	247	224	247	235	584
2	506	186	110	140	110	300	310	261	224	292	329	419
3	506	174	120	120	120	315	310	247	215	310	470	329
4	580	174	120	160	210	335	310	261	215	372	525	292
5	506	151	140	150	210	350	310	310	207	372	419	292
6	383	174	140	150	210	365	350	292	224	310	350	276
7	333	174	140	175	1,000	400	372	276	224	261	292	276
8	333	162	140	225	2,420	400	419	247	224	292	261	261
9	255	162	140	255	1,880	435	395	247	224	292	261	276
10	301	162	140	270	1,490	435	350	235	224	372	247	292
11	270	162	140	270	785	470	329	235	224	372	247	584
12	226	174	140	350	785	505	350	247	224	310	235	910
13	226	174	140	385	785	580	350	235	224	310	235	790
14	226	186	130	435	785	700	310	235	224	753	235	1,940
15	212	212	130	420	505	820	292	235	224	554	235	4,620
16	199	383	120	420	435	1,120	310	224	224	372	224	2,500
17	240	506	110	420	400	790	329	235	215	276	235	1,270
18	186	435	90	350	365	717	350	235	224	261	247	830
19	186	301	100	285	335	682	372	247	224	292	235	615
20	186	255	120	285	315	525	395	247	247	261	261	525
21	174	199	110	140	300	497	350	247	247	261	444	497
22	186	212	130	120	285	497	310	235	235	276	753	470
23	174	212	130	160	285	554	276	224	247	261	1,370	444
24	174	212	120	185	270	584	276	224	276	261	990	419
25	174	255	120	175	270	497	276	224	247	247	990	395
26	162	199	130	130	270	470	276	224	247	247	753	372
27	174	212	130	100	270	444	261	224	235	235	497	350
28	162	199	175	100	285	419	261	224	235	247	372	372
29	162	199	255	110	285	350	261	224	261	235	395	350
30	174	226	240	110	------	329	261	224	261	224	470	350
31	186	------	240	90	------	310	------	224	------	224	615	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	580	162	262	0.636	0.73
November	506	151	221	.536	.60
December	255	90	142	.345	.40
January	435	90	222	.539	.62
February	2,420	100	544	1.32	1.42
March	1,120	300	500	1.21	1.40
April	419	261	320	.777	.87
May	310	224	242	.587	.68
June	276	207	232	.563	.63
July	753	224	310	.752	.87
August	1,370	224	433	1.05	1.21
September	4,620	261	730	1.77	1.98
The year	4,620	90	345	.837	11.41

WISCONSIN RIVER AT WHIRLPOOL RAPIDS, NEAR RHINELANDER, WIS.

LOCATION.—Water-stage recorder in sec. 4, T. 35 N., R. 8 E., at head of Whirlpool Rapids, 1 mile below outlet of Crescent Lake and 10 miles southwest of Rhinelander.

DRAINAGE AREA.—1,160 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1928. December, 1905, to September, 1915, records collected at a station 3 miles upstream.

EXTREMES.—Maximum discharge during period, 4,520 second-feet September 18 (gage height, 5.24 feet); minimum, 522 second-feet September 9 (gage height, 1.67 feet).

1915–1928: Maximum discharge, 5,250 second-feet April 22, 1916 (gage height, 5.61 feet); minimum, 165 second-feet July 7, 1918 (gage height, 0.65 foot).

REMARKS.—Records good. No records October 1 to July 20. Flow regulated by 14 reservoirs and 3 power plants above station.

Daily and monthly discharge, in second-feet, 1928

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	------	942	1,240	11	------	1,070	1,600	21	1,160	1,070	2,970
2	------	900	1,070	12	------	785	1,900	22	1,160	1,070	2,700
3	------	985	1,070	13	------	1,070	2,340	23	1,160	1,070	2,830
4	------	985	1,160	14	------	1,160	2,580	24	1,070	1,070	2,460
5	------	1,070	1,070	15	------	985	3,110	25	1,070	1,070	2,230
6	------	1,070	1,070	16	------	985	2,830	26	1,160	750	2,120
7	------	1,160	1,070	17	------	1,070	3,110	27	1,070	985	2,010
8	------	1,160	900	18	------	1,070	3,400	28	1,160	1,420	1,600
9	------	1,070	715	19	------	750	3,110	29	1,160	1,330	1,600
10	------	1,160	900	20	------	942	3,250	30	1,160	1,330	1,240
								31	985	1,420	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
July 21–31	1,160	985	1,120	0.966	0.40
August	1,420	750	1,060	.914	1.05
September	3,400	715	1,980	1.71	1.91

WISCONSIN RIVER AT MERRILL, WIS.

LOCATION.—Water-stage recorder on line between secs. 12 and 13, T. 31 N., R. 6 E., at highway bridge at east end of Merrill, half a mile below mouth of Prairie River.

DRAINAGE AREA.—2,630 square miles.

RECORDS AVAILABLE.—November, 1902, to September, 1928.

EXTREMES.—Maximum discharge during year, 17,700 second-feet September 14 (gage height, 11.00 feet); minimum, 502 second-feet October 23 (gage height, 3.15 feet).

1902–1928: Maximum discharge, 45,000 second-feet July 24, 1912 (gage height, 17.5 feet); minimum, about 90 second-feet September 26, 1908 (gage height, 2.45 feet).

REMARKS.—Records good except those for period of ice effect (December 11 to March 21), which are fair, and those for November 2–8 and June 12–18, which were estimated. Flow regulated by 17 reservoirs and 8 power plants above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,300	2,300	1,790	1,790	1,670	1,560	4,950	4,510	2,590	2,920	2,750	4,290
2	3,680		1,790	2,300	1,460	1,460	4,730	3,680	2,300	2,590	2,750	4,290
3	3,480		2,170	2,590	1,560	1,360	5,640	4,510	1,910	2,750	2,590	3,680
4	3,880		1,560	2,590	1,360	1,360	6,610	6,120	1,670	2,750	3,100	3,680
5	3,100	2,300	1,670	2,170	1,260	1,560	8,160	8,430	2,300	2,920	2,920	3,480
6	3,290		1,910	1,790	1,560	1,560	8,980	9,540	2,440	2,750	2,300	3,480
7	3,680		2,040	1,560	1,560	1,360	7,890	6,120	2,590	2,750	2,300	3,290
8	3,100		1,910	1,460	1,670	1,670	5,880	4,950	2,920	2,750	2,920	3,100
9	3,100	2,300	1,910	2,040	1,790	1,460	4,730	4,730	2,750	2,750	2,590	2,920
10	2,590	1,910	2,440	1,790	1,670	1,670	4,080	4,730	2,590	2,920	2,590	3,680
11	2,590	1,360	2,300	1,910	1,560	1,560	4,290	4,290	2,590	2,750	2,590	7,890
12	4,080	2,440	2,590	1,790	1,560	1,670	5,180	3,680		2,590	2,440	11,300
13	4,080	1,790	2,170	1,670	1,790	1,670	4,510	3,290		2,920	2,170	11,300
14	4,080	2,040	2,170	1,560	1,910	2,040	2,920	3,290		3,100	2,170	14,700
15	3,290	2,170	2,170	1,560	1,910	2,040	2,750	3,100	2,670	2,920	2,300	14,700
16	3,290	2,170	2,300	2,040	1,910	2,040	3,290	2,750		2,920	2,300	13,100
17	3,480	2,170	2,170	1,670	1,790	2,170	3,480	2,040		2,750	2,440	11,900
18	3,290	2,040	2,170	1,910	1,910	1,790	3,680	2,750		3,290	2,440	10,700
19	2,040	1,790	2,040	1,560	1,360	1,790	4,290	1,910	2,750	3,480	2,440	10,100
20	1,560	1,910	2,170	2,040	1,790	2,040	4,290	1,670	2,920	3,680	2,440	8,700
21	1,670	2,170	2,040	1,360	1,790	2,440	4,950	2,170	3,100	3,480	3,880	8,430
22	1,460	2,300	2,440	1,460	1,910	4,290	5,880	2,040	2,920	3,480	4,080	8,160
23	1,260	3,100	2,040	1,910	1,790	6,120	6,860	3,100	3,290	3,290	3,880	7,370
24	2,040	3,100	2,040	1,560	1,790	7,370	7,630	3,100	3,480	3,680	3,880	7,370
25	1,790	3,100	1,790	1,790	1,560	8,430	7,110	2,920	3,290	3,290	3,480	7,110
26	1,790	3,100	1,910	1,460	1,560	9,260	5,880	2,440	3,290	2,920	3,480	6,860
27	1,560	3,290	1,910	1,360	1,460	7,110	4,950	2,170	3,290	2,920	2,750	6,120
28	1,560	2,920	1,910	1,460	1,670	6,360	4,950	1,560	3,290	3,100	3,480	5,880
29	1,560	2,750	2,300	1,360	1,670	6,610	4,080	2,440	3,100	2,920	4,080	5,410
30	1,260	2,170	2,300	1,670	-------	5,410	4,290	2,590	2,920	2,920	4,730	5,180
31	2,170	-------	2,590	2,040	-------	4,730	-------	2,440	-------	3,100	4,730	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,080	1,260	2,650	1.01	1.16
November	3,290	1,360	2,350	.894	1.00
December	2,590	1,560	2,090	.795	.92
January	2,590	1,360	1,780	.677	.78
February	1,910	1,260	1,660	.631	.68
March	9,260	1,360	3,290	1.25	1.44
April	8,980	2,750	5,230	1.99	2.22
May	9,540	1,560	3,650	1.39	1.60
June	3,480	1,670	2,770	1.05	1.17
July	3,680	2,590	3,010	1.14	1.31
August	4,730	2,170	3,000	1.14	1.31
September	14,700	2,920	7,270	2.76	3.08
The year	14,700	1,260	3,220	1.22	16.67

WISCONSIN RIVER AT KNOWLTON, WIS.

LOCATION.—Water-stage recorder in N. ½ sec. 29, T. 26 N., R. 7 E., 50 feet below left end of combination railroad and highway bridge of Chicago, Milwaukee, St. Paul & Pacific Railway at Knowlton, 1½ miles below mouth of Big Eau Pleine River.

DRAINAGE AREA.—4,360 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 42,500 second-feet September 16 (gage height, 17.35 feet); minimum, 1,320 second-feet June 4 (gage height, 2.12 feet).

1921–1928: Maximum discharge, 49,800 second-feet April 10, 1922 (gage height, 19.5 feet); minimum, 670 second-feet August 15, 1921 (gage height, 1.0 foot).

REMARKS.—Records good except those for period of ice effect (December 4 to March 19), which are fair. Flow regulated by many storage reservoirs and power plants above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,810	3,140	4,010	2,340	1,780	1,780	16,600	8,590	2,490	2,510	3,140	4,560
2	4,370	3,830	3,310	2,490	1,780	1,780	16,300	8,340	2,490	2,210	3,140	5,700
3	8,250	3,830	3,830	2,340	1,780	1,780	12,200	7,850	2,490	2,810	3,140	5,700
4	9,590	3,310	2,380	2,190	1,650	1,530	13,300	8,840	2,090	2,390	3,140	3,650
5	8,090	3,650	2,310	2,050	1,150	1,530	16,000	17,200	2,810	2,510	3,140	3,480
6	6,090	3,140	2,250	2,190	1,650	1,910	18,900	22,400	2,810	2,650	2,510	3,310
7	6,930	2,810	2,340	2,190	1,650	1,780	20,100	18,900	2,490	2,810	3,480	2,970
8	6,930	2,810	2,420	1,650	1,810	1,780	17,200	13,300	2,810	2,650	4,010	2,810
9	7,380	2,810	2,500	1,780	1,470	1,910	11,700	10,100	2,970	2,490	4,560	2,490
10	6,500	2,970	2,400	2,050	1,470	1,910	10,100	9,840	2,650	2,970	3,830	2,810
11	5,700	2,810	2,290	1,910	1,650	1,780	9,840	9,340	2,650	2,970	3,310	8,840
12	5,510	2,810	2,180	2,050	1,420	2,340	12,700	7,850	2,810	2,810	2,810	10,600
13	4,750	3,480	2,050	2,190	1,780	2,810	15,400	7,380	3,140	2,810	2,810	15,100
14	4,560	2,970	2,050	2,340	1,910	2,810	12,500	6,090	3,480	3,310	2,970	18,300
15	4,190	3,650	2,050	2,050	1,910	2,970	8,340	6,500	3,310	3,140	2,340	32,900
16	3,650	5,700	2,190	2,490	2,050	3,480	8,090	6,500	2,970	3,140	2,340	38,500
17	3,650	6,090	2,190	2,190	2,190	4,010	8,840	5,700	2,650	3,140	2,970	26,800
18	3,140	5,700	1,910	2,340	2,190	4,940	8,840	4,940	2,650	3,140	3,310	18,900
19	3,140	4,370	2,050	2,190	1,780	5,320	10,900	5,890	3,140	3,310	3,140	13,600
20	2,970	3,480	2,190	2,190	1,650	9,590	16,600	5,320	2,810	4,190	3,140	11,700
21	2,810	3,480	1,910	2,050	2,190	10,400	16,300	4,750	2,970	3,310	10,600	8,840
22	2,340	4,010	1,780	1,910	2,050	15,700	17,500	4,560	2,810	4,940	20,700	9,340
23	2,360	4,190	1,910	1,780	2,050	24,100	18,900	4,370	3,140	4,940	14,200	7,850
24	2,210	4,010	2,050	2,340	2,190	36,500	18,100	4,190	3,140	3,140	8,590	6,710
25	2,650	4,190	2,190	2,190	2,190	30,700	16,900	4,010	3,140	2,650	6,710	6,500
26	2,810	4,560	2,050	1,910	2,190	27,700	14,200	3,830	2,970	2,490	4,190	5,510
27	2,810	3,830	2,050	1,910	1,650	27,700	11,700	3,480	2,970	2,810	4,190	5,320
28	2,810	4,190	2,190	1,910	2,340	25,300	10,400	3,310	2,970	3,140	3,830	5,130
29	2,190	4,190	2,490	1,650	2,050	21,200	9,090	3,480	2,810	2,650	4,370	4,940
30	2,490	4,560	2,190	1,650	-------	19,800	8,590	2,970	2,810	2,490	4,560	4,190
31	1,930	-------	2,340	1,780	-------	17,200	-------	2,490	-------	2,970	5,320	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,590	1,930	4,370	1.00	1.15
November	6,090	2,810	3,820	.876	.98
December	4,010	1,780	2,320	.532	.61
January	2,490	1,650	2,070	.475	.55
February	2,340	1,150	1,850	.424	.46
March	36,500	1,530	10,100	2.32	2.68
April	20,100	8,090	13,500	3.10	3.46
May	22,400	2,490	7,490	1.72	1.98
June	3,480	2,090	2,850	.654	.73
July	4,940	2,210	3,020	.693	.80
August	20,700	2,340	4,850	1.11	1.28
September	38,500	2,490	9,900	2.27	2.53
The year	38,500	1,150	5,520	1.27	17.21

WISCONSIN RIVER NEAR NEKOOSA, WIS.

LOCATION.—Water-stage recorder in sec. 15, T. 21 N., R. 7 E., 1½ miles below Nekoosa. Tenmile Creek enters 4 miles below station.

DRAINAGE AREA.—5,500 square miles.

RECORDS AVAILABLE.—May, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 52,100 second-feet March 26 (gage height, 15.0 feet); minimum, 1,150 second-feet October 30 (gage height, 0.6 foot).

1914–1928: Maximum discharge, 61,000 second-feet April 12, 1922 (gage height, 16.1 feet); minimum (estimated), 400 second-feet January 13, 1924, caused by regulation.

REMARKS.—Records fair except those for period of ice effect (December 7 to March 20), which are poor, and those for December 3–6 and September 13, which were estimated. Flow regulated by many storage reservoirs and power plants above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,630	2,810	4,990	2,490	2,420	2,420	15,600	9,260	2,970	2,420	3,220	6,710
2	4,360	4,100	3,190	3,220	2,190	1,720	12,000	9,500	2,730	3,640	3,500	6,050
3	7,610	4,480	3,120	3,560	2,050	2,260	12,000	8,780	2,420	2,490	3,380	4,050
4	10,800	4,000	3,040	2,810	2,190	1,720	13,000	9,260	2,970	2,260	4,570	4,100
5	10,500	3,730	2,970	2,810	1,780	2,260	14,800	11,600	2,730	2,650	3,110	4,280
6	8,780	3,950	2,890	2,730	1,460	1,910	17,800	19,400	2,890	3,130	3,300	3,820
7	7,610	3,410	2,810	2,650	1,650	2,260	21,100	22,900	2,970	2,730	3,380	3,730
8	9,260	3,050	2,920	2,570	2,420	2,260	22,200	18,400	2,730	2,730	4,280	3,220
9	8,540	3,380	3,020	2,970	2,260	2,190	18,300	12,800	3,050	3,130	4,780	2,650
10	8,540	3,300	3,130	1,780	1,840	2,190	13,300	10,500	2,970	2,730	4,990	3,380
11	7,380	3,470	3,000	2,490	1,840	2,050	12,300	10,500	2,810	3,560	4,100	5,830
12	6,930	3,050	2,860	2,570	2,120	1,980	13,600	9,020	2,890	3,130	3,050	11,000
13	6,270	3,370	2,730	2,650	2,050	2,340	16,600	9,540	3,050	2,970	3,300	15,000
14	5,830	4,380	2,570	2,420	2,120	2,970	17,500	6,050	3,300	3,300	3,220	19,000
15	4,990	4,790	2,600	2,490	2,190	3,470	13,300	6,710	3,640	3,130	3,220	25,000
16	4,380	7,150	2,620	2,650	2,120	4,000	9,500	7,150	3,470	3,470	2,780	40,000
17	4,580	8,300	2,650	2,190	2,120	4,790	9,750	6,710	2,420	3,380	2,570	45,900
18	4,000	8,540	2,490	2,650	2,120	5,620	11,800	6,050	2,420	3,220	3,200	32,500
19	3,300	6,270	2,890	2,650	2,120	6,490	13,900	5,830	3,050	3,380	3,600	20,800
20	3,730	4,380	2,570	3,050	2,340	7,610	18,400	6,370	3,050	4,280	3,600	16,000
21	3,470	4,900	2,340	3,470	2,340	9,020	20,400	5,620	3,220	4,190	9,110	13,300
22	3,300	6,270	2,200	2,570	2,970	11,000	19,700	4,990	3,130	3,370	18,000	12,000
23	2,780	5,830	2,050	2,890	3,050	15,100	20,400	5,410	3,380	5,350	23,900	11,000
24	2,680	5,830	1,980	1,910	2,190	19,400	20,800	4,190	3,380	4,890	18,600	9,500
25	2,650	5,150	2,570	2,420	3,130	27,000	20,100	4,280	3,050	3,300	12,500	8,070
26	3,130	5,620	2,650	2,730	2,490	46,600	17,800	4,280	3,730	2,970	8,870	7,610
27	3,160	4,730	3,560	2,730	3,130	34,900	14,500	3,730	3,220	2,490	6,700	6,050
28	3,300	5,410	2,970	2,340	2,260	33,500	12,300	4,000	3,300	2,810	6,490	5,620
29	3,200	5,200	2,650	1,980	2,890	33,000	10,800	3,820	3,300	2,680	6,700	5,620
30	1,970	5,100	2,570	2,490	-------	19,000	10,000	2,760	3,050	3,080	6,700	4,990
31	3,130	-------	2,570	2,050	-------	16,600	-------	3,470	-------	2,970	7,380	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	10,800	1,970	5,320	0.967	1.11
November	8,540	2,810	4,800	.873	.97
December	4,990	1,980	2,810	.511	.59
January	3,560	1,780	2,610	.475	.55
February	3,130	1,460	2,270	.413	.45
March	46,600	1,720	10,600	1.93	2.22
April	22,200	9,500	15,500	2.82	3.15
May	22,900	2,760	8,160	1.48	1.71
June	3,730	2,420	3,040	.553	.62
July	5,350	2,260	3,220	.585	.67
August	23,900	2,570	6,330	1.15	1.33
September	45,900	2,650	11,900	2.16	2.41
The year	46,600	1,460	6,370	1.16	15.78

WISCONSIN RIVER AT MUSCODA, WIS.

LOCATION.—Chain gage in sec. 1, T. 8 N., R. 1 W., at highway bridge 1 mile north of Muscoda. Eagle Mill Creek enters half a mile below station, and Underwood Creek 4½ miles above. Zero of gage is 664.3 feet above mean sea level.

DRAINAGE AREA.—10,300 square miles.

RECORDS AVAILABLE.—December, 1902, to December, 1903; December, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 52,600 second-feet September 22 (gage height, 9.48 feet); minimum, 4,770 second-feet June 11 (gage height, 1.18 feet).

1902–1903, 1913–1928: Maximum discharge, 72,100 second-feet April 16, 1922 (gage height, 10.60 feet); minimum (estimated), 1,600 second-feet December 20, 1921.

A stage of 11.1 feet on June 11, 1881, is reported by United States Weather Bureau (discharge not determined).

REMARKS.—Records fair except those for period of ice effect (December 9 to March 15), which are poor. Considerable diurnal fluctuation caused by operation of power plant at Prairie du Sac. Flow regulated by numerous storage reservoir and power plant above station.

Daily discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,390	7,090	10,900	8,020	6,250	7,390	46,200	19,400	8,600	7,390	6,520	17,600
2	7,700	7,390	11,700	7,700	6,250	6,800	39,900	16,000	8,020	6,800	6,520	15,000
3	9,040	6,800	10,900	7,390	5,730	7,090	36,900	17,600	7,390	9,040	7,090	13,100
4	10,100	6,520	8,690	6,800	5,730	6,800	27,300	15,000	6,520	8,690	6,800	13,100
5	10,100	6,520	8,020	6,800	6,250	6,250	25,200	14,000	6,800	7,090	6,520	10,100
6	11,700	6,520	9,040	6,800	5,730	7,390	22,500	15,000	6,800	8,020	5,730	9,400
7	13,100	6,800	7,700	6,800	8,690	7,390	22,500	12,600	6,250	8,020	7,090	9,770
8	15,500	7,700	7,700	7,390	14,500	7,090	21,200	14,500	5,990	8,020	7,390	8,690
9	17,000	7,090	7,700	7,390	13,500	7,390	22,500	18,200	6,250	6,250	7,090	8,690
10	14,000	8,020	7,700	7,700	10,100	7,390	25,200	22,500	5,730	7,700	7,390	7,390
11	14,000	8,020	7,390	7,090	8,690	7,390	28,000	23,100	5,00	7,390	7,390	8,690
12	14,000	7,090	6,520	6,800	10,100	8,690	28,700	25,200	5,48	6,800	7,390	9,040
13	14,500	6,800	7,390	6,800	9,770	20,000	32,400	19,400	5,73	6,520	6,520	9,040
14	14,500	6,800	7,390	7,090	10,900	21,200	27,300	15,500	5,48	6,520	7,700	8,690
15	13,500	10,900	7,090	7,700	12,200	12,600	23,800	13,100	5,73	6,520	6,800	10,100
16	11,700	9,770	7,090	7,390	12,200	12,600	21,800	12,600	5,99	5,990	6,800	15,000
17	11,300	10,100	6,250	8,350	11,300	12,600	20,000	14,500	5,99	6,800	6,800	20,000
18	12,200	10,900	5,730	8,020	12,600	11,300	22,500	14,000	5,73	6,800	6,800	21,800
19	10,900	11,700	6,520	8,020	8,020	12,200	22,500	11,300	6,80	6,800	6,800	24,500
20	10,500	13,500	6,520	7,390	7,390	15,500	19,400	10,900	7,39	7,090	5,990	30,900
21	10,100	12,200	6,800	5,990	7,700	11,700	18,800	10,500	6,80	6,250	7,090	41,400
22	10,100	14,000	6,800	6,800	8,690	12,600	20,000	13,100	7,39	8,020	5,240	51,800
23	8,690	12,200	6,250	6,800	8,690	15,500	21,800	11,300	8,35	6,250	5,990	49,400
24	7,090	11,700	6,800	8,020	7,390	17,600	22,500	10,500	8,350	6,520	7,700	39,900
25	8,690	9,400	7,090	7,390	7,390	18,200	25,900	10,500	7,090	7,090	17,600	35,400
26	7,700	12,200	7,700	6,800	7,090	20,000	33,900	10,500	8,020	6,800	18,200	23,100
27	7,090	11,700	8,020	5,990	6,250	26,600	25,900	10,100	7,700	7,390	24,500	20,600
28	7,090	12,200	8,020	5,990	7,390	33,900	30,100	8,020	7,700	8,020	25,900	16,500
29	7,390	12,600	9,400	6,250	8,020	36,900	29,400	10,100	7,700	8,020	22,500	18,200
30	7,390	10,900	9,400	5,990	-------	41,400	25,900	9,770	7,390	5,990	14,500	14,000
31	6,250	-------	8,690	6,520	-------	46,200	-------	7,390	-------	6,800	16,500	-------

Monthly discharge, in second-feet, of Wisconsin River at Muscoda, Wis., 1927–28

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	17,000	6,250	10,700	1.04	1.20
November	14,000	6,520	9,500	.922	1.03
December	11,700	5,730	7,840	.761	.88
January	8,350	5,990	7,100	.689	.79
February	14,500	5,730	8,780	.852	.92
March	46,200	6,250	15,700	1.52	1.75
April	46,200	18,800	26,300	2.55	2.84
May	25,200	7,390	14,100	1.37	1.58
June	8,690	5,000	6,810	.661	.74
July	9,040	5,990	7,140	.693	.80
August	25,900	5,240	9,770	.949	1.09
September	51,800	7,390	19,400	1.88	2.10
The year	51,800	5,000	11,900	1.16	15.79

PRAIRIE RIVER NEAR MERRILL, WIS.

LOCATION.—Chain gage on line between secs. 20 and 29, T. 3? N., R. 7 E., at highway bridge 4½ miles northeast of Merrill.

DRAINAGE AREA.—164 square miles.

RECORDS AVAILABLE.—January, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,350 second-feet September 15 (gage height, 4.90 feet); minimum (estimated), 67 second-feet March 7.

1914–1928: Maximum discharge, 3,580 second-feet August 21, 1926 (gage height, 7.4 feet); minimum (estimated), 55 second-feet January 21, 1925.

REMARKS.—Records good except those for period of ice effect (December 3 to March 24), which were estimated.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	137	118	159	73	86	74	724	376	126	137	102	137
2	159	112	159	74	85	74	724	376	119	137	99	137
3	182	105	137	81	84	74	724	394	126	129	102	129
4	293	102	135	88	82	72	724	550	126	122	102	126
5	431	92	133	89	84	69	863	816	129	115	116	126
6	431	87	133	90	86	68	960	770	128	105	118	122
7	394	92	129	94	87	67	1,010	770	122	101	118	118
8	394	97	126	97	88	72	863	635	122	118	112	112
9	359	105	116	96	87	74	469	450	118	133	102	108
10	342	115	120	94	86	76	469	394	118	133	102	118
11	325	137	124	98	85	79	509	325	119	129	99	509
12	325	159	131	101	84	86	592	263	119	133	92	679
13	293	170	135	102	85	92	550	234	159	137	89	770
14	293	182	129	104	86	93	509	220	148	133	89	816
15	278	170	129	96	85	94	431	207	137	129	87	1,350
16	263	170	122	96	84	87	431	182	133	126	88	1,160
17	234	170	118	96	84	80	469	182	129	122	94	911
18	207	170	118	92	84	86	469	170	128	115	92	635
19	137	170	118	89	82	103	592	170	128	112	94	550
20	126	159	108	87	81	120	635	182	130	122	148	431
21	122	148	108	85	78	133	679	182	133	118	137	376
22	102	159	108	88	74	137	770	182	148	126	137	309
23	108	159	104	92	74	325	863	170	148	122	129	278
24	108	159	101	92	73	592	770	159	159	122	133	234
25	115	159	98	92	72	1,010	724	159	159	118	137	359
26	108	148	100	90	71	960	592	148	148	116	126	325
27	112	148	101	89	72	960	509	137	137	112	122	309
28	112	148	101	88	73	863	469	133	122	108	122	263
29	115	148	90	87	74	770	394	128	115	105	126	234
30	122	148	80	87	------	724	394	122	102	102	159	234
31	122	------	76	87	------	592	------	122	------	102	148	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	431	102	221	1.35	1.56
November	182	87	140	.854	.95
December	159	76	118	.720	.83
January	104	73	90.8	.554	.64
February	88	71	81.2	.495	.53
March	1,010	67	281	1.71	1.97
April	1,010	394	629	3.84	4.28
May	816	122	300	1.83	2.11
June	159	102	131	.799	.89
July	137	101	121	.738	.85
August	159	87	114	.695	.80
September	1,350	108	399	2.43	2.71
The year	1,350	67	218	1.33	18.12

RIB RIVER AT RIB FALLS, WIS.

LOCATION.—Chain gage in NW. ¼ sec. 27, T. 29 N., R. 5 E., at highway bridge in Rib Falls, 6 miles below mouth of Black Creek.

DRAINAGE AREA.—309 square miles.

RECORDS AVAILABLE.—May, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 9,260 second-feet March 26 (gage height, 9.00 feet); minimum (estimated), 20 second-feet February 6–8, 10–11 (gage height, 2.28 feet).

1925–1928: Maximum discharge, 12,500 second-feet August 21, 1926 (gage height, 10.10 feet); minimum, 10 second-feet February 25–27, 1926.

REMARKS.—Records good except those for period of extremely low discharge, which are fair, and those for period of ice effect (December 8 to March 16), which were estimated. Slight regulation caused by operation of small gristmill just above gage.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	316	339	412	50	25	35	387	537	60	38	58	98
2	940	275	316	50	25	30	1,130	486	49	36	134	69
3	1,660	339	293	50	25	30	1,500	537	42	44	128	60
4	1,000	387	177	50	25	40	1,750	3,910	49	36	203	49
5	700	387	144	50	25	40	2,540	4,090	49	26	412	46
6	880	170	137	50	20	50	1,930	1,750	39	28	75	42
7	1,340	157	125	50	20	45	1,270	1,000	42	24	363	39
8	1,060	137	115	50	20	45	760	644	49	33	203	39
9	880	125	90	45	25	50	672	461	60	38	100	34
10	700	125	80	45	20	50	617	387	53	44	75	69
11	590	177	65	45	20	60	880	316	46	36	58	760
12	436	436	65	55	40	60	1,660	240	60	36	47	2,020
13	363	316	60	55	45	75	1,130	207	69	62	38	1,660
14	293	284	60	50	55	90	564	177	60	62	38	6,910
15	223	1,000	60	55	50	190	436	137	49	38	38	7,660
16	207	700	60	65	50	260	760	157	49	36	38	2,800
17	192	436	50	55	50	339	537	137	39	62	75	940
18	177	316	50	60	50	387	1,000	144	49	75	55	157
19	131	240	50	55	55	512	2,210	192	49	75	128	137
20	125	223	50	55	35	1,000	1,660	137	49	55	228	412
21	98	248	50	45	35	1,420	1,930	125	69	44	2,110	80
22	98	257	50	35	30	3,740	2,670	98	60	44	1,270	316
23	78	387	50	35	25	2,420	3,090	82	69	44	461	228
24	82	363	50	35	25	3,910	1,750	82	82	44	163	167
25	82	339	50	30	25	4,870	1,200	82	82	30	137	167
26	73	339	50	30	30	7,660	1,000	60	60	30	98	134
27	73	436	50	25	35	3,090	820	60	49	55	69	122
28	69	412	50	20	30	1,930	700	69	49	30	69	105
29	73	387	50	35	35	1,660	590	69	49	33	73	90
30	82	512	50	30	------	1,340	537	60	49	44	157	85
31	316	------	50	30	------	1,000	------	60	------	44	125	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,660	69	430	1.39	1.60
November	1,000	125	342	1.11	1.24
December	412	50	97.1	.314	.36
January	65	20	44.8	.145	.17
February	55	20	32.8	.106	.11
March	7,660	30	1,180	3.82	4.40
April	3,090	387	1,260	4.08	4.55
May	4,090	60	532	1.72	1.98
June	82	39	54.3	.176	.20
July	75	24	42.8	.139	.16
August	2,110	38	233	.754	.87
September	7,660	34	850	2.75	3.07
The year	7,660	20	424	1.37	18.71

YELLOW RIVER AT SPRAGUE, WIS.

LOCATION.—Chain gage in NW. ¼ sec. 11, T. 19 N., R. 3 E., 1 mile southeast of Sprague and 10 miles above Necedah Dam.

DRAINAGE AREA.—436 square miles.

RECORDS AVAILABLE.—September, 1926, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,660 second-feet (estimated) September 17 (gage height, 14.0 feet); minimum (estimated), 32 second-feet February 3.

1927–28: Maximum discharge (estimated), 2,660 second-feet September 17, 1928; minimum (estimated), 32 second-feet January 3, 1928.

REMARKS.—Records good except those for period of ice effect (November 30 to March 25) and those for days of extremely high stages (September 16–19), which are fair. No gage readings on Sundays; discharge interpolated.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	85	261	80	36	68	752	336	92	75	85	624
2	106	88	247	70	34	68	581	290	88	71	92	539
3	136	117	261	65	32	71	500	275	85	85	100	454
4	290	136	290	60	42	70	480	261	82	88	126	369
5	352	126	320	55	38	68	480	336	78	92	172	275
6	386	122	290	55	34	68	560	578	74	100	219	219
7	422	117	219	55	44	68	868	815	74	82	320	180
8	369	108	194	60	49	65	1,060	764	74	75	290	157
9	386	100	168	60	68	65	1,250	404	71	68	404	146
10	404	100	168	60	71	68	1,290	320	70	68	386	136
11	422	92	142	65	88	71	1,130	290	68	65	320	290
12	386	92	117	70	98	74	1,010	275	68	78	238	764
13	336	96	108	70	108	78	1,100	222	71	92	157	1,160
14	275	100	100	80	117	108	1,320	168	68	100	117	1,720
15	233	126	100	90	136	136	1,270	126	65	96	100	1,750
16	200	233	92	100	157	180	1,220	126	65	92	82	2,200
17	168	560	92	110	146	275	924	136	65	82	78	2,660
18	157	868	86	115	146	368	841	136	65	74	75	2,300
19	136	1,070	80	135	132	460	1,010	136	65	108	116	2,020
20	136	1,010	80	135	117	581	1,250	184	62	136	157	1,650
21	126	952	75	135	108	784	1,480	233	62	500	168	1,420
22	117	581	80	125	95	981	1,550	261	62	520	352	1,010
23	108	460	75	115	82	1,350	1,620	261	78	540	896	796
24	100	423	75	90	82	1,820	1,420	193	89	441	1,380	581
25	100	386	75	80	78	1,920	1,160	168	100	305	1,780	480
26	100	369	75	70	76	2,020	841	136	100	206	1,700	386
27	92	344	75	55	74	1,780	624	126	92	168	1,620	352
28	92	320	75	50	71	1,620	500	117	88	136	1,380	305
29	88	305	80	50	68	1,550	434	117	82	118	952	275
30	86	290	80	45	------	1,130	369	108	78	100	624	247
31	85	------	85	40	------	924	------	100	------	92	560	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	422	75	209	0.479	0.55
November	1,070	85	326	.748	.83
December	320	75	138	.317	.37
January	135	40	78.9	.181	.21
February	157	32	83.7	.192	.21
March	2,020	65	609	1.40	1.61
April	1,620	369	963	2.21	2.47
May	815	100	258	.592	.68
June	100	62	76.0	.174	.19
July	540	65	157	.360	.42
August	1,780	75	485	1.11	1.28
September	2,660	136	849	1.95	2.18
The year	2,660	32	352	.807	11.00

KICKAPOO RIVER AT GAYS MILLS, WIS.

LOCATION.—Chain gage in sec. 28, T. 10 N., R. 4 W., at highway bridge just below dam and power plant of Interstate Power Co. in Gays Mills 2 miles below mouth of Tainter Creek.

DRAINAGE AREA.—629 square miles.

RECORDS AVAILABLE.—December, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,580 second-feet March 13 (gage height, 12.65 feet); minimum, 267 second-feet June 14 (gage height, 2.03 feet).

1913–1928: Maximum discharge, about 6,300 second-feet March 24, 1917 (gage height, 15.05 feet); minimum, about 100 second-feet during later part of January, 1915.

REMARKS.—Records fair except those for period of ice effect (December 3 to January 10 and January 27 to February 11), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	505	350	350	290	265	419	400	350	288	311	277	400
2	759	365	311	290	265	419	400	365	277	482	350	365
3	1,300	365	299	290	265	419	400	365	277	1,720	698	350
4	1,760	350	290	300	275	350	419	382	277	822	583	336
5	1,840	336	290	325	290	350	439	460	277	419	382	336
6	1,120	350	290	335	290	336	505	505	277	323	336	323
7	790	350	290	335	3,050	382	640	482	277	336	382	323
8	728	350	290	335	3,270	439	669	323	277	460	640	323
9	583	336	290	335	3,320	419	640	311	288	1,410	400	323
10	505	336	290	400	2,440	364	505	299	277	698	311	336
11	439	336	290	611	1,600	669	530	311	277	400	299	728
12	460	336	290	919	1,160	2,850	611	299	277	336	288	439
13	460	365	290	1,020	1,090	4,460	640	311	288	419	288	482
14	400	365	300	1,050	822	2,920	669	288	267	323	277	986
15	382	1,230	300	1,230	759	3,590	439	299	277	311	277	2,090
16	382	919	300	1,120	583	3,050	439	311	277	311	277	3,320
17	365	886	300	952	365	1,600	439	311	288	311	311	4,190
18	336	611	300	822	336	1,260	482	311	277	311	299	2,090
19	311	583	300	728	336	1,160	460	323	382	669	288	1,020
20	311	505	300	323	311	854	482	365	365	460	530	698
21	299	439	300	288	277	790	482	365	323	336	822	505
22	350	439	300	311	336	822	439	336	323	350	1,190	530
23	336	439	300	311	350	822	439	288	698	350	1,600	439
24	350	439	300	311	350	759	400	288	350	336	1,450	400
25	350	400	310	299	365	822	382	288	311	311	886	419
26	336	400	310	365	400	759	365	299	323	288	611	365
27	350	419	310	290	419	698	365	299	323	277	530	365
28	365	400	325	290	419	669	350	299	323	277	611	365
29	365	400	640	265	419	482	350	288	311	288	640	365
30	350	365	505	265	-------	439	350	288	311	277	556	365
31	350	-------	325	275	-------	400	-------	277	-------	277	439	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,840	299	566	0.900	1.04
November	1,230	336	459	.730	.81
December	640	290	319	.507	.58
January	1,230	265	493	.784	.90
February	3,320	265	842	1.34	1.44
March	4,460	336	1,120	1.78	2.05
April	669	350	471	.749	.84
May	505	277	332	.528	.61
June	698	267	312	.496	.55
July	1,720	277	458	.728	.84
August	1,600	277	543	.863	.99
September	4,190	323	786	1.25	1.40
The year	4,460	265	558	.886	12.05

ROCK RIVER AT AFTON, WIS.

LOCATION.—Chain gage on line between secs. 22 and 27, T. 2 N., R. 12 E., at highway bridge in Afton, three-fourths mile above mouth of Bass Creek.

DRAINAGE AREA.—3,190 square miles.

RECORDS AVAILABLE.—February, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 6,670 second-feet April 14 (gage height, 7.42 feet); minimum, 683 second-feet September 28 (gage height, 1.25 feet).

1914–1928: Maximum discharge, 12,700 second-feet March 26, 1918 (gage height, 10.51 feet); minimum, 274 second-feet December 9, 1922 (gage height, 0.08 feet).

REMARKS.—Records good except those for period of ice effect (December 7 to February 2), which are fair. Slight diurnal fluctuation caused by operation of power plants at Janesville.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,100	1,940	2,620	1,350	1,280	1,940	4,670	3,090	1,350	2,180	1,220	1,160
2	1,780	1,940	2,530	1,350	1,350	1,860	4,930	2,990	1,160	2,260	983	1,220
3	1,700	1,860	2,100	1,350	1,490	1,780	4,670	2,710	1,100	3,290	928	1,280
4	1,490	1,630	2,260	1,350	1,630	1,700	4,800	2,620	1,160	3,290	875	1,040
5	1,780	1,780	2,350	1,350	1,630	1,700	5,060	2,620	1,280	3,090	1,100	1,040
6	2,530	1,700	2,260	1,350	1,700	1,700	5,750	2,530	1,280	3,090	1,220	1,220
7	4,180	1,700	2,180	1,350	1,860	1,560	6,050	2,260	1,160	2,990	983	1,100
8	3,290	1,700	2,100	1,350	2,020	1,940	6,050	2,020	1,160	2,890	983	1,040
9	3,290	1,560	2,020	1,350	1,560	1,700	5,900	1,940	928	2,890	1,040	983
10	3,390	1,560	2,020	1,350	1,490	1,490	6,050	1,940	983	2,710	1,160	1,040
11	3,390	1,560	1,940	1,350	1,630	1,560	6,200	1,860	928	2,710	1,350	1,160
12	3,830	1,420	1,860	1,350	1,780	3,090	6,200	1,780	928	2,530	1,350	1,100
13	3,720	1,220	1,860	1,350	1,940	3,090	6,050	1,630	983	2,350	1,220	775
14	3,720	1,220	1,860	1,350	2,530	2,990	6,510	1,630	824	2,260	1,040	1,040
15	3,720	1,280	1,860	1,350	2,800	3,500	6,050	1,490	983	2,020	1,220	1,160
16	3,830	1,350	1,860	1,420	2,620	3,940	5,900	1,420	875	1,940	1,040	983
17	3,830	1,490	1,780	1,420	3,090	4,060	5,750	1,420	1,040	1,860	1,040	1,100
18	3,500	1,630	1,700	1,420	2,990	4,670	5,610	1,420	2,020	1,630	928	1,040
19	3,500	1,630	1,700	1,420	3,290	4,800	5,190	1,350	2,620	2,020	824	1,040
20	3,390	1,700	1,700	1,420	3,500	4,930	5,330	1,420	1,630	1,560	983	1,040
21	3,290	1,940	1,630	1,350	5,330	5,060	5,330	1,490	1,490	1,630	1,040	1,100
22	3,090	2,440	1,560	1,350	5,330	4,930	4,930	1,490	1,220	1,560	1,280	983
23	3,090	2,440	1,560	1,350	3,500	4,930	4,800	1,560	1,560	1,420	1,560	1,100
24	3,090	2,530	1,560	1,280	3,830	4,800	4,540	1,560	1,700	1,420	2,100	983
25	2,800	2,440	1,560	1,280	4,180	4,930	4,300	1,560	1,860	1,280	1,630	728
26	2,530	2,440	1,490	1,280	3,940	5,060	4,300	1,560	1,780	1,160	1,280	928
27	2,440	2,530	1,420	1,280	2,990	4,930	4,060	1,560	1,700	728	1,350	775
28	2,350	2,620	1,420	1,280	2,350	4,670	3,830	1,560	1,940	1,160	1,490	875
29	2,260	2,620	1,420	1,280	2,100	5,190	3,500	1,560	3,500	983	1,420	824
30	2,100	2,710	1,420	1,280	-------	4,930	3,290	1,420	2,440	983	1,350	824
31	2,020	-------	1,350	1,280	-------	4,670	-------	1,420	-------	928	1,220	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,180	1,100	2,900	0.909	1.05
November	2,710	1,220	1,890	.592	.66
December	2,620	1,350	1,840	.577	.67
January	1,420	1,280	1,340	.420	.48
February	5,330	1,280	2,610	.818	.88
March	5,190	1,490	3,490	1.09	1.26
April	6,510	3,290	5,190	1.63	1.82
May	3,090	1,350	1,830	.574	.66
June	3,500	824	1,450	.455	.51
July	3,290	728	2,030	.636	.73
August	2,100	824	1,200	.376	.43
September	1,280	728	1,020	.320	.36
The year	6,510	728	2,230	.699	9.51

ROCK RIVER AT LYNDON, ILL.

LOCATION.—Chain gage in NE. ¼ sec. 21, T. 20 N., R. 5 E., at highway bridge in Lyndon.

DRAINAGE AREA.—9,010 square miles.

RECORDS AVAILABLE.—November, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 20,400 second-feet February 9; maximum gage height, 13.47 feet December 29; minimum discharge, 2,260 second-feet September 25 (gage height, 5.28 feet).

1914–1928: Maximum discharge, 39,500 second-feet March 2?, 1916; maximum gage height, 19.6 feet February 16, 1918; minimum discharge, 655 second-feet September 27, 1918 (gage height, 3.72 feet).

REMARKS.—Records good except those for ice period (December 17 to February 7), which are poor, and periods indicated by braced figures, which are estimated. Some diurnal fluctuation at low stages due to power plants upstream. About 100 second-feet diverted above gage to Illinois and Mississippi Canal.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,230	6,470	7,450	17,800	12,800	6,950	[a]9,620	6,710	3,260	8,720		7,200
2	[a]7,480	4,640	6,950	17,200	12,800	6,470	9,240	6,470	3,080	7,950	3,500	7,200
3	8,720	4,850	6,950	16,000	12,800	6,230	9,500	6,230	2,740	7,950		6,230
4	8,980	5,520	6,230	14,500	12,800	6,230	10,000	5,990		9,500		5,070
5	8,980	5,750	5,750	13,300	12,800	6,470	10,000	5,520	3,000	11,100	3,830	4,430
6	8,980	5,990	5,520	13,300	12,800	6,230	12,200	5,990		9,770	3,640	3,830
7	10,000	4,850	5,990	11,100	12,800	5,750	16,200	4,850	3,260	8,980	4,430	3,640
8	[a]11,400	5,070	5,990	9,770	20,100	5,990	16,000	4,850	3,450	8,200	5,750	3,260
9	[a]12,800	4,850	5,290	8,980	20,400	5,990	15,100	4,850	3,080	7,200	5,750	3,450
10	14,200	4,430	4,640	8,980	19,700	6,470	14,500	4,230	2,910	[a]6,840	6,230	3,260
11	13,100	2,580	4,230	8,980	20,400	6,950	13,600	4,430	2,740	6,470	5,750	[a]3,320
12	13,300	3,640	4,030	8,980	19,400	7,700		4,640	2,740	6,230	5,990	[a]3,380
13	14,800	[a]4,140	6,470	8,980	19,400	10,800	14,000	4,230	2,740	6,230		3,450
14	16,000	4,640	7,450	8,980	18,100	16,000		3,830	2,580	6,710	4,250	3,260
15	15,600	5,070	7,950	8,980	16,600	14,500		3,450	2,580	5,750		3,260
16	15,100	7,200	7,950	9,770	15,100	14,200	15,600	4,030	2,580	4,230	2,910	3,080
17	14,500	5,520	10,600	10,300	12,200	13,900	15,600	3,830	2,580	4,030	4,430	3,080
18	11,700	5,750	10,300	11,100	9,240	13,600	15,100	4,030	2,740	4,030	5,990	3,450
19	11,100	6,230	10,000	11,900	8,980	13,900	11,400	4,230	3,830	5,290	5,990	3,830
20	10,000	5,750	10,000	14,500	8,200	13,300	10,800	4,030	6,710	6,470	2,910	3,640
21	9,240	5,990	10,000	14,200	6,950	13,100	10,000	4,030	6,230	5,990	2,740	3,260
22	8,720	6,230	10,600	13,900	6,470	10,800	10,000	3,830	5,070	5,070		3,450
23	8,720	5,520	11,100	13,900	6,950	10,000	8,720	3,830	6,470	4,640	4,500	3,080
24	6,470	5,990	10,800	13,600	6,710	9,500	8,980	3,830	7,450	4,230		2,580
25	6,470	6,230	10,600	13,300	5,990		8,980	3,640	8,460	4,230	5,990	2,260
26	6,230	6,230	10,300	13,300	6,470	10,000	8,200	3,450	7,700	4,230	6,950	2,910
27	6,470	6,470	10,300	13,300	5,900		7,950	3,640	6,950	3,830	6,710	2,740
28	5,990	6,950	14,500	12,800	7,950		7,700	3,640	6,470	3,260	[a]6,960	2,420
29	5,750	7,700	19,400	12,800	7,450		7,200	3,640	7,200	3,080	7,200	2,420
30	5,990	7,700	20,100	12,800	-------	10,000	5,990	3,830	8,460	3,080	6,950	2,580
31	5,750	-------	12,500	12,800	-------	10,000	-------	3,450	-------		7,450	-------

Month	Maximum	Minimum	Mean
October	16,000	5,750	9,960
November	7,700	2,580	5,600
December	20,100	4,030	9,030
January	17,800	8,980	12,300
February	20,400	5,990	12,400
March	16,000	5,750	9,710
April	16,200	5,990	11,500
May	6,710	3,450	4,430
June	8,460	2,580	4,440
July	11,100	3,080	6,010
August	7,450	2,740	4,990
September	7,200	2,260	3,630
The year	20,400	2,260	7,820

[a] Interpolated.

WHITEWATER CREEK NEAR WHITEWATER, WIS.

LOCATION.—Staff gage in NW. ¼ sec. 26, T. 4 N., R. 15 E., at highway culvert 3,000 feet below Whitewater Lake and 4 miles south of Whitewater.

DRAINAGE AREA.—5.8 square miles.

RECORDS AVAILABLE.—March, 1926, to July, 1928 (discontinued).

EXTREMES.—Maximum discharge during year, 7.8 second-feet July 3 (gage height, 1.16 feet); minimum, 0.1 second-foot January 29 to February 3 (gage height, 0.42 foot), caused by closure of dam upstream.

1926–1928: Maximum discharge, 24.8 second-feet May 28, 1927 (gage height, 1.99 feet); minimum, that of January 29 to February 3, 1928.

REMARKS.—Records good. Flow reduced by closure of dam at outlet of Whitewater Lake in effort to raise level of lake.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	1.0	2.6	1.5	0.6	0.1	1.2	2.6	1.1	1.0	1.1
2	3.5	3.5	1.4	.6	.1	1.1	2.7	1.1	1.0	1.2
3	2.4	2.0	1.1	.6	.1	1.1	2.0	1.0	.7	7.8
4	1.7	1.5	1.1	.6	.5	1.1	2.0	1.0	1.0	2.6
5	2.4	1.2	1.2	.5	.4	1.1	3.0	1.1	1.1	1.7
6	4.2	1.1	1.2	.6	.2	1.1	3.7	1.0	1.1	1.2
7	6.1	1.0	2.8	.6	1.1	1.1	4.0	1.0	1.0	1.1
8	3.0	1.0	1.7	.8	1.2	1.0	3.0	1.0	.8	.8
9	2.4	1.0	1.2	.8	.7	1.1	2.6	1.0	.7	.8
10	2.0	1.0	1.2	.8	.6	1.1	3.0	1.1	.7	.7
11	2.6	1.2	1.1	.8	.7	1.2	2.7	1.0	.6	.7
12	3.0	1.1	1.1	.8	.8	1.7	1.8	1.0	.6	.7
13	2.2	1.1	1.7	.9	.8	5.5	1.4	.8	.8	.7
14	1.7	1.2	1.4	.9	3.0	2.0	1.6	.8	.8	.6
15	1.5	2.6	1.4	.9	.7	1.4	1.7	.8	.7	.6
16	1.5	1.7	1.2	.8	1.0	1.2	1.8	1.0	.7	.6
17	1.2	1.2	1.2	.8	1.1	1.1	1.7	2.2	1.0	.6
18	1.1	1.1	.7	1.1	1.7	1.0	1.5	1.5	2.6	.6
19	1.1	1.1	.7	1.4	1.0	1.1	1.5	1.4	2.2	.8
20	1.1	1.1	1.0	1.2	1.0	1.1	1.5	1.1	1.5	.8
21	1.0	1.2	.8	.8	1.0	1.1	1.2	1.0	1.1	.8
22	1.0	1.2	.8	.8	1.1	1.4	1.2	.8	.8	.8
23	1.0	1.2	.7	.7	1.4	1.7	1.2	.8	1.5	.7
24	1.0	2.6	.8	.8	1.0	1.8	1.1	.8	1.5	.7
25	1.0	2.0	.8	.8	1.0	1.8	1.1	1.0	1.4	.7
26	.9	1.8	1.0	.6	1.0	2.5	1.1	1.1	1.2	.8
27	.9	1.7	1.0	.6	1.0	2.0	1.1	1.1	.8	.7
28	.9	2.8	1.8	.4	1.0	1.8	1.1	1.0	4.7	.7
29	.9	2.4	2.0	.1	1.1	1.7	1.1	1.0	3.5	-------
30	1.0	1.8	1.1	.1	-------	1.7	1.1	1.0	1.7	-------
31	1.0	-------	1.0	.1	-------	2.0	-------	1.0	-------	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6.1	0.9	1.82	0.314	0.36
November	3.5	1.0	1.60	.276	.31
December	2.8	.7	1.22	.210	.24
January	1.4	.1	.71	.122	.14
February	3.0	.1	.91	.157	.17
March	5.5	1.0	1.54	.266	.31
April	4.0	1.1	1.90	.328	.37
May	2.2	.8	1.05	.181	.21
June	4.7	.6	1.29	.222	.25
July 1-28	7.8	.6	1.13	.195	.20

WHITEWATER CREEK AT WHITEWATER, WIS.

LOCATION.—Staff gage in SW. ¼ sec. 10, T. 4 N., R. 15 E., at highway bridge 1 mile southeast of Whitewater.

DRAINAGE AREA.—16.8 square miles.

RECORDS AVAILABLE.—June, 1926, to July, 1928 (discontinued).

EXTREMES.—Maximum discharge during year, 164 second-feet July 3 (gage height, 3.04 feet); minimum, 8.4 second-feet December 5 and 6.

1926–1928: Maximum discharge, 330 second-feet May 28, 1927 (gage height, 4.20 feet); minimum, that of December 5 and 6, 1927.

REMARKS.—Records good except those for period of ice effect (December 31 to January 5, January 18 to February 5, February 17–22, and February 24–26), which are fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	14	13	18	14	12	13	20	15	13	31
2	16	118	13	14	12	13	26	15	13	33
3	14	49	10	14	12	13	23	15	13	164
4	17	25	9.2	14	13	13	22	15	13	55
5	20	20	8.4	14	13	13	49	15	14	43
6	24	18	8.4	14	14	13	43	15	14	28
7	152	17	16	14	14	13	43	15	13	27
8	62	16	13	15	14	13	43	14	13	22
9	31	16	14	14	14	13	38	13	13	20
10	24	16	14	14	14	13	28	13	13	15
11	22	16	14	14	14	13	26	13	13	15
12	52	16	14	14	14	20	24	13	13	14
13	31	16	14	15	14	55	24	13	13	14
14	26	15	14	15	14	40	23	13	13	14
15	22	15	14	15	13	22	23	13	13	--------
16	16	19	14	15	13	18	25	13	13	--------
17	16	18	14	14	13	13	21	16	13	--------
18	15	17	14	13	13	13	20	16	21	--------
19	15	16	14	13	13	13	20	16	20	--------
20	14	16	16	12	13	12	19	13	18	--------
21	14	18	16	12	13	12	19	13	16	--------
22	13	26	16	12	13	12	18	13	15	--------
23	13	26	16	12	14	12	16	13	20	--------
24	13	26	18	12	13	12	16	13	22	--------
25	13	22	18	12	13	12	15	16	22	--------
26	13	20	18	12	13	20	15	15	20	--------
27	13	20	18	12	13	30	15	14	20	--------
28	13	25	20	12	13	25	15	13	30	--------
29	13	20	16	12	13	20	15	13	55	--------
30	13	19	14	12	--------	17	15	13	33	--------
31	13	--------	14	13	--------	16	--------	13	--------	--------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	152	13	24.1	1.43	1.65
November	118	13	23.1	1.38	1.54
December	20	8.4	14.5	.863	.99
January	15	12	13.4	.798	.92
February	14	12	13.2	.786	.85
March	55	12	17.3	1.03	1.19
April	49	15	24.0	1.43	1.60
May	16	13	14.0	.833	.96
June	55	13	17.8	1.06	1.18
July 1–14	164	14	35.4	2.11	1.10

PECATONICA RIVER AT FREEPORT, ILL.

LOCATION.—Chain gage in NW. ¼ sec. 32, T. 27 N., R. 8 E. at Hancock Avenue bridge in Freeport, 2 miles above mouth of Yellow Creek. Zero of gage is 739.52 feet above mean sea level.

DRAINAGE AREA.—1,330 square miles.

RECORDS AVAILABLE.—September, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,810 second-feet March 16 (gage height, 16.7 feet); minimum, 417 second-feet July 30 (gage height, 4.37 feet).

1914–1928: Maximum discharge, 17,000 second-feet March 28, 1916 (gage height, 19.4 feet); minimum, 200 second-feet December 14, 1917.

REMARKS.—Records good except those for period of ice effect (December 8 to February 27), which are fair. Slight diurnal fluctuation caused by operation of power plant three-fourths mile above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	1,790	1,280	1,160	3,650	915	1,160	965	765	545	1,100	451	1,580
2	2,740	1,720	1,070	3,370	890	1,160	990	765	525	740	469	1,100
3	3,220	1,490	865	2,860	890	1,190	1,020	715	506	625	665	990
4	3,530	1,340	715	2,040	890	840	1,040	715	506	645	1,960	940
5	3,470	1,250	840	1,550	965	765	1,250	690	525	840	2,740	865
6	3,650	1,160	1,020	1,400	965	815	1,820	715	545	715	2,700	815
7	4,400	1,100	990	1,310	2,040	740	2,660	690	565	605	2,070	790
8	5,310	1,100	965	1,280	3,530	765	2,740	665	565	565	1,130	740
9	5,310	1,070	990	1,310	3,650	790	2,350	645	585	545	1,040	715
10	5,140	1,040	1,340	1,310	4,280	790	1,820	645	545	585	940	690
11	4,530	1,040	1,400	1,340	5,840	1,960	1,490	665	545	545	840	715
12	4,060	1,070	1,400	1,400	6,640	3,370	1,370	605	525	487	715	740
13	3,870	1,070	1,400	1,520	4,170	4,400	1,280	605	545	487	625	765
14	3,530	1,040	1,430	1,580	2,820	6,640	1,280	605	625	565	585	765
15	3,020	1,250	1,580	1,720	2,740	7,320	1,340	585	545	487	585	1,040
16	2,420	1,720	1,550	1,650	2,740	7,810	1,340	605	565	487	525	1,220
17	2,040	1,680	1,460	1,550	2,350	6,430	1,340	665	506	487	545	1,020
18	1,790	1,400	1,250	1,370	1,100	3,590	1,310	715	625	487	545	765
19	1,680	1,220	1,160	1,550	1,070	1,900	1,280	740	965	625	506	690
20	1,620	1,160	1,100	2,040	1,160	1,160	1,190	740	1,520	740	506	625
21	1,580	1,160	1,070	2,100	1,160	1,040	1,130	690	1,220	715	1,020	645
22	1,520	1,160	1,020	2,000	1,020	940	1,040	645	765	585	1,620	625
23	1,490	1,160	1,020	1,860	1,100	915	990	625	1,580	565	2,350	605
24	1,430	1,220	1,020	1,820	1,340	915	965	585	1,310	525	3,220	585
25	1,400	1,250	990	1,760	1,400	940	915	585	1,370	487	3,370	605
26	1,370	1,250	965	1,620	1,280	1,070	890	565	1,100	487	3,650	585
27	1,310	1,190	1,020	1,400	1,130	1,220	865	585	740	469	3,960	565
28	1,310	1,070	2,210	1,100	1,070	1,460	840	545	665	469	4,280	565
29	1,280	1,340	3,370	990	1,040	1,280	790	585	1,100	469	3,960	565
30	1,250	1,280	3,960	915	-------	1,040	790	545	1,550	417	3,370	585
31	1,220	-------	3,870	915	-------	940	-------	565	-------	434	2,460	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,310	1,220	2,650	1.99	2.29
November	1,720	1,040	1,240	.933	1.04
December	3,960	715	1,430	1.08	1.24
January	3,650	915	1,690	1.27	1.46
February	6,640	890	2,080	1.56	1.68
March	7,810	740	2,110	1.59	1.83
April	2,740	790	1,300	.978	1.09
May	765	545	647	.486	.56
June	1,580	506	793	.596	.66
July	1,100	417	580	.436	.50
August	4,280	451	1,720	1.29	1.49
September	1,580	565	783	.589	.66
The year	7,810	417	1,420	1.07	14.50

SUGAR RIVER NEAR BRODHEAD, WIS.

LOCATION.—Chain gage in sec. 26, T. 2 N., R. 9 E., at highway bridge 2 miles southwest of Brodhead. Jordan Creek enters 2 miles below station.

DRAINAGE AREA.—529 square miles.

RECORDS AVAILABLE.—February, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,250 second-feet March 13 (gage height, 7.42 feet); minimum, 165 second-feet August 19 (gage height, 1.12 feet).

1914–1928: Maximum discharge, about 13,000 second-feet September 13, 1915 (gage height, 11.4 feet); minimum, about 47 second-feet August 26, 1923.

REMARKS.—Records fair except those for period of ice effect (December 8 to February 3 and February 19–21), which are poor. Flow subject to slight diurnal fluctuation caused by operation of power plant in Brodhead.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	510	431	450	430	360	637	490	308	348	450	222	450
2	775	394	277	375	395	450	530	308	235	490	210	394
3	1,120	358	292	340	470	308	551	277	198	637	292	308
4	1,330	358	248	325	593	277	530	292	235	823	871	341
5	1,390	358	324	325	431	308	551	262	235	728	1,120	341
6	1,750	292	341	325	551	324	920	248	262	593	970	341
7	2,050	341	394	325	1,270	308	1,270	324	277	450	637	262
8	1,750	324	410	325	2,760	308	1,450	292	235	324	412	235
9	1,450	324	410	340	2,920	292	1,170	277	235	308	292	292
10	1,070	324	395	340	1,510	376	728	277	235	292	292	292
11	920	358	395	360	920	551	551	277	262	292	277	248
12	1,070	358	395	360	551	3,310	551	262	277	262	187	277
13	1,070	292	395	375	450	3,930	470	210	262	262	235	248
14	970	358	395	395	871	3,200	450	277	262	262	248	262
15	682	376	395	394	1,070	1,930	470	235	262	222	210	450
16	530	593	375	412	1,120	1,120	490	248	198	248	210	510
17	490	551	375	431	823	637	470	235	198	248	235	490
18	470	470	375	324	637	412	510	358	530	262	235	394
19	412	431	375	394	595	412	450	376	728	262	187	341
20	412	394	375	410	550	376	412	376	551	292	222	292
21	394	412	360	395	510	376	412	341	394	324	262	262
22	431	394	360	375	470	412	376	277	394	308	262	235
23	376	394	360	360	637	412	412	248	728	277	871	235
24	412	394	360	360	970	412	376	222	728	277	1,930	277
25	412	530	375	340	728	450	341	235	551	235	1,990	292
26	358	593	430	325	450	530	341	248	394	235	1,270	248
27	358	394	510	325	358	551	324	222	341	248	682	248
28	358	490	635	325	412	551	324	222	490	222	510	277
29	394	551	825	325	551	510	341	235	871	210	551	248
30	358	551	680	325	-------	431	324	248	1,070	235	728	198
31	358	-------	550	340	-------	412	-------	262	-------	262	530	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,050	358	788	1.49	1.72
November	593	292	413	.781	.87
December	825	248	414	.783	.90
January	430	324	358	.677	.78
February	2,920	358	825	1.56	1.68
March	3,930	277	791	1.50	1.73
April	1,450	324	553	1.05	1.17
May	376	210	274	.518	.60
June	1,070	198	396	.749	.84
July	823	210	340	.643	.74
August	1,990	187	553	1.05	1.21
September	510	198	310	.586	.65
The year	3,930	187	500	.945	12.89

SOUTH BRANCH OF KISHWAUKEE RIVER AT DE KALB ILL.

LOCATION.—Chain gage in NE. ¼ sec. 22, T. 40 N., R. 4 E., at Lincoln Highway bridge in De Kalb.

DRAINAGE AREA.—70 square miles.

RECORDS AVAILABLE.—July, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 493 second-feet July 4 (gage height, 5.96 feet); minimum, 0.6 second-foot September 28–30 (gage height, 0.82 foot).

1925–1928: Maximum discharge, 907 second-feet May 25, 1927 (gage height, 8.63 feet); minimum, 0.1 second-foot September 28, 29, October 5, 1925 (gage height, 0.50 foot).

REMARKS.—Records good except those for ice periods (December 9 to February 29), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	13	113	23	7	12	113	23	6.1	47	20	10
2	27	15	94	20	5	12	100	22	6.9	41	18	6.9
3	50	13	72	18	5	14	86	20	6.6	83	19	5.1
4	59	13	66	18	13	15	69	21	6.3	464	158	6.9
5	36	13	59	15	13	16	168	20	6.6	450	105	4.5
6	56	12	50	20	11	8.5	422	19	8.5	279	66	4.5
7	408	9.7	66	34	50	6.9	408	18	6.6	188	53	3.3
8	267	8.9	66	72	50	56	354	16	6.3	113	37	3.9
9	188	9.7	53	76	50	105	243	16	5.7	83	28	3.9
10	130	8.9	47	90	44	50	210	15	5.1	62	20	4.5
11	113	10	41	105	41	29	178	13	4.8	47	15	4.5
12	158	9.7	38	76	38	33	148	13	4.8	36	14	5.1
13	121	9.7	44	66	41	178	113	12	6.6	29	12	5.7
14	94	18	50	56	158	97	178	12	5.4	24	11	3.9
15	80	113	50	62	130	54	168	10	4.8	20	9.7	22
16	62	97	56	41	76	41	168	13	4.8	17	8.1	11
17	56	76	38	36	34	32	148	25	13	14	8.1	5.7
18	50	59	20	35	20	28	113	31	10	12	8.1	4.5
19	47	50	15	158	20	28	90	121	83	105	6.6	3.3
20	41	44	13	83	18	24	76	59	105	354	6.0	2.0
21	33	41	11	130	15	24	69	41	50	279	6.6	1.9
22	30	38	9	66	50	23	62	28	80	218	6.0	1.8
23	26	36	7	47	38	27	56	19	255	158	6.0	1.4
24	23	113	7	41	26	34	50	16	113	105	6.0	.9
25	18	105	7	23	15	45	41	15	168	86	5.1	.8
26	19	90	7	20	9	56	37	14	130	62	4.2	.8
27	18	80	9	15	9	90	34	14	86	53	4.2	.7
28	17	113	101	11	11	80	33	12	80	41	3.0	.6
29	16	210	121	9	11	69	32	11	80	33	3.6	.6
30	15	148	59	7	------	56	29	8.9	62	26	33	.6
31	13	------	113	7	------	66	------	6.6	------	20	15	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	408	7.7	73.5	1.05	1.21
November	210	8.9	52.6	.751	.84
December	121	7	48.5	.693	.80
January	158	7	47.7	.681	.79
February	158	5	34.8	.497	.54
March	178	6.9	45.5	.650	.75
April	422	29	133	1.90	2.12
May	121	6.6	22.1	.316	.36
June	255	4.8	47.1	.673	.75
July	464	12	114	1.63	1.88
August	158	3.0	23.1	.330	.38
September	22	.6	4.38	.063	.07
The year	464	.6	53.9	.770	10.49

IOWA RIVER AT IOWA CITY, IOWA

LOCATION.—Water-stage recorder in sec. 15, T. 79 N., R. 6 W., 200 feet below highway bridge in Iowa City and 100 feet below Iowa State University hydraulic laboratory.

DRAINAGE AREA.—3,140 square miles.

RECORDS AVAILABLE.—June, 1903, to July, 1906; October, 1913, to November, 1921; November, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,000 second-feet October 6 (gage height, 11.3 feet); minimum, 85 second-feet December 3 (gage height, 0.28 foot) due to regulation.

1903–1906, 1913–1928: Maximum discharge, 36,200 second-feet June 7, 1918 (gage height, 19.45 feet); practically no flow at 5 p. m. September 3, 1925, caused by regulation.

REMARKS.—Records excellent except those for December 9–27, December 30 to January 13, January 20–24, and periods indicated by brackets, which were estimated because of ice. Records of stage and two discharge measurements furnished by Prof. Floyd A. Nagler, of Iowa State University.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,540	875	640	1,520		1,780	1,290	1,290	730	1,510	710	2,890
2	3,040	875	575	1,100		2,060	1,240	1,210	690	1,430	710	2,810
3	3,610	825	406	840	330	2,340	1,210	1,160	620	1,260	1,660	2,570
4	3,520	800	258	741		2,650	1,180	1,100	598	1,780	3,060	2,200
5	3,610	825	378	634		2,500	1,210	1,050	588	2,790	3,330	1,850
6	7,520	690	442	561	814	2,060	1,460	1,000	598	3,610	3,610	1,600
7	8,670	710	780	580	4,020	1,850	2,060	1,000	588	3,900	2,680	1,460
8	6,770	710	620	565	3,420	1,660	2,270	950	584	4,000	1,660	1,350
9	6,150	690	378	580	2,570	2,340	2,120	925	548	3,240	1,460	1,240
10	3,810	710	552	597	2,650	2,890	2,060	900	548	2,890	1,380	1,180
11	2,810	730	584	615	2,980	4,420	1,920	875	530	1,980	1,320	1,240
12	2,890	710	615	629	4,840	4,420	1,850	850	526	1,600	1,290	2,060
13	2,570	690	690	656	7,970	6,510	1,720	800	552	1,540	1,210	2,340
14	2,060	730	643	710	8,820	5,790	1,720	780	502	1,660	1,080	2,060
15	1,780	808	625	730	6,560	5,430	1,660	780	482	1,260	975	1,850
16	1,660	975	611	710	4,640	5,080	1,660	800	518	1,100	925	1,660
17	1,540	1,000	414	710	4,530	3,160	1,780	875	690	1,000	1,160	1,850
18	1,430	900	322	755	3,470	2,270	1,920	1,000	690	1,750	950	1,600
19	1,380	850	322	755	2,650	1,980	1,980	1,320	690	3,900	755	1,430
20	1,320	780	422	683		1,850	1,980	2,120	710	3,800	800	1,320
21	1,210	755	454	602	2,100	1,660	1,980	2,060	925	2,570	1,080	1,260
22	1,210	755	390	394	1,660	1,540	2,120	1,540	1,240	1,780	925	1,240
23	1,130	730	330	330		1,460	2,120	1,350	1,160	1,430	1,850	1,260
24	1,020	780	338	354	1,420	1,400	2,060	1,180	1,820	1,240	1,980	1,210
25	1,080	755	338			1,380	1,980	1,080	1,430	1,100	1,850	1,130
26	1,020	755	350		1,290	1,430	1,850	975	1,320	1,000	1,380	1,080
27	975	710	338		1,400	1,600	1,660	950	1,240	900	1,020	1,000
28	925	710	2,520	290	1,510	1,510	1,600	875	1,210	925	1,320	925
29	925	730	2,520		1,600	1,430	1,460	825	1,160	850	2,810	900
30	900	665	1,670		-------	1,350	1,380	825	1,350	825	2,890	850
31	825	-------	1,310		-------	1,320	-------	755	-------	780	2,810	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,670	825	2,550	0.812	0.94
November	1,000	665	774	.246	.27
December	2,520	258	672	.214	.25
January	1,520	----------	593	.189	.22
February	8,820	----------	2,670	.850	.92
March	6,510	1,320	2,550	.812	.94
April	2,270	1,180	1,750	.557	.62
May	2,120	755	1,070	.341	.39
June	1,820	482	828	.264	.29
July	4,000	780	1,920	.611	.70
August	3,610	710	1,630	.519	.60
September	2,890	850	1,580	.503	.56
The year	8,820	258	1,550	.494	6.70

FOX RIVER NEAR WAYLAND, MO.

LOCATION.—Chain gage in NE. ¼ sec. 25, T. 65 N., R. 7 W., at highway bridge 1 mile above Chicago, Burlington & Quincy Railroad bridge, and 2½ miles northwest of Wayland.

DRAINAGE AREA.—392 square miles.

RECORDS AVAILABLE.—February, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 8,100 second-feet October 1 (gage height, 19.10 feet); minimum discharge, 3 second-feet December 19–25 and September 2–11; minimum gage height, 2.21 feet November 13, 14, September 8 and 9.

1922–1928: Maximum discharge, that of October 1, 1927; minimum, 0.6 second-foot November 7, 1923.

REMARKS.—Records fair except those for periods of ice effect (December 19–28, January 1–14, 28–31, February 1–5, 19–29, and March 1–2), which are poor. Discharge estimated November 10.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,050	14	178	178	12	50	84	94	19	248	14	5
2	6,700	67	79	101	12	50	67	57	18	186	47	3
3	4,830	63	24	62	20	43	39	61	15	170	170	3
4	2,120	26	21	50	39	43	38	61	13	980	440	3
5	380	22	20	50	87	41	87	56	13	4,210	380	3
6	490	18	18	39	1,620	49	815	47	14	4,280	340	3
7	590	17	20	39	3,410	54	3,720	39	18	1,900	284	3
8	420	16	28	39	4,000	61	890	34	260	1,800	204	3
9	186	15	62	115	1,220	360	440	34	360	690	178	3
10	130	15	64	465	186	230	302	26	115	615	115	3
11	540	16	64	420	138	178	248	25	78	640	58	3
12	4,430	11	66	360	138	153	248	23	55	465	41	4,910
13	3,140	10	67	320	161	130	320	19	47	266	19	4,210
14	320	10	72	212	1,130	115	360	19	47	221	10	3,720
15	212	94	72	178	565	115	266	101	40	83	10	1,660
16	145	72	73	170	420	101	178	94	44	67	8	1,340
17	161	50	72	153	248	94	145	94	43	40	6	195
18	186	44	14	153	195	94	108	248	3,360	31	6	138
19	122	40	3	170	138	87	108	248	6,140	10	5	130
20	79	35	3	170	87	87	108	266	1,420	10	5	77
21	48	30	3	161	50	80	115	86	490	9	5	44
22	40	24	3	153	50	58	145	49	540	2,640	5	31
23	35	27	3	145	50	58	115	46	221	1,940	4	26
24	29	31	3	145	50	56	108	33	540	1,250	5	24
25	24	14	3	138	50	101	108	30	2,260	221	5	23
26	20	11	7	138	50	195	101	26	1,250	42	5	22
27	18	10	12	108	50	83	101	24	565	18	5	24
28	17	87	20	50	50	87	100	22	1,130	12	5	36
29	15	248	1,160	29	50	87	94	19	2,780	6	5	37
30	11	248	740	12	------	83	94	19	1,730	10	5	28
31	12	------	465	12	------	80	------	19	------	10	5	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,700	11	1,020	2.60	3.00
November	248	10	46.2	.118	.13
December	1,160	3	111	.283	.33
January	465	12	146	.372	.43
February	4,000	12	492	1.26	1.36
March	360	41	101	.258	.30
April	3,720	38	322	.821	.92
May	266	19	65.1	.166	.19
June	6,140	13	788	2.01	2.24
July	4,280	6	744	1.90	2.19
August	440	4	77.2	.197	.23
September	4,910	3	557	1.42	1.58
The year	6,700	3	371	.946	12.90

WYACONDA RIVER NEAR CANTON, MO.

LOCATION.—Chain gage in SE. ¼ SW. ¼ sec. 33, T. 62 N., R. 6 W., at highway bridge three-fourths miles below Sugar Creek and 3 miles southwest of Canton.

DRAINAGE AREA.—447 square miles.

RECORDS AVAILABLE.—February, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,300 second-feet October 3 (gage height, 18.78 feet); minimum, 2 second-feet September 1–10.

1922–1928: Maximum discharge, that of October 3, 1927; minimum discharge, 0.5 second-foot January 8, 9, and 19–23, 1924; minimum gage height, 0.58 foot September 10, 1928.

REMARKS.—Records fair except those for periods of ice effect (December 18–27, January 1–16, 22–31, and February 1–3, 23–27), which are poor. Discharge interpolated May 5.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	18	65	95	7	56	48	37	6	278	110	2
2	4,580	50	44	81	7	46	50	34	6	89	58	2
3	6,920	128	24	81	12	46	44	28	5	58	22	2
4	6,350	56	36	69	22	41	41	26	4	44	43	2
5	730	39	23	69	110	39	104	24	5	2,440	586	2
6	1,000	25	22	81	1,100	34	2,360	23	6	2,480	278	2
7	1,310	23	34	95	3,560	36	2,400	22	8	910	104	2
8	670	18	37	188	4,730	39	970	19	254	119	41	2
9	199	18	43	474	1,590	87	586	17	374	69	31	2
10	110	18	52	614	558	232	278	16	188	60	30	2
11	81	18	54	558	326	166	210	18	110	48	17	4
12	3,000	20	39	530	302	166	188	18	39	730	10	1,030
13	3,280	16	95	474	326	166	156	14	31	700	7	3,560
14	1,030	16	74	422	940	156	374	12	33	137	5	3,400
15	398	210	95	398	760	110	295	10	33	58	4	730
16	137	188	79	350	374	79	188	18	33	43	4	302
17	87	98	46	326	188	67	146	22	48	28	6	146
18	67	67	18	266	65	58	110	210	2,720	22	10	46
19	54	50	4	398	92	48	98	422	4,780	19	4	36
20	50	39	3	530	76	44	89	119	4,730	266	3	.27
21	44	36	3	232	67	43	84	60	110	58	52	17
22	36	33	3	146	58	41	146	34	374	586	11	12
23	33	31	3	81	39	37	137	31	326	446	10	7
24	28	33	3	58	31	37	110	22	326	166	18	6
25	28	33	3	39	31	46	74	17	1,660	54	7	4
26	24	36	3	31	31	67	62	14	700	34	6	4
27	22	37	4	18	39	87	52	9	232	24	5	4
28	22	128	614	18	43	62	48	8	110	16	4	5
29	20	295	820	7	56	50	44	7	558	36	3	22
30	19	98	530	7	-------	43	41	6	1,060	24	3	16
31	17	-------	146	7	-------	48	-------	6	-------	23	3	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,920	17	1,020	2.28	2.63
November	295	16	62.5	.140	.16
December	820	3	97.4	.218	.25
January	614	7	218	.488	.56
February	4,730	7	536	1.20	1.29
March	232	34	73.5	.164	.19
April	2,400	41	318	.711	.79
May	422	6	42.7	.096	.11
June	4,780	4	629	1.41	1.57
July	2,480	16	325	.727	.84
August	586	3	48.2	.108	.12
September	3,560	2	313	.700	.78
The year	6,920	2	306	.685	9.29

NORTH FABIUS RIVER AT MONTICELLO, MO.

LOCATION.—Chain gage in SE. ¼ sec. 6, T. 61 N., R. 7 W., at highway bridge 1 mile south of Monticello.

DRAINAGE AREA.—452 square miles.

RECORDS AVAILABLE.—February, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,300 second-feet June 19 (gage height, 25.00 feet); minimum discharge, 2 second-feet December 21–25; minimum gage height, 1.18 feet November 1.

1922–1928: Maximum discharge, that of June 19, 1928; minimum discharge, 1 second-foot July 9, 1922; minimum gage height, 0.50 foot August 10, 1926.

REMARKS.—Records fair except those for periods of ice effect (December 4–10, 15–26, January 1–13, 22–31, and February 1–4, 18–26), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,280	16	44	193	10	69	69	35	11	208	56	12
2	5,940	113	34	148	10	58	60	32	10	193	62	11
3	7,680	61	27	120	21	48	50	28	10	163	35	9
4	2,010	40	10	106	35	38	45	27	10	1,460	336	8
5	408	30	10	120	256	35	288	24	11	2,810	208	7
6	514	23	7	148	536	38	2,320	24	12	646	113	8
7	492	20	7	178	5,100	42	734	21	12	93	52	8
8	470	17	7	208	1,690	50	492	16	408	88	48	7
9	240	19	10	370	712	134	388	15	208	78	41	7
10	134	22	10	558	320	256	336	15	106	69	35	7
11	113	23	34	624	288	304	288	21	72	60	29	21
12	4,800	18	66	602	288	178	224	20	53	50	25	2,250
13	1,330	19	113	558	288	178	170	17	106	224	22	5,820
14	470	20	61	624	1,120	170	252	14	288	178	19	900
15	208	61	28	536	602	148	288	13	83	78	17	646
16	141	56	15	492	288	100	208	19	69	50	17	320
17	113	48	10	428	224	69	163	21	2,340	47	14	127
18	90	41	7	408	134	56	127	62	9,120	38	15	106
19	72	37	4	536	80	56	106	370	10,300	31	14	64
20	56	36	4	470	58	55	93	178	2,040	28	14	35
21	52	34	2	448	50	50	106	38	1,120	178	25	29
22	46	32	2	288	58	48	120	29	828	580	15	27
23	41	24	2	178	58	47	113	24	646	352	55	23
24	37	30	2	120	58	46	106	21	690	178	41	20
25	34	30	2	80	58	62	78	19	1,210	62	33	20
26	23	30	7	50	58	113	58	15	646	58	28	19
27	22	30	37	35	58	113	50	13	224	50	17	17
28	20	61	370	21	67	80	46	12	148	186	15	20
29	19	134	1,430	15	73	56	42	10	336	106	14	27
30	17	113	780	10	------	48	38	10	304	29	13	30
31	17	------	320	10	------	45	------	12	------	35	13	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,680	17	1,030	2.28	2.63
November	134	16	41.3	.091	.10
December	1,430	2	112	.248	.29
January	624	10	280	.619	.71
February	5,100	10	434	.960	1.04
March	304	35	90.0	.199	.23
April	2,320	38	252	.558	.62
May	370	10	37.9	.084	.10
June	10,300	10	1,080	2.39	2.67
July	2,810	28	271	.600	.69
August	336	13	46.5	.103	.12
September	5,820	7	354	.783	.87
The year	10,300	2	334	.739	10.07

SALT RIVER NEAR NEW LONDON, MO.

LOCATION.—Chain gage in NE. ¼ NW. ¼ sec. 36, T. 56 N., R. 5 W., at bridge on State highway No. 61, 2 miles north of New London.

DRAINAGE AREA.—2,480 square miles.

RECORDS AVAILABLE.—February, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 58,700 second-feet June 21 (gage height, 28.8 feet); minimum, 65 second-feet May 15 (gage height, 2.00 feet).

1922–1928: Maximum discharge, that of June 21, 1928; minimum (estimated), 12 second-feet August 20, 1922.

REMARKS.—Records good except those for periods of ice effect (December 10–13, 18–27, January 2–16, and January 25 to February 2), which are poor. Discharge estimated June 5–7.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12,500	99	3,310	2,950	325	222	226	158	87	2,250	191	365
2	11,700	97	3,670	2,140	275	226	194	161	110	980	194	268
3	20,600	105	1,870	1,780	257	202	174	155	85	595	170	198
4	11,700	118	1,000	1,510	325	214	234	138	83	390	217	167
5	4,800	147	375	1,420	2,050	198	230	115	83	245	440	127
6	5,800	202	430	1,340	2,770	230	3,760	105	83	170	560	102
7	10,800	248	1,600	1,260	17,000	177	9,380	99	83	188	315	81
8	8,260	266	2,590	1,340	22,000	230	5,920	89	460	140	820	100
9	2,230	194	2,050	2,050	10,900	190	4,800	95	2,050	149	665	90
10	460	158	1,260	4,140	6,040	194	3,580	101	1,340	170	1,180	104
11	2,410	147	770	3,850	4,420	190	1,690	89	1,260	167	2,430	225
12	10,100	125	490	3,300	2,680	210	1,000	85	1,000	149	365	4,380
13	5,600	110	375	3,130	1,870	198	1,340	85	660	2,630	114	11,100
14	3,850	105	555	2,860	1,420	252	3,580	73	350	1,350	225	17,200
5	2,950	295	2,410	2,590	1,340	315	4,140	77	252	1,020	209	18,800
16	3,130	2,050	2,950	2,320	1,340	305	2,230	105	198	665	213	6,580
17	2,320	2,410	1,170	1,690	1,170	266	1,690	105	300	268	237	1,620
18	1,340	1,000	430	1,420	1,170	210	1,170	171	1,510	188	630	700
19	965	625	325	1,340	925	230	770	375	3,490	213	500	630
20	375	375	230	2,320	625	210	522	325	25,300	155	365	530
21	275	280	190	1,780	460	174	430	190	52,300	127	281	305
22	210	248	158	925	460	158	325	270	48,200	1,710	217	114
23	190	194	130	808	350	164	350	266	11,200	1,800	268	114
24	174	174	105	695	174	158	325	187	2,530	595	258	81
25	144	222	85	695	350	174	275	158	2,070	290	202	90
26	158	1,340	105	625	300	305	266	147	1,350	140	188	81
27	144	522	625	555	252	275	230	236	1,260	140	191	72
28	130	925	2,770	490	275	147	230	118	1,350	114	1,620	72
29	130	2,680	7,560	430	252	144	202	105	5,820	184	860	76
0	105	3,220	5,500	375	-------	158	164	85	4,600	164	205	74
31	105	-------	3,670	325	-------	144	-------	75	-------	268	281	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	20,600	105	3,990	1.61	1.86
November	3,220	97	623	.251	.28
December	7,560	85	1,570	.633	.73
January	4,140	325	1,690	.681	.79
February	22,000	174	2,820	1.14	1.23
March	315	144	209	.084	.10
April	9,380	164	1,650	.665	.74
May	375	73	147	.059	.07
June	52,300	83	5,650	2.28	2.54
July	2,630	114	568	.229	.26
August	2,430	114	471	.190	.22
September	18,800	72	2,150	.867	.97
The year	52,300	72	1,780	.718	9.79

CUIVRE RIVER NEAR TROY, MO.

LOCATION.—Chain gage in SW. ¼ sec. 18, T. 49 N., R. 1 E., at Frenchman Bluff highway bridge, 3 miles northeast of Troy. Zero of gage is 446.58 feet above mean sea level.

DRAINAGE AREA.—908 square miles.

RECORDS AVAILABLE.—February, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 39,700 second-feet June 20 (gage height, 23.77 feet); minimum, 8 second-feet September 10 and 11 (gage height, 1.50 feet).

1922–1928: Maximum discharge, about 50,000 second-feet September 5, 1926 (gage height, 25.40 feet); minimum, 4 second-feet September 9–25, 1925.

REMARKS.—Records fair. Slight ice effect December 16–28, 31, and January 1–6.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	540	29	11,000	243	161	168	132	123	53	588	123	33
2	390	510	5,400	144	144	267	123	114	53	267	41	2
3	3,910	265	1,950	127	144	188	111	111	55	.208	45	23
4	1,420	161	524	110	170	168	104	108	60	178	55	17
5	980	90	430	93	2,310	159	17,200	98	63	7,410	82	14
6	510	90	290	127	6,000	159	27,500	92	63	1,350	106	13
7	450	93	4,180	830	15,500	150	6,830	85	168	1,200	1,300	10
8	660	84	1,470	3,010	3,150	150	1,300	76	4,730	655	810	9
9	340	40	760	1,060	1,140	150	770	74	1,530	492	295	9
10	190	38	390	760	690	141	556	65	460	295	132	8
11	144	33	290	795	510	141	188	63	254	150	92	8
12	4,810	30	243	690	390	132	370	55	690	114	58	37
13	830	30	232	660	340	168	188	55	460	1,200	39	1,050
14	365	27	3,910	630	1,420	208	3,590	53	340	588	33	2,410
15	340	1,950	1,620	510	940	492	1,100	108	267	524	30	850
16	340	725	630	420	570	430	655	2,690	228	430	24	295
17	110	570	365	390	340	340	430	1,950	168	310	20	168
18	107	254	243	340	265	168	340	850	2,410	267	88	92
19	78	190	180	340	199	159	295	588	588	208	68	39
20	69	161	144	315	190	141	280	355	32,700	188	63	30
21	57	144	110	302	161	123	254	168	23,200	168	43	28
22	45	118	93	221	232	101	241	141	2,550	295	20	25
23	48	110	78	180	221	101	228	132	1,000	198	20	23
24	38	3,820	63	6,410	199	98	208	101	2,270	132	20	19
25	32	980	48	1,420	161	198	188	92	1,350	68	20	17
26	30	450	48	1,020	151	588	178	82	588	55	19	14
27	30	450	35	725	136	370	159	76	430	48	18	12
28	29	900	127	480	136	280	150	55	254	45	18	10
29	26	3,310	1,320	390	144	228	141	50	1,530	41	17	10
30	25	17,500	600	290	--------	188	132	45	1,000	31	20	9
31	25	--------	450	170	--------	132	--------	50	--------	208	39	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,810	25	547	0.602	0.69
November	17,500	27	1,100	1.21	1.35
December	11,000	35	1,200	1.32	1.52
January	6,410	93	748	.824	.95
February	15,500	136	1,250	1.38	1.49
March	588	98	209	.230	.27
April	27,500	111	2,130	2.35	2.62
May	2,690	45	281	.309	.36
June	32,700	53	2,650	2.92	3.26
July	7,410	31	578	.637	.73
August	1,300	17	121	.133	.15
September	2,410	8	177	.195	.22
The year	32,700	8	908	1.00	13.61

DES PLAINES RIVER AT LEMONT, ILL.

LOCATION.—Staff gage in NW. ¼ sec. 20, T. 37 N., R. 11 E., at highway bridge a quarter of a mile north of Lemont. Zero of gage is 584.10 feet above mean sea level.

DRAINAGE AREA.—705 square miles.

RECORDS AVAILABLE.—November, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,270 second-feet July 5 (gage height, 6.0 feet); minimum, 65 second-feet June 10–13, September 8 and 12 (gage height, 2.70 feet).

1914–1928: Maximum discharge, 5,520 second-feet March 18, 1919; no flow on various dates in 1919, 1921, and 1925.

REMARKS.—Records fair. Discharge estimated February 20–24. During high water part of flow spills into Chicago Sanitary Canal 7 miles above gage; this overflow, in second-feet, during the year (not included in table of daily and monthly discharge) was as follows:

Apr. 6	175	Apr. 10	760	July 4	1,220	July 8	520
7	1,010	11	430	5	1,750	9	95
8	1,530	12	125	6	1,640		
9	1,340	July 3	175	7	1,240		

Daily discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	460	178	970	385	[a] 182	540	970	385	245	1,560	210	315
2	500	210	925	[a] 350	118	580	1,020	350	178	1,670	178	245
3	580	210	925	315	[a] 148	660	970	315	148	2,030	178	231
4	620	245	880	[a] 332	178	620	1,020	385	118	3,280	385	178
5	700	280	880	350	148	500	1,350	385	118	4,270	580	148
6	745	178	835	[a] 326	118	422	1,900	385	90	4,000	540	118
7	790	210	790	301	315	385	3,070	385	90	3,750	460	90
8	790	315	970	[a] 380	385	210	3,280	385	90	3,280	445	65
9	790	280	1,250	460	540	315	3,750	385	90	2,500	385	90
10	790	245	1,450	[a] 602	620	500	2,170	371	65	1,900	245	178
11	745	210	1,450	745	580	580	1,900	350	65	1,670	210	118
12	790	178	1,450	[a] 812	540	660	1,900	350	65	1,250	210	65
13	835	178	1,450	880	460	745	1,780	315	65	880	178	118
14	700	178	1,500	[a] 950	540	835	1,900	315	90	790	178	90
15	460	210	1,450	1,020	580	790	1,670	350	90	700	166	148
16	315	245	1,350	[a] 1,040	460	745	1,450	385	118	540	148	245
17	460	385	1,350	1,150	500	700	1,300	385	148	460	130	210
18	385	460	1,450	[a] 1,120	500	660	1,060	385	210	371	118	210
19	385	540	[a] 1,080	1,100	540	620	970	385	245	422	118	178
20	385	620	700	[a] 1,080	540	540	835	371	315	790	136	148
21	315	660	[a] 700	1,060	500	460	835	350	460	1,060	148	118
22	315	745	700	[a] 1,060	460	315	790	315	460	1,250	148	106
23	280	700	[a] 620	1,060	460	210	700	315	540	1,060	130	90
24	280	790	540	[a] 970	422	178	660	280	700	790	148	90
25	245	880	190	880	385	178	580	301	1,060	700	178	118
26	245	835	[a] 184	[a] 750	[a] 368	245	540	315	1,020	540	210	148
27	210	790	178	620	350	540	460	315	970	385	118	148
28	210	790	[a] 282	[a] 502	[a] 386	700	422	350	1,150	371	106	118
29	178	880	385	385	422	835	385	385	1,450	315	90	90
30	178	970	[a] 385	[a] 315	-------	1,060	385	385	1,250	280	148	90
31	178	-------	385	245	-------	970	-------	315	-------	245	231	-------

[a] Interpolated.

Monthly discharge, in second-feet, of Des Plaines River at Lemont, Ill., 1927–28

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	835	178	479	0.680	0.78
November	970	178	453	.643	.72
December	1,500	178	892	1.26	1.45
January	1,150	245	695	.986	1.14
February	620	118	405	.574	.62
March	1,060	178	558	.791	.91
April	3,750	385	1,330		
May	385	280	353	.501	.58
June	1,450	65	390	.553	.62
July	4,270	245	1,390		
August	580	90	221	.313	.36
September	315	65	143	.203	.23
The year	4,270	65	611		

DES PLAINES RIVER AT JOLIET, ILL.

LOCATION.—Water-stage recorder in NE. ¼ sec. 9, T. 35 N., R. 10 E., at Jackson Street Bridge, Joliet. Zero of gage is 524.31 feet above mean sea level.

DRAINAGE AREA.—Indeterminate.

RECORDS AVAILABLE.—September, 1914, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 15,000 second-feet April 9 and July 6, possibly higher flow July 5; minimum, 6,540 second-feet December 25.

1914–1928: Maximum mean daily discharge, 18,400 second-feet, March 18, 1919; minimum less than 5,240 second-feet in August, 1927, when record of stage was not obtained.

REMARKS.—Records good except those for days when recorder was not operating, which are fair. Discharge includes flow of Chicago Sanitary Canal; diversion averaging about 400 second-feet into Illinois & Michigan Canal just above gage.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11,400	9,990	12,400			10,700	11,800	10,600	10,100	11,600	10,500	10,600
2	11,500	10,400	12,100		10,000	10,500	11,800	10,600	10,300	12,300	10,500	11,300
3	11,500	9,910	11,900			10,600	11,600	10,400	10,300	13,300	10,800	10,700
4	10,900	10,200	11,400	[b] 7,750	[a] 10,000	10,200	11,600	10,500	10,500	12,800	12,500	10,600
5	10,500	10,300	10,500		10,200	[a] 10,400	11,600	10,500	11,100	[b] 15,000	11,600	10,400
6	10,900	10,200	10,800		10,400	10,500	12,200	10,400	10,500		11,100	10,300
7	11,200	10,000	11,600	[a] 8,000	10,700	10,400	13,700	10,300	10,700	[a] 14,500	11,000	10,200
8	10,600	10,200	[a] 10,700		10,900	10,900	14,600	10,200	10,500	13,500	10,200	10,100
9	10,800	10,100	[b] 10,500		10,900	11,700	15,000	10,300	10,400	12,600	10,600	10,100
10	10,900	[a] 9,900	[b] 8,750		11,100	11,500	14,400	10,400	10,300	12,200	10,600	10,200
11	10,700	[b] 9,750	[a] 8,800	[b] 9,000	11,200	11,400	14,100	10,400	10,300	12,100	10,200	10,100
12	11,100	[a] 9,250	7,830		11,000	11,300	12,600	[a] 10,400	10,100	11,500	10,200	11,200
13	10,600	9,580	7,880		10,900	11,200	[b] 12,200	[a] 10,200	10,200	11,600	10,100	10,300
14	10,500	10,400	7,680	[a] 9,500	10,800	11,400	[a] 12,300	10,400	10,400	[a] 11,100	9,960	10,700
15	10,100	11,300	7,790	9,320	10,800	11,600	12,000	10,500	10,500	[a] 11,000	9,960	10,900
16	10,500	12,100	6,910	9,450	10,900	11,600	12,000	11,700	10,600	10,800	[a] 10,200	10,300
17	10,500	[a] 11,800		9,480	10,900	11,500	11,700	11,100	10,500	10,800	[b] 10,500	10,500
18	10,700	[b] 11,500		9,250	10,500	11,200	11,600	11,100	10,500	[a] 10,700	[a] 10,200	10,500
19	10,300	[a] 11,500		[a] 9,200	[a] 10,100	11,300	11,200	10,800	11,800	[b] 11,500	10,200	10,500
20	10,100	11,000	[b] 7,250	[b] 8,750	10,000	11,300	11,100	10,600	11,100		10,300	10,300
21	10,000	10,900		8,950	[a] 10,400	11,200	11,000	10,500	10,800	[a] 11,300	12,300	10,300
22	[a] 9,800	10,900		9,250	[a] 10,400	11,100	10,900	10,600	11,300	11,600	10,500	10,200
23	10,300	11,200		9,480	10,500	11,100	10,700	10,700	11,300	11,400	11,700	10,200
24	9,990	11,600	[a] 6,900	9,480	10,500	11,000	10,500	10,500	11,600	11,400	10,700	10,200
25	10,100	11,300	6,540	10,100	[a] 10,300	11,000	10,500	10,400	12,300	11,100	10,600	10,200
26	9,880	11,100	6,600	10,600	[a] 10,200	11,200	10,500	10,200	11,700	10,700	10,600	10,300
27	10,100	12,200	6,580	10,500	10,800	11,200	10,500	10,600	11,500	10,900	10,700	10,300
28	10,400	12,700	7,620		10,800	11,200	10,600	10,400	11,500	10,800	10,700	10,100
29	10,400	13,100	7,770	[b] 10,200	10,800	11,400	10,700	10,100	12,100	10,500	11,400	10,400
30	10,300	13,200	7,680		-------	11,500	10,600	10,200	11,300	10,500	11,300	10,200
31	10,400	-------	[a] 7,650		-------	11,600	-------	10,100	-------	10,300	10,600	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	11,500	9,800	10,500	May	11,700	10,100	10,500
November	13,200	9,250	10,900	June	12,300	10,100	10,900
December	12,400	6,540	8,570	July	-------	10,300	11,800
January	10,600	-------	9,120	August	12,500	9,960	10,700
February	11,200	-------	10,500	September	11,300	10,100	10,400
March	11,700	10,200	11,100				
April	15,000	10,500	11,900	The year	-------	6,540	10,600

[a] Discharge partly estimated. [b] No record, discharge estimated.

ILLINOIS RIVER AT MORRIS, ILL.

LOCATION.—Chain gage in NE. ¼ sec. 9, T. 33 N., R. 7 E., at highway bridge in Morris, 7 miles below station formerly maintained near Minooka. Zero of gage is 478.97 feet above mean sea level.

RECORDS AVAILABLE.—October, 1919, to September, 1928. January, 1903, to December, 1904, at station near Minooka.

EXTREMES.—Maximum discharge during year, 36,000 second-feet December 15 and 16 (gage height, 15.4 feet); minimum, 11,000 second-feet June 18, September 25–30 (gage height, 6.8 feet).

1919–1928: Maximum discharge, 60,600 second-feet April 12, 1922 (gage height, 20.1 feet); minimum, 7,000 second-feet August 22, 1927 (gage height, 4.9 feet).

Maximum discharge known, 67,800 second-feet March 26, 1904, at station near Minooka.

REMARKS.—Records good except those for ice period (January 4–8 and 11–18), which are poor. Discharge includes flow of Chicago Sanitary Canal. Gage-height record furnished by United States Weather Bureau.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16,400	12,200	33,000	16,100	14,100	16,700	16,400	13,100	11,400	14,400	11,900	12,600
2	22,000	12,400	32,600	14,400	14,100	16,100	16,900	13,100	11,900	14,600	11,900	12,900
3	23,300	12,200	32,200	14,400	14,600	16,400	16,400	12,900	11,400	15,100	11,900	13,800
4	22,500	12,200	30,300	14,400	14,600	15,600	16,700	12,900	11,200	21,400	13,100	13,100
5	20,900	12,600	29,300	14,400	14,600	14,600	16,700	12,900	11,200	27,500	14,800	12,600
6	19,000	12,600	26,300	14,600	14,600	14,800	18,000	12,900	12,400	32,600	13,100	12,200
7	18,500	12,600	25,500	14,600	16,100	14,800	23,100	12,600	11,900	32,200	12,600	11,900
8	16,900	12,600	30,600	14,800	20,400	14,800	26,300	12,400	11,700	30,000	12,400	11,400
9	16,400	12,600	34,200	15,100	21,400	15,600	26,900	12,400	11,400	26,300	11,900	11,400
10	15,800	12,200	30,600	16,100	20,900	15,600	26,600	12,400	11,400	22,800	11,700	11,400
11	14,800	12,200	29,300	20,400	20,400	15,400	24,400	12,400	11,400	20,100	11,700	11,200
12	14,800	12,600	27,800	22,800	19,300	14,600	22,200	12,200	11,400	17,700	11,400	11,400
13	16,400	12,600	26,600	23,300	18,200	15,600	20,600	12,200	11,200	16,400	11,200	11,700
14	15,800	12,600	32,200	23,100	18,000	17,700	19,500	12,200	11,200	15,400	11,200	11,200
15	15,800	15,100	36,000	22,500	21,400	18,500	19,300	12,200	11,400	14,600	11,200	12,900
16	15,600	17,700	36,000	22,000	22,200	18,500	19,000	12,400	11,400	13,800	11,200	11,700
17	15,400	19,500	30,000	21,400	22,500	18,200	18,500	13,800	11,200	13,100	11,200	11,700
18	15,100	20,100	25,200	20,600	21,200	18,000	17,700	12,600	11,000	12,900	11,200	11,700
19	14,600	19,300	23,900	20,600	19,300	17,400	17,200	13,400	12,400	12,900	11,200	11,700
20	13,800	18,000	21,700	23,600	16,900	16,700	16,400	12,900	16,100	14,400	11,200	11,400
21	13,600	16,700	19,800	22,200	16,400	16,100	15,600	12,900	17,400	15,400	11,900	11,200
22	13,100	16,100	18,700	21,200	17,700	15,800	15,100	12,600	16,700	16,700	13,100	11,400
23	13,100	16,100	17,200	20,100	17,700	15,100	14,800	12,600	16,700	16,900	11,400	11,200
24	12,900	16,100	16,700	19,300	16,400	15,100	14,600	12,400	16,400	16,900	12,400	11,200
25	12,900	19,500	16,100	17,400	16,400	15,100	14,800	12,400	16,100	14,800	11,400	11,000
26	12,400	20,100	15,400	18,000	16,100	16,900	13,800	12,400	15,800	14,600	11,400	11,000
27	12,200	22,200	15,600	17,200	15,800	16,700	13,800	12,200	14,800	14,100	11,400	11,000
28	12,400	24,900	15,600	16,700	16,700	16,100	13,400	11,900	14,400	13,600	11,400	11,000
29	12,600	30,600	17,200	15,800	16,400	15,800	13,100	11,700	14,400	13,100	11,400	11,000
30	12,600	32,200	17,200	14,800	-------	16,400	12,900	11,400	14,400	12,600	13,400	11,000
31	12,600	-------	18,000	14,400	-------	16,100	-------	11,400	-------	12,200	12,200	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	23,300	12,200	15,600	May	18,800	11,400	12,500
November	32,200	12,200	16,600	June	17,400	11,000	13,100
December	36,000	15,400	25,200	July	32,600	12,200	17,700
January	23,600	14,400	18,300	August	14,800	11,200	11,900
February	22,500	14,100	17,700	September	13,800	11,000	11,700
March	18,500	14,600	16,200				
April	26,900	12,900	18,000	The year	36,000	11,000	16,200

ILLINOIS RIVER AT PEORIA, ILL.

LOCATION.—Staff gage in NW. ¼ sec. 2, T. 8 N., R. 8 E. at foot of Grant Street, Peoria. Zero of gage is 428.92 feet above mean sea level.

DRAINAGE AREA.—Indeterminate.

RECORDS AVAILABLE.—March, 1910, to September, 1928. March, 1903, to July, 1906, at station 3½ miles downstream.

EXTREMES.—Maximum discharge during year, 38,200 second-feet December 18 (gage height, 21.1 feet; backwater from ice); minimum, 13,200 second-feet September 30 (gage height, 11.9 feet).

1910–1928: Maximum discharge, 58,300 second-feet October 9, 1926 (gage height, 25.05 feet); minimum, somewhat less than 7,250 second-feet December 11, 1916, to January 10, 1917.

Maximum known stage, about 26.6 feet in 1844.

REMARKS.—Records fair, except those for ice periods (December 9–14, 16–31, January 19 to February 9, and February 24–29), which are poor. Discharge includes flow from Chicago Sanitary Canal. Gage-height record furnished by United States Engineer Corps.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14,900	18,000	27,000	28,200	24,600	23,500	20,200	21,500	15,300	18,500	18,500	13,900
2	15,500	18,000	28,800	27,600	24,300	23,000	20,500	21,000	15,100	18,500	18,000	14,100
3	17,600	17,800	30,000	27,000	24,000	23,000	20,000	20,000	15,300	18,500	17,600	14,100
4	18,500	17,600	31,000	26,700	24,000	22,000	20,000	20,000	15,500	19,200	17,300	14,100
5	19,500	17,600	31,300	26,400	24,000	22,500	21,000	20,000	15,300	20,000	17,600	14,300
6	20,500	17,100	32,400	26,100	23,800	22,000	21,500	19,800	15,300	20,800	17,600	14,300
7	22,500	17,100	32,700	26,400	24,000	21,800	21,500	19,200	14,700	22,000	17,100	14,300
8	22,500	17,100	32,400	26,400	24,300	21,500	22,800	18,500	14,100	23,500	17,100	14,100
9	22,500	16,900	32,400	26,400	25,200	21,500	23,800	18,200	14,900	25,200	16,900	14,100
10	22,500	16,400	33,000	26,400	26,100	21,000	25,200	17,800	14,700	26,400	16,600	13,700
11	22,500	16,000	33,800	27,000	26,400	20,500	26,400	18,000	14,500	27,000	16,600	13,700
12	23,200	16,600	34,200	27,300	26,400	20,500	27,300	17,600	14,100	26,700	16,000	13,400
13	23,200	16,400	35,000	27,600	26,400	20,500	27,600	17,100	13,700	26,400	15,500	13,900
14	23,200	16,600	36,000	28,500	26,400	20,500	27,900	16,900	14,300	25,800	15,300	13,500
15	22,800	16,200	36,600	29,100	26,400	21,000	27,900	16,600	14,100	25,200	14,900	13,700
16	23,500	17,100	37,000	30,600	26,700	21,500	27,600	16,200	13,900	14,300	14,700	14,100
17	23,000	17,800	37,800	31,000	27,000	21,000	27,600	16,200	13,700	23,500	14,500	14,300
18	23,000	18,500	38,200	31,000	27,600	21,200	27,000	16,400	13,900	23,000	14,500	14,100
19	22,500	18,800	37,800	30,300	25,800	21,200	27,000	16,600	14,300	22,500	14,300	14,100
20	22,500	19,000	37,000	29,700	26,400	21,200	26,700	16,600	14,100	21,800	14,100	13,900
21	22,000	19,500	35,400	29,100	26,100	21,000	26,400	16,600	14,900	21,500	13,900	13,700
22	21,500	19,500	34,600	28,800	25,800	21,000	25,800	16,600	15,300	21,500	13,700	13,700
23	21,000	20,200	33,800	28,200	25,800	21,000	25,200	16,600	15,500	21,500	13,400	13,700
24	21,000	20,500	33,000	27,900	24,600	21,000	24,600	16,200	16,000	21,500	14,100	13,400
25	20,500	20,200	32,000	27,300	24,300	21,000	24,000	16,600	16,600	21,500	13,700	13,400
26	20,000	20,500	31,000	27,000	24,000	20,500	23,500	16,200	17,100	21,000	13,700	13,400
27	19,500	21,200	30,000	26,700	23,500	21,000	23,200	16,000	17,100	21,000	13,500	13,400
28	19,200	22,000	29,400	26,100	23,500	20,800	22,800	15,800	17,300	20,800	13,400	13,400
29	19,000	23,500	29,100	25,800	23,200	21,500	22,000	15,500	18,500	20,000	13,400	13,400
30	18,500	25,800	29,100	25,200	-------	21,000	21,500	15,500	18,500	19,500	13,400	13,200
31	18,500	-------	28,500	24,900	-------	20,200	-------	15,300	-------	18,800	13,900	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	23,500	14,900	20,800	May	21,500	15,300	17,500
November	25,800	16,000	18,600	June	18,500	13,700	15,300
December	38,200	27,000	32,900	July	27,000	18,500	22,200
January	31,000	24,900	27,600	August	18,500	13,400	15,300
February	27,600	23,200	25,200	September	14,300	13,200	13,800
March	23,500	20,200	21,300				
April	27,900	20,000	24,300	The year	38,200	13,200	21,200

ILLINOIS RIVER AT BEARDSTOWN, ILL.

LOCATION.—Staff gage in NE. ¼ sec. 15, T. 18 N., R. 12 W., at highway bridge on State Street, Beardstown. Zero of gage is 420.33 feet above mean sea level.

RECORDS AVAILABLE.—October, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 59,200 second-feet December 15; maximum gage height, 19.3 feet December 16–19; minimum discharge, 13,300 second-feet September 30 (gage height, 9.1 feet).

1920–1928: Maximum discharge, 105,000 second-feet October 9, 1926; maximum gage height, 26.25 feet October 12, 1926; minimum discharge, 9,620 second-feet December 19–22, 1922, September 10–12, 1925 (gage height, 7.7 feet).

Maximum discharge known, about 115,000 second-feet April 4, 1904.

REMARKS.—Records good. Discharge determined from stage and slope. Gage-height record furnished by United States Weather Bureau.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17,000	28,200	32,200	40,100	36,400	36,200	26,800	31,600	20,900	26,100	23,300	14,100
2	19,300	27,500	34,200	38,900	35,400	35,600	27,200	31,000	20,700	27,400	24,200	14,100
3	23,300	27,600	34,900	37,300	34,400	34,000	26,500	30,900	20,400	28,800	23,900	14,100
4	27,300	26,200	39,800	36,000	32,800	33,400	26,200	30,300	20,800	27,700	24,700	14,100
5	29,800	26,400	42,700	34,100	36,300	33,200	26,900	29,700	20,200	27,000	23,500	13,800
6	34,000	26,500	44,700	32,100	35,700	32,100	26,400	29,100	19,000	28,700	24,000	13,800
7	38,000	25,100	47,500	32,800	36,600	31,000	27,500	27,700	18,400	30,400	23,100	13,800
8	42,100	23,800	48,200	33,200	38,400	31,200	29,700	27,100	22,800	31,400	22,800	13,800
9	43,100	24,000	49,700	33,400	39,400	30,600	30,600	26,200	19,400	31,400	21,500	13,800
10	44,200	23,600	50,800	35,000	42,800	29,800	32,700	25,600	19,800	32,400	20,700	13,800
11	45,400	23,800	53,600	37,500	43,500	30,000	34,000	26,100	19,600	32,700	20,400	14,100
12	46,300	23,500	55,400	38,500	43,800	29,700	35,400	24,800	18,800	33,000	20,600	15,000
13	45,200	22,600	57,200	40,800	44,200	29,000	38,000	23,400	18,300	33,300	21,100	14,400
14	45,200	22,000	58,400	42,900	44,600	29,400	36,900	23,600	17,800	33,300	18,500	14,400
15	44,300	21,000	59,200	43,700	46,000	29,500	40,000	23,600	18,100	33,300	18,600	14,800
16	44,000	22,800	59,000	44,500	46,300	28,700	41,200	22,800	17,400	33,000	18,400	14,900
17	42,800	22,800	57,900	44,400	46,300	29,100	40,200	22,400	18,200	33,000	17,400	15,500
18	42,100	24,000	57,900	44,700	45,500	29,100	39,700	22,200	17,800	32,700	16,600	15,500
19	40,500	25,200	54,700	46,100	44,600	29,500	39,900	22,100	17,100	32,400	16,400	15,000
20	40,400	24,800	56,300	43,800	44,200	29,500	39,900	23,300	17,100	31,600	17,000	15,000
21	39,800	25,500	57,000	40,700	43,300	29,500	39,000	23,300	17,400	30,600	16,200	14,800
22	37,900	26,200	54,200	38,000	42,500	28,800	38,200	24,400	18,300	32,900	16,000	15,100
23	36,400	25,400	51,800	40,500	41,200	29,200	38,400	25,400	18,300	29,800	15,800	14,600
24	35,100	25,400	50,100	42,900	39,200	28,500	38,500	25,400	18,000	30,400	15,800	14,100
25	33,800	26,100	49,400	42,400	39,000	28,500	38,400	24,800	19,200	30,100	15,300	14,400
26	32,800	26,800	47,600	41,600	37,600	28,100	35,800	24,400	18,800	28,700	15,600	13,900
27	32,700	26,600	46,900	40,200	36,400	27,400	35,200	23,600	20,000	28,800	14,800	13,900
28	31,400	28,700	47,400	39,400	36,600	27,800	34,600	22,800	20,200	27,400	14,200	13,900
29	31,100	29,500	46,900	35,600	36,800	27,800	34,000	21,900	21,400	26,800	14,600	14,400
30	29,400	31,400	46,900	36,400	-------	27,100	33,400	22,000	24,200	25,800	14,100	13,300
31	28,800	-------	46,900	36,300	-------	27,500	-------	21,800	-------	25,600	14,100	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	46,300	17,000	36,200	May	31,600	21,800	25,300
November	31,400	21,000	25,400	June	24,200	17,100	19,300
December	59,200	32,200	49,700	July	33,300	25,600	30,200
January	46,100	32,100	39,100	August	24,700	14,100	18,800
February	46,300	32,800	40,300	September	15,500	13,300	14,300
March	36,200	27,100	30,000				
April	41,200	26,200	34,400	The year	59,200	13,300	30,300

SPRING CREEK AT JOLIET, ILL.

LOCATION.—Staff gage in SE. ¼ sec. 10, T. 35 N., R. 10 E., at Benton Street Bridge in Joliet, half a mile above mouth.

DRAINAGE AREA.—19.7 square miles.

RECORDS AVAILABLE.—July, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 228 second-feet November 28 (gage height, 2.7 feet); minimum, 2.8 second-feet May 9.

1925–1928: Maximum discharge, 1,070 second-feet June 11, 1926 (gage height, 6.5 feet); minimum, 2.0 second-feet August 5 and August 10 to September 3, 1926.

REMARKS.—Records fair except those for period of ice effect (December 20–26, December 31 to January 9, and January 27 to February 4), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	5.5	62	5.5	7.2	13	13	8.0	3.8	4.8	4.8	4.8
2	136	8.6	36	4.2	7.2	12	13	8.0	3.8	4.8	4.8	4.8
3	91	6.9	30	5.0	7.2	11	13	6.1	3.8	37	12	4.8
4	53	5.5	30	5.5	7.2	7.2	27	8.0	3.4	20	12	4.8
5	43	5.5	21	9.0	7.2	9.0	76	4.8	8.0	12	8.0	4.8
6	37	5.0	13	13	7.2	12	24	4.8	8.0	8.0	8.0	4.6
7	24	5.0	136	18	66	9.0	37	4.8	6.4	4.8	4.8	4.6
8	21	5.0	30	18	37	5.5	18	3.8	4.8	4.8	4.8	4.6
9	18	5.5	31	21	18	7.2	18	2.8	4.8	4.8	4.8	4.8
10	18	5.5	34	24	13	9.0	9.0	8.0	4.8	8.0	4.8	4.8
11	16	9.0	24	29	13	13	9.0	6.4	4.8	4.8	4.8	4.8
12	136	5.5	24	34	9.0	13	5.5	6.4	4.8	4.8	4.8	4.8
13	37	5.5	30	37	13	16	5.5	4.8	4.8	4.8	4.8	4.8
14	21	148	53	58	30	30	30	4.8	4.8	4.8	4.8	187
15	18	113	53	37	24	18	27	4.8	4.8	4.8	4.8	20
16	15	81	37	30	13	9.0	13	6.4	4.8	4.8	4.8	8.0
17	13	62	30	27	13	9.0	5.5	4.8	6.4	4.8	4.6	4.8
18	13	36	21	20	13	11	5.5	12	4.8	4.8	4.6	4.8
19	7.2	23	13	53	13	9.0	3.0	10	24	12	4.8	4.8
20	5.5	18	9.0	30	13	8.3	13	10	8.0	8.0	4.8	4.8
21	5.5	18	5.5	26	16	9.0	13	8.0	4.8	24	4.8	4.8
22	5.5	16	5.0	18	17	9.0	13	8.0	4.8	8.0	4.8	4.6
23	5.5	13	4.2	18	18	11	5.5	4.8	4.8	4.8	8.0	4.6
24	5.5	45	3.5	18	18	5.5	5.5	4.8	6.4	4.8	6.4	4.4
25	5.5	30	3.0	16	13	9.0	9.0	4.8	12	4.8	4.8	4.4
26	5.5	21	3.0	13	13	18	13	4.8	8.0	4.8	4.8	4.4
27	5.5	124	3.0	11	30	18	11	8.0	8.0	4.8	4.8	4.4
28	5.5	228	37	9.0	13	13	7.2	4.8	6.4	4.8	4.8	4.4
29	5.5	124	27	9.0	13	13	5.5	4.8	6.4	4.8	12	4.4
30	5.5	91	24	9.0	------	18	5.5	4.6	4.8	4.8	8.0	4.4
31	5.5	------	11	7.2	------	18	------	3.8	------	4.8	4.8	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	136	5.5	28.2	1.43	1.65
November	228	5.0	42.3	2.15	2.40
December	136	3.0	27.2	1.38	1.59
January	58	4.2	20.4	1.04	1.20
February	66	7.2	16.6	.843	.91
March	30	5.5	12.0	.609	.70
April	76	3.0	15.1	.767	.86
May	12	2.8	6.15	.312	.36
June	24	3.4	6.33	.321	.36
July	37	4.8	7.83	.397	.46
August	12	4.6	5.95	.302	.35
September	187	4.4	11.4	.579	.65
The year	228	2.8	16.6	.843	11.49

KANKAKEE RIVER AT MOMENCE, ILL.

LOCATION.—Chain gage in NE. ¼ sec. 24, T. 31 N., R. 13 E. at highway bridge in Momence. Zero of gage is 610.32 feet above mean sea level.

DRAINAGE AREA.—2,340 square miles.

RECORDS AVAILABLE.—February, 1905, to July, 1906; December, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 8,890 second-feet December 15, maximum gage height, 7.9 feet January 4; minimum discharge, 790 second-feet September 24–28 (gage height, 1.99 feet).

1905–6, 1915–1928: Maximum discharge, 12,600 second-feet January 22, 1916, maximum gage height, that of January 4, 1928; minimum discharge, 306 second-feet September 1, 16, 17, 1919 (gage height, 1.37 feet).

REMARKS.—Records fair, except those for ice periods (December 31 to January 13 and January 21 to February 3), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,410	1,360	5,930	5,010	3,150	2,510	2,930	1,770	1,080	2,120	1,080	1,080
2	2,720	1,360	5,930	4,140	2,720	2,510	2,930	1,680	1,020	2,310	1,080	1,080
3	3,150	1,440	5,620	3,620	2,510	2,410	2,930	1,680	1,020	2,410	1,080	1,770
4	2,930	1,440	5,310	3,620	2,310	2,410	2,820	1,680	1,020	2,620	1,080	1,680
5	2,720	1,520	5,010	3,620	2,310	2,410	2,820	1,770	1,020	2,820	1,080	1,600
6	2,510	1,600	5,010	3,620	2,310	2,310	3,150	1,600	1,020	2,820	1,080	1,440
7	2,310	1,600	5,930	3,620	2,510	2,310	3,620	1,600	1,020	2,720	1,080	1,290
8	2,030	1,600	7,880	3,620	2,820	2,220	4,140	1,520	1,080	2,620	1,020	1,150
9	1,860	1,520	7,550	4,710	2,930	2,220	4,701	1,520	1,080	2,510	1,020	1,080
10	1,680	1,520	6,890	5,930	2,930	2,220	4,140	1,520	1,080	2,310	1,020	1,020
11	1,600	1,520	6,890	6,570	2,930	2,220	3,150	1,520	1,080	2,030	1,020	1,080
12	1,600	1,600	7,220	6,250	2,930	2,220	2,930	1,520	1,020	1,860	1,020	1,080
13	2,030	1,600	7,550	5,930	2,820	2,310	2,720	1,520	960	1,600	1,020	1,080
14	2,401	1,770	8,550	5,620	3,620	2,510	2,930	1,520	960	1,520	1,020	1,080
15	2,310	1,860	8,890	5,310	3,870	2,620	3,150	1,520	960	1,440	1,020	1,080
16	2,310	2,030	8,550	5,310	3,870	2,720	2,930	1,520	960	1,360	1,020	1,020
17	2,310	2,120	7,880	5,010	3,620	2,820	2,720	1,520	1,080	1,290	1,020	960
18	2,310	2,310	7,220	5,010	3,870	2,930	2,510	1,600	1,080	1,290	1,020	900
19	2,120	2,410	6,890	5,010	4,140	2,820	2,510	1,600	1,150	1,290	1,020	845
20	1,940	2,510	6,890	5,310	4,140	2,820	2,410	1,600	1,220	1,290	1,020	845
21	1,770	2,410	6,570	5,930	3,870	2,820	2,410	1,520	1,290	1,290	1,020	790
22	1,680	2,410	6,570	5,310	3,620	2,720	2,410	1,440	1,360	1,290	1,080	790
23	1,600	2,510	6,570	4,420	3,620	2,720	2,310	1,360	1,440	1,290	1,080	790
24	1,520	2,720	6,570	4,420	3,380	2,720	2,220	1,290	1,440	1,220	1,080	790
25	1,520	2,820	6,570	4,420	3,150	3,150	2,030	1,290	1,520	1,150	1,080	790
26	1,520	2,930	6,890	4,140	3,150	3,150	1,940	1,220	1,600	1,150	1,080	790
27	1,440	3,380	6,890	3,870	3,150	3,150	1,770	1,220	1,680	1,150	1,080	790
28	1,360	4,140	6,570	3,620	2,930	2,930	1,770	1,220	1,770	1,080	1,080	790
29	1,360	5,010	6,250	3,620	2,720	2,820	1,680	1,150	1,860	1,080	1,080	790
30	1,360	5,930	6,570	3,380	-------	2,820	1,770	1,150	2,030	1,080	1,150	790
31	1,290	-------	5,930	3,380	-------	2,930	-------	1,150	-------	1,080	1,150	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,150	1,290	1,990	0.850	0.98
November	5,930	1,360	2,300	.983	1.10
December	8,890	5,010	6,760	2.89	3.33
January	6,570	3,380	4,620	1.97	2.27
February	4,140	2,310	3,170	1.35	1.46
March	3,150	2,220	2,630	1.12	1.29
April	4,710	1,680	2,750	1.18	1.32
May	1,770	1,150	1,480	.632	.73
June	2,030	960	1,230	.526	.59
July	2,820	1,080	1,710	.731	.84
August	1,150	1,020	1,060	.453	.52
September	1,770	790	1,040	.444	.50
The year	8,890	790	2,570	1.10	14.93

KANKAKEE RIVER AT CUSTER PARK, ILL.

LOCATION.—Chain gage in NW. ¼ sec. 19, T. 32 N., R. 10 E., at Wabash Railroad bridge in Custer Park, a quarter of a mile above Horse Creek.

DRAINAGE AREA.—4,870 square miles.

RECORDS AVAILABLE.—November, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 23,100 second-feet December 9 (gage height, 13.0 feet); minimum, 840 second-feet September 28 (gage height, 5.39 feet).

1914–1928: Maximum discharge, 31,200 second-feet April 11, 1922 (gage height, 15.05 feet); minimum, 250 second-feet November 15, 1914 (gage height, 4.09 feet).

REMARKS.—Records good except those for December 9–11, 17–20, January 3–14, January 31 to February 4, May 1 to July 4, which are poor, and those for November 25 to December 6, which are estimated. Slight diurnal fluctuation due to power plant 18 miles above.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,780	1,680	17,000	6,630	6,070	4,780	4,300	2,580	1,440	2,980	1,680	2,980
2	7,810	1,760		5,540	5,800	4,540	4,540	2,390	1,370	2,980	1,600	2,980
3	7,810	1,850	18,200	5,540	5,540	4,540	4,780	2,390	1,520	5,030	1,520	2,980
4	7,810	2,020	17,500	5,280	4,780	4,300	4,540	2,300	1,520	11,300	1,520	2,780
5	6,920	2,200	16,000	5,280	4,540	4,070	4,540	2,300	1,440	19,300	1,600	2,390
6	5,800	2,580	14,300	5,030	5,030	3,840	6,070	2,300	1,370	18,900	1,520	2,020
7	5,030	2,390	17,500	5,030	6,350	3,840	9,370	2,200	1,370	16,800	1,520	1,760
8	4,070	2,200	22,300	4,780	7,810	3,620	11,000	2,200	1,440	13,600	1,520	1,680
9	3,400	2,110	21,600	5,540	8,740	3,620	10,600	2,110	1,520	11,300	1,300	1,600
10	2,980	2,020	20,100	8,740	8,740	3,620	9,370	2,020	1,440	8,430	1,300	1,520
11	2,580	2,020	18,900	11,000	8,120	3,620	7,810	2,020	1,440	6,630	1,370	1,440
12	2,980	2,020	17,800	12,600	7,210	3,620	6,920	1,850	1,440	5,280	1,370	1,370
13	3,400	2,300	18,600	12,600	6,630	4,300	6,070	1,760	1,370	4,300	1,520	1,300
14	3,840	2,580	22,300	12,600	7,510	5,540	6,070	1,680	1,300	3,620	1,600	1,300
15	4,540	2,980	22,300	12,300	10,000	5,800	5,800	1,760	1,160	3,190	1,680	1,370
16	4,540	5,030	22,300	11,000	11,000	6,070	5,540	1,760	1,090	2,780	1,600	1,440
17	4,070	5,540	21,200	10,300	10,600	6,070	5,030	1,760	1,020	2,580	1,600	1,440
18	3,840	5,800	20,400	9,690	10,300	5,540	4,780	1,850	1,300	2,300	1,520	1,520
19	3,400	5,540	17,100	9,370	10,000	5,280	4,540	1,940	2,200	2,390	1,520	1,440
20	3,190	4,780	13,600	10,300	8,430	5,030	4,300	2,020	5,030	2,390	1,440	1,300
21	2,980	4,300	12,300	11,300	6,920	4,780	4,070	2,020	6,070	3,400	1,370	1,230
22	2,580	4,070	11,300	10,300	7,210	4,300	3,840	1,940	5,540	3,620	1,370	1,160
23	2,390	3,840	10,600	9,370	7,510	3,840	3,620	1,850	4,540	4,300	1,300	1,090
24	2,300	3,840	9,690	9,690	7,210	3,840	3,620	1,760	4,300	4,540	1,370	1,090
25	2,110		9,050	9,690	6,630	5,030	3,190	1,680	3,840	4,070	1,440	1,090
26	2,020		8,740	8,430	6,070	5,030	3,190	1,600	3,620	3,400	1,300	1,160
27	1,940	8,500	8,430	7,510	5,540	4,780	2,980	1,520	3,190	2,980	1,300	1,230
28	1,850		8,120	6,630	5,280	4,300	2,780	1,600	2,980	2,580	1,440	900
29	1,760		8,120	6,630	5,030	4,300	2,780	1,520	2,780	2,300	1,440	1,020
30	1,680		8,120	6,630	-------	4,300	2,580	1,440	2,780	2,020	1,520	1,020
31	1,680	-------	7,810	6,350	-------	4,070	-------	1,440	-------	1,850	2,580	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,810	1,680	3,740	0.768	0.89
November	----------	1,680	4,220	.867	.97
December	22,300	7,810	15,400	3.16	3.64
January	12,600	4,780	8,440	1.73	1.99
February	11,000	4,540	7,260	1.49	1.61
March	6,070	3,620	4,520	.928	1.07
April	11,000	2,580	5,290	1.09	1.22
May	2,580	1,440	1,920	.394	.45
June	6,070	1,020	2,380	.489	.55
July	19,300	1,850	5,840	1.20	1.38
August	2,580	1,300	1,510	.310	.36
September	2,980	900	1,590	.326	.36
The year	22,300	900	5,190	1.07	14.49

IROQUOIS RIVER NEAR CHEBANSE, ILL.

LOCATION.—Chain gage in SW. ¼ sec. 10, T. 29 N., R. 13 W., at highway bridge 4½ miles east of Chebanse. Zero of gage is 598.27 feet above mean sea level.

DRAINAGE AREA.—2,120 square miles.

RECORDS AVAILABLE.—April, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 13,200 second-feet December 10 and July 5 (gage height, 12.0 feet); minimum, 77 second-feet September 26 and 27 (gage height, 0.87 foot).

1923–1928: Maximum discharge, 21,400 second-feet October 5, 1926 (gage height, 16.1 feet); minimum, 12 second-feet September 4, 1925 (gage height, 0.60 foot).

Maximum stage known approximately 19.6 feet in spring of 1913.

REMARKS.—Records good except those for ice periods (December 31 to January 14, January 26 to February 2), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	815	239	11,100	1,910	2,180	1,540	1,160	600	257	1,620	375	1,160
2	2,100	255	11,800	1,820	2,150	1,460	1,380	540	243	2,210	350	880
3	3,170	385	12,100	1,820	2,120	1,380	1,780	482	257	3,990	320	720
4	3,060	668	12,100	1,820	2,400	1,230	2,210	482	243	9,200	310	455
5	2,620	695	12,900	1,820	2,500	950	3,000	482	233	13,200	300	315
6	1,910	640	12,700	1,730	3,430	810	3,210	428	243	11,600	281	248
7	1,340	530	12,900	1,730	4,840	1,020	3,990	428	257	10,600	281	212
8	875	505	13,000	2,000	4,470	1,020	3,540	428	268	9,670	252	186
9	755	385	13,000	2,480	4,710	1,020	3,210	428	257	6,300	262	145
10	612	430	13,200	3,090	4,710	1,090	2,900	400	257	4,710	190	145
11	505	480	13,000	3,770	3,760	1,380	2,600	400	257	3,320	190	137
12	530	530	9,970	5,010	4,470	1,540	2,030	428	238	2,700	182	129
13	755	558	10,300	5,140	4,710	1,940	1,780	375	212	1,860	165	121
14	1,130	1,060	11,400	5,010	5,360	2,120	1,620	375	194	1,620	157	145
15	1,570	1,490	12,100	4,840	5,750	2,500	1,620	350	186	1,380	149	230
16	1,270	2,100	12,000	4,590	6,580	2,700	1,620	375	182	1,020	137	335
17	1,130	2,100	11,400	3,990	6,020	2,700	1,620	375	173	950	129	276
18	1,130	2,100	11,100	3,760	4,470	2,030	1,700	400	182	810	137	238
19	1,000	2,100	5,750	3,990	3,990	1,860	1,620	428	750	750	145	212
20	1,000	1,730	5,230	4,110	3,210	1,620	1,460	482	2,600	880	153	178
21	935	2,000	4,590	4,230	2,700	1,540	1,300	482	3,540	950	161	137
22	815	1,910	4,230	3,990	2,500	1,230	1,090	482	2,700	1,700	169	121
23	668	2,000	3,100	3,760	2,400	1,160	1,020	428	1,780	2,400	161	98
24	430	2,510	2,700	3,760	2,300	1,090	1,020	375	1,780	2,030	161	91
25	318	2,620	2,120	3,650	2,800	1,020	950	375	1,700	1,460	153	84
26	295	3,530	1,620	3,420	2,900	950	780	335	1,460	1,300	153	77
27	275	3,530	1,380	3,200	2,120	950	630	325	1,380	1,020	145	77
28	255	5,660	1,620	2,980	1,700	880	690	305	1,230	750	153	84
29	231	7,310	1,940	2,780	1,620	880	690	295	880	630	153	84
30	223	8,330	2,030	2,580	-------	950	630	276	810	540	780	91
31	215	-------	1,910	2,380	-------	950	-------	276	-------	455	1,300	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,170	215	1,030	0.486	0.56
November	8,330	239	1,950	.920	1.03
December	13,200	1,380	8,200	3.87	4.46
January	5,140	1,730	3,260	1.54	1.78
February	6,580	1,620	3,550	1.67	1.80
March	2,700	810	1,400	.660	.76
April	3,990	630	1,760	.830	.93
May	600	276	408	.192	.22
June	3,540	173	826	.390	.44
July	13,200	455	3,280	1.55	1.79
August	1,300	129	257	.121	.14
September	1,160	77	247	.117	.13
The year	13,200	77	2,180	1.03	14.04

FOX RIVER AT MUKWONAGO, WIS.

LOCATION.—Chain gage in SE. ¼ sec. 24, T. 5 N., R. 18 E., 1½ miles northeast of Mukwonago.

DRAINAGE AREA—231 square miles.

RECORDS AVAILABLE.—April, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 640 second-feet March 15, April 9, May 18 and 19, minimum, 13 second-feet August 20 (gage height, 0.94 foot).

1927–28: Maximum discharge, that of March 15, April 9, May 18 and 19, 1928; minimum, that of August 20, 1928.

REMARKS.—Records fair except those for period of ice effect (December 3 to March 10), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	69	340	300	25	35	296	75	46	442	30	31
2	186	252	304	160	25	35	340	73	53	433	29	30
3	226	340	270	85	25	35	376	66	49	452	45	29
4	235	358	220	55	35	40	376	62	45	452	90	31
5	210	340	195	40	35	40	414	61	53	452	104	29
6	226	271	185	50	35	35	530	58	77	433	117	26
7	358	202	180	60	210	35	616	54	68	414	117	26
8	490	162	170	60	285	40	628	47	69	359	96	23
9	520	132	170	55	375	55	640	47	72	304	69	22
10	550	132	170	60	435	60	594	49	64	252	48	22
11	550	139		85	470	191	530	45	57	210	34	31
12	550	146		115	440	322	452	43	55	186	29	30
13	510	139		110	415	433	376	39	59	162	24	24
14	471	132		130	360	594	340	35	57	146	19	29
15	433	235		120	285	640	322	40	48	118	19	55
16	360	340	160	110	250	594	304	54	49	90	15	44
17	286	358		95	200	452	322	471	90	77	15	33
18	252	358		85	145	352	322	616	132	60	16	34
19	218	322		125	100	252	304	640	218	64	15	31
20	178	287		110	50	162	286	565	218	63	14	29
21	132	252	155	115	35	139	252	490	226	61	25	32
22	96	235	155	90	35	146	215	395	226	70	32	29
23	86	235	140	70	55	146	178	269	252	79	36	26
24	77	252	125	60	25	154	162	170	278	70	55	22
25	68	304	125	45	25	265	139	124	304	59	34	22
26	68	304	125	35	30	376	124	96	322	52	36	19
27	72	295	205	30	30	358	117	88	322	40	37	18
28	68	286	285	25	30	340	103	81	358	35	28	18
29	66	340	365	25	30	322	96	76	414	37	24	18
30	64	358	435	25	------	286	90	68	452	39	26	18
31	63	------	435	30	------	252	------	56	------	38	25	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	550	63	252	1.09	1.26
November	358	69	252	1.09	1.22
December	435	125	205	.887	1.02
January	300	25	82.6	.358	.41
February	470	25	155	.671	.72
March	640	35	232	1.00	1.15
April	640	90	328	1.42	1.58
May	640	35	163	.706	.81
June	452	45	158	.684	.76
July	452	35	185	.801	.92
August	117	14	42.0	.182	.21
September	55	18	27.7	.120	.13
The year	640	14	173	.749	10.19

FOX RIVER AT ALGONQUIN, ILL.

LOCATION.—Staff gage in NW. ¼ sec. 34, T. 43 N., R. 8 E., at Chicago Street Bridge in Algonquin, 300 feet above Crystal Lake outlet. Zero of gage is 729.75 feet above mean sea level.

RECORDS AVAILABLE.—October, 1915, to September, 1928.

DRAINAGE AREA.—1,340 square miles.

EXTREMES.—Maximum discharge during year, 3,080 second-feet April 10, 11, and 13 (gage height, 3.2 feet); minimum, 210 second-feet June 13 (gage height, 1.05 feet).

1915–1928: Maximum discharge, 7,120 second-feet March 31, 1916 (gage height, 5.3 feet); minimum, 67 second-feet August 31, 1918 (gage height, 0.59 foot).

REMARKS.—Records good. Discharge occasionally regulated during summer at dam 16 miles above gage.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	603	500	1,190	728	480	764	985	860	442	1,760	520	540
3	480	520	1,120	669	480	716	1,330	647	425	1,760	425	540
3	625	480	985	669	480	669	1,400	443	407	2,220	407	520
4	716	540	985	669	564	581	1,400	500	388	2,550	443	500
5	764	520	860	680	647	625	1,470	540	388	2,720	560	480
6	920	540	985	692	816	647	2,380	540	358	2,900	603	443
7	1,120	540	985	728	985	716	2,720	581	312	2,900	520	425
8	1,260	560	800	764	1,090	860	2,900	500	312	2,900	560	407
9	1,260	603	800	782	1,190	985	2,900	443	328	2,900	540	407
10	1,260	560	704	800	1,220	985	3,080	389	312	2,720	540	425
11	1,260	540	764	830	1,260	985	3,080	389	286	2,550	540	389
12	1,260	540	860	860	1,260	1,260	2,900	358	234	2,380	540	358
13	1,260	603	860	860	1,260	1,400	3,080	358	210	2,220	500	358
14	1,330	647	920	860	1,220	1,680	2,900	358	234	2,060	480	389
15	1,260	669	985	890	1,190	1,680	2,900	342	260	1,840	443	443
16	1,260	764	920	920	1,090	1,840	2,900	342	272	1,760	443	443
17	1,260	764	920	920	985	1,840	2,720	581	286	1,400	407	461
18	1,260	860	784	920	860	1,840	2,550	603	443	1,400	358	490
19	1,260	860	647	890	860	1,680	2,380	625	716	1,120	358	500
20	1,190	860	502	860	860	1,680	2,220	625	764	1,050	389	443
21	1,120	860	358	860	990	1,680	2,220	625	985	985	407	425
22	985	860	470	860	1,120	1,680	2,060	647	1,120	1,050	407	389
23	985	860	581	812	1,050	1,540	2,060	740	1,120	985	443	372
24	985	920	581	764	985	1,540	1,840	764	1,190	860	540	358
25	860	985	581	728	922	1,540	1,680	860	1,260	764	603	342
26	860	1,050	550	692	860	1,400	1,540	985	1,260	692	560	358
27	764	1,120	520	616	860	1,400	1,400	985	1,260	669	540	358
28	647	1,120	584	540	860	1,260	1,120	860	1,680	647	560	358
29	625	1,120	647	540	812	985	1,120	764	1,760	581	540	358
30	625	1,190	718	540	-------	920	985	647	1,840	520	540	358
31	540	-------	788	510	-------	764	-------	540	-------	407	540	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,330	480	987	0.737	0.85
November	1,190	480	752	.561	.63
December	1,190	358	773	.577	.67
January	920	510	757	.565	.65
February	1,260	480	940	.701	.76
March	1,840	581	1,230	.918	1.06
April	3,080	985	2,140	1.60	1.78
May	985	342	595	.444	.51
June	1,840	210	695	.519	.58
July	2,900	407	1,650	1.23	1.42
August	603	358	492	.367	.42
September	540	342	421	.314	.35
The year	3,080	210	953	.711	9.68

FOX RIVER AT DAYTON, ILL.

LOCATION.—Float gages above and below dam in SE. ¼ sec. 29, T. 34 N., R. 4 E., at plant of North Counties Hydroelectric Co., in Dayton.

DRAINAGE AREA.—2,570 square miles.

RECORDS AVAILABLE.—April, 1925, to September, 1928.

EXTREMES.—Maximum mean daily discharge during year, 7,270 second-feet April 7; minimum, 410 second-feet June 15.

1925–1928: Maximum mean daily discharge, 12,900 second-feet February 5, 1927; minimum, 168 second-feet June 22, 1925.

REMARKS.—Records fair. Daily discharge computed from electrical output of power plant and flow over dam. Power-house data furnished by North Counties Hydroelectric Co.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,500	927	2,980	702	980	1,520	2,760	1,480	1,000	2,540	820	1,000
2	1,050	1,040	2,700	930	953	1,510	2,560	1,230	836	2,390	721	748
3	1,300	944	2,480	1,050	1,040	1,510	2,350	1,130	714	2,720	592	680
4	1,440	880	2,170	1,210	1,520	1,250	2,370	1,050	522	4,500	967	767
5	1,220	900	1,970	1,330	1,140	956	3,290	936	662	5,180	1,250	811
6	1,250	880	1,990	1,370	1,210	1,100	6,390	803	706	4,480	956	677
7	2,330	770	2,500	1,440	2,640	1,040	7,270	697	634	3,930	1,180	702
8	4,220	900	1,720	1,510	4,840	1,030	6,830	1,020	638	4,420	933	592
9	2,500	883	738	1,690	3,600	1,440	5,960	996	505	3,580	883	590
10	2,290	880	1,490	1,960	2,540	1,920	5,580	795	522	3,410	861	544
11	2,140	861	2,200	3,290	2,370	1,460	5,050	789	453	3,320	795	590
12	2,130	1,070	2,040	3,320	2,380	1,250	4,840	743	442	3,020	702	610
13	2,270	880	2,170	3,040	2,170	1,530	4,650	654	586	2,990	656	751
14	2,190	1,300	2,370	2,790	2,980	1,970	5,090	612	440	2,790	770	654
15	2,200	2,460	2,370	2,790	3,510	2,180	5,030	675	410	2,690	664	905
16	2,010	2,990	1,530	2,580	2,740	2,360	4,850	787	950	2,370	634	1,340
17	1,920	2,370	527	2,250	2,120	2,560	4,550	789	394	2,280	677	1,000
18	2,010	2,180	1,090	2,040	1,090	2,370	3,900	1,100	447	2,070	522	1,040
19	1,820	1,960	1,180	2,540	711	2,370	3,710	1,300	1,700	2,110	566	842
20	1,810	1,830	1,550	1,720	828	2,370	3,460	1,130	2,250	2,770	500	950
21	1,700	1,610	1,510	900	1,250	2,200	3,340	1,130	1,580	2,770	616	704
22	1,560	1,760	1,410	1,510	1,760	2,210	3,050	1,300	1,370	2,780	566	658
23	1,350	1,590	1,410	1,900	2,300	2,190	3,040	1,230	1,570	2,370	500	614
24	1,340	1,880	1,200	2,050	1,800	2,180	2,720	1,300	2,340	2,030	634	544
25	1,380	2,370	1,090	1,560	1,730	2,040	2,490	1,310	2,320	1,590	638	549
26	1,270	2,370	1,040	1,170	1,480	2,040	2,370	1,330	2,420	1,320	540	564
27	1,220	2,560	1,160	1,280	1,740	2,370	2,220	1,390	2,190	1,260	675	442
28	1,010	2,790	1,450	1,120	1,880	2,560	2,070	1,360	2,010	1,080	842	566
29	970	4,420	2,780	980	1,890	2,350	1,740	1,440	2,070	970	836	484
30	927	3,480	2,390	1,100	-------	2,560	1,550	1,090	2,560	930	1,610	446
31	877	-------	1,200	1,030	-------	2,560	-------	982	-------	953	1,560	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,220	877	1,720	0.669	0.77
November	4,420	770	1,720	.669	.75
December	2,980	527	1,760	.685	.79
January	3,320	702	1,750	.681	.79
February	4,840	711	1,970	.767	.83
March	2,560	956	1,900	.739	.85
April	7,270	1,550	3,840	1.49	1.66
May	1,480	612	1,050	.409	.47
June	2,560	410	1,170	.455	.51
July	5,180	930	2,630	1.02	1.18
August	1,610	500	796	.310	.36
September	1,340	442	712	.277	.31
The year	7,270	410	1,750	.681	9.27

VERMILION RIVER AT STREATOR, ILL.

LOCATION.—Chain gage in SE. ¼ sec. 2, T. 30 N., R. 3 E, at South Bloomington Street Bridge, Streator. Zero of gage is 555.61 feet above mean sea level.

DRAINAGE AREA.—1,080 square miles.

RECORDS AVAILABLE.—July, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 6,200 second-feet December 14 (gage height, 13.0 feet); minimum, 6.6 second-feet August 28 (gage height, 1.39 feet).

1914–1928: Maximum discharge, 16,500 second-feet April 20, 1920 (gage height, 22.9 feet); no flow during periods in 1920 and 1923.

REMARKS.—Records good except those for period of ice effect (December 31 to January 9, January 29 to February 4), which are poor, and those for February 5 to March 8, which are estimated.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,260	230	3,470	610	405		270	202	122	515	45	26
2	3,050	211	3,470	575	405		260	183	106	380	45	78
3	2,770	230	3,190	545	405		250	174	97	310	39	63
4	2,570	310	2,700	545	405		240	165	103	2,090	48	53
5	2,030	250	1,970	545		350	260	148	103	1,850	52	40
6	1,790	220	1,620	545			330	114	97	1,730	50	26
7	1,620	202	2,450	515			430	114	89	1,620	45	17
8	1,040	192	2,270	760			575	98	89	1,320	45	11
9	1,270	174	2,150	1,120		290	1,000	87	89	1,120	41	11
10	880	165	2,090	1,620		405	960	130	87	800	33	10
11	545	148	2,910	2,700		330	960	156	72	680	29	10
12	760	139	2,770	3,550		310	880	174	63	515	19	8.8
13	645	355	3,550	3,260		290	880	183	57	430	19	122
14	610	290	6,200	2,980		330	840	192	57	310	12	114
15	515	290	5,840	2,630		515	720	192	57	240	11	122
16	515	1,170	5,310	2,030	1,250	680	645	174	45	165	9.4	84
17	455	1,080	3,870	1,850		610	610	192	41	122	9.4	53
18	455	1,080	3,190	1,620		515	575	211	39	104	11	70
19	405	1,040	2,510	1,790		455	545	250	63	220	9.4	58
20	380	920	1,970	1,470		405	515	230	72	183	9.4	63
21	355	610	1,670	1,080		380	515	192	137	114	11	54
22	330	455	1,620	1,000		355	485	174	148	430	10	48
23	290	455	1,120	960		330	455	156	130	355	10	54
24	260	455	920	920		330	405	156	148	330	8.8	50
25	230	800	800	880		330	355	139	139	260	8.8	38
26	220	1,040	680	645		310	310	156	174	202	7.6	27
27	211	1,520	575	455		290	270	211	114	130	7.6	25
28	183	2,030	680	405		290	250	202	90	88	6.6	18
29	165	3,470	800	405		270	230	174	760	77	10	13
30	156	3,550	880	405	------	270	211	139	720	70	15	9.4
31	156	------	760	405	------	290	------	122	------	57	20	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,260	156	907	0.840	0.97
November	3,550	139	769	.712	.79
December	6,200	575	2,390	2.21	2.55
January	3,550	405	1,250	1.16	1.34
February	------	------	1,130	1.05	1.13
March	------	------	367	.340	.39
April	1,000	211	508	.470	.52
May	250	87	167	.155	.18
June	760	39	136	.126	.14
July	2,090	57	542	.502	.58
August	52	6.6	22.5	.021	.02
September	122	8.8	45.9	.042	.05
The year	6,200	6.6	688	.637	8.66

MACKINAW RIVER NEAR GREEN VALLEY, ILL.

LOCATION.—Chain gage in sec. 15, T. 23 N., R. 5 W., at Chicago & North Western Railway bridge 3 miles north of Green Valley.

DRAINAGE AREA.—1,100 square miles.

RECORDS AVAILABLE.—March, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,740 second-feet December 14 (gage height, 8.56 feet); minimum, 54 second-feet September 29 and 30 (gage height, 1.54 feet).

1921–1928: Maximum discharge, 21,800 second-feet May 19, 1927 (gage height, 14.20 feet); minimum, 30 second-feet on various dates in September and October, 1922.

REMARKS.—Records fair except those for ice periods (December 20–25, January 1–7, and January 26 to February 5), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,770	259	2,870	675	625	625	425	390	240	325	140	192
2	2,970	628	2,670	675	625	580	425	372	228	325	131	192
3	3,170	474	2,670	625	625	580	408	355	204	325	131	170
4	3,470	493	1,870	625	625	580	390	340	192	2,290	131	111
5	3,470	454	1,550	625	725	540	425	340	192	2,290	131	95
6	2,300	400	1,390	675	835	520	580	340	192	1,580	122	92
7	1,870	382	1,550	780	3,250	500	675	325	181	780	114	87
8	1,630	349	3,270	1,280	3,650	480	1,010	310	192	500	114	79
9	1,240	317	3,270	1,720	2,560	520	890	295	252	625	103	76
10	960	287	3,270	2,200	1,880	520	780	295	215	540	92	76
11	840	287	3,270	2,750	1,500	540	780	310	192	340	90	79
12	1,870	535	3,370	2,560	1,420	540	675	325	181	265	84	81
13	1,710	436	4,630	2,290	1,420	540	725	310	170	265	81	98
14	1,320	454	4,740	2,200	1,500	540	835	280	160	252	81	90
15	1,160	474	4,520	1,960	1,960	540	780	252	150	240	79	114
16	900	678	4,050	1,800	1,720	675	725	252	140	215	76	252
17	840	785	3,250	1,650	1,420	780	675	252	140	204	192	228
18	678	785	2,950	1,580	1,420	675	675	252	160	181	780	150
19	628	730	2,750	1,580	1,140	625	675	340	181	192	390	108
20	535	604	2,750	1,580	1,010	580	625	325	170	215	325	95
21	454	535	2,750	1,420	1,010	540	580	310	160	215	265	84
22	349	493	2,290	1,280	950	540	540	295	150	1,280	240	74
23	287	454	2,040	1,280	890	520	540	280	140	890	181	71
24	273	580	1,350	1,140	780	520	520	252	140	520	131	71
25	273	678	1,210	1,080	725	500	500	252	170	480	95	69
26	273	730	1,010	950	625	500	480	252	160	240	90	64
27	259	730	950	780	780	480	442	252	150	204	76	58
28	259	1,100	835	675	780	460	442	265	150	181	76	56
29	259	2,210	675	625	675	442	425	252	442	160	74	54
30	259	2,870	675	625	------	425	408	252	1,720	150	76	54
31	259	------	725	625	------	425	------	252	------	150	1,960	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,470	259	1,210	1.10	1.27
November	2,870	259	673	.612	.68
December	4,740	675	2,420	2.20	2.54
January	2,750	625	1,300	1.18	1.36
February	3,650	625	1,280	1.16	1.25
March	780	425	543	.494	.57
April	1,010	390	602	.547	.61
May	390	252	296	.269	.31
June	1,720	140	237	.215	.24
July	2,290	150	530	.482	.56
August	1,960	74	215	.195	.22
September	252	54	104	.095	.11
The year	4,740	54	786	.715	9.72

SPOON RIVER AT SEVILLE, ILL.

LOCATION.—Chain gage in SW. ¼ sec. 24, T. 6 N., R. 1 E., at Toledo, Peoria & Western Railway bridge in Seville. Zero of gage is 467.78 feet above mean sea level.

DRAINAGE AREA.—1,600 square miles.

RECORDS AVAILABLE.—July, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 16,000 second-feet October 4 (gage height, 23.9 feet); minimum, 96 second-feet September 26 (gage height, 3.68 feet).

1914–1928: Maximum discharge, 28,900 second-feet August 22, 1924 (gage height, 30.5 feet); minimum, 3.8 second-feet July 31 and August 27–29, 1914 (gage height, 1.35 feet).

REMARKS.—Records good except those for ice periods (December 19 to January 13 and January 19 to February 3), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,050	1,030	4,140	1,490	1,600	830	645	830	359	3,300	289	152
2	8,250	1,380	2,820	1,880	1,540	735	600	735	359	1,540	275	141
3	15,000	1,440	2,280	2,280	1,540	690	600	690	328	1,180	261	715
4	16,000	1,130	1,980	2,760	1,540	690	560	690	328	6,100	1,160	235
5	13,500	980	1,820	2,700	2,160	690	600	645	343	7,010	1,890	152
6	7,810	930	1,760	2,700	2,040	645	2,700	645	375	9,060	625	141
7	8,520	830	1,760	2,700	4,010	645	3,560	600	392	8,790	385	120
8	9,650	830	2,160	4,140	4,860	690	4,010	600	560	2,440	289	112
9	10,400	780	1,600	5,120	3,420	830	3,240	600	600	3,540	289	112
10	4,200	780	1,710	5,540	1,760	980	2,700	560	392	1,950	261	112
11	4,400	735	1,540	6,030	1,330	1,030	2,340	600	328	2,010	235.	141
12	7,330	1,030	1,540	5,610	1,280	930	2,040	560	328	1,110	186	1,330
13	8,700	930	1,540	5,190	1,180	980	1,880	520	297	910	174	2,130
14	9,350	830	3,000	4,720	1,490	1,030	2,040	520	282	810	163	500
15	5,400	1,880	2,220	6,380	1,380	930	2,220	482	268	960	152	335
16	3,240	4,010	1,660	5,190	1,710	880	1,820	560	268	715	141	261
17	2,820	2,760	1,490	4,400	1,490	830	1,710	690	254	580	141	210
18	2,580	2,040	930	1,540	1,280	780	1,710	930	645	520	3,600	163
19	2,340	1,600	1,760	1,540	1,080	780	1,710	1,330	735	520	715	141
20	2,040	1,440	2,040	1,490	1,030	735	1,490	1,030	482	580	275	130
21	1,930	1,380	2,040	1,280	1,030	690	1,380	780	1,980	625	210	120
22	1,760	1,330	1,930	1,280	980	690	1,380	645	1,380	1,220	335	108
23	1,600	1,230	1,660	1,710	1,130	645	1,230	482	645	500	289	141
24	1,490	1,180	1,330	1,440	980	600	1,130	482	560	580	625	112
25	1,380	1,380	1,330	1,180	830	645	1,080	464	690	403	304	116
26	1,330	1,440	1,230	1,080	645	690	980	464	2,040	351	186	96
27	1,230	1,540	1,230	1,820	1,130	645	880	445	1,030	351	141	100
28	1,180	3,180	3,490	1,820	980	600	880	409	690	319	141	104
29	1,130	4,340	4,400	1,760	830	600	880	409	6,240	275	120	120
30	1,080	5,120	3,240	1,710	-------	600	830	409	7,650	248	275	130
31	1,080	-------	2,760	1,660	-------	600	-------	375	-------	385	152	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	16,000	1,080	5,220	3.26	3.76
November	5,120	735	1,650	1.03	1.15
December	4,400	930	2,080	1.30	1.50
January	6,380	1,080	2,910	1.82	2.10
February	4,860	645	1,600	1.00	1.08
March	1,030	600	753	.471	.54
April	4,010	560	1,630	1.02	1.14
May	1,330	375	619	.387	.45
June	7,650	254	1,030	.644	.72
July	9,060	248	1,900	1.19	1.37
August	3,600	120	461	.288	.33
September	2,130	96	283	.177	.20
The year	16,000	96	1,680	1.05	14.34

SANGAMON RIVER AT MONTICELLO, ILL.

LOCATION.—Chain gage in SW. ¼ sec. 12, T. 18 N., R. 5 E., at Illinois Central Railroad bridge half a mile west of Monticello.

DRAINAGE AREA.—550 square miles.

RECORDS AVAILABLE.—February, 1908, to December, 1912; June, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,630 second-feet December 1 (gage height, 12.7 feet); minimum, 12 second-feet September 1–10 (gage height, 2.0 feet).

1908–1912, 1914–1928: Maximum discharge, 15,400 second-feet October 4, 1926 (gage height, 18.4 feet); minimum, 1.0 second-foot July 31 to August 3, 1914 (gage height, 1.5 feet).

REMARKS.—Records fair except those for Sundays, which are interpolated, and those for ice periods (January 2–7 and January 28 to February 4), which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,300	115	4,630	830	433	433	276	258	125	372	51	12
2	1,540	234	4,330	610	418	418	258	246	115	294	51	12
3	1,770	418	4,030	515	374	388	246	234	120	333	45	12
4	1,700	346	3,240	498	360	374	234	222	125	890	39	12
5	1,630	307	2,440	498	765	360	346	210	155	1,250	42	12
6	1,350	270	2,120	532	1,170	333	1,130	222	177	1,050	45	12
7	1,090	234	3,050	590	1,350	320	1,450	234	199	785	39	12
8	920	210	3,320	785	1,770	307	1,380	222	282	668	34	12
9	720	188	4,030	980	1,770	333	1,300	199	403	550	29	12
10	515	177	4,330	1,090	1,630	346	1,090	188	324	418	51	12
11	465	155	3,380	1,210	1,450	340	920	210	246	270	39	21
12	670	270	2,440	1,170	1,310	333	860	188	210	210	34	45
13	735	302	2,120	1,130	1,170	433	670	199	188	177	29	29
14	710	333	2,330	1,090	1,350	630	710	210	155	155	25	25
15	610	388	2,550	1,040	2,020	760	722	177	135	135	21	106
16	530	810	2,920	980	1,700	710	735	166	115	115	21	116
17	449	980	2,440	920	1,450	630	650	188	150	88	18	125
18	403	835	2,040	860	1,300	556	630	246	145	80	18	106
19	388	670	1,630	1,010	1,040	481	570	307	307	72	16	97
20	346	552	1,350	1,350	785	449	498	294	418	88	15	72
21	320	433	1,010	1,450	735	433	449	282	360	125	15	45
22	294	403	920	1,220	690	403	426	246	307	174	15	34
23	264	374	735	980	735	388	403	222	234	222	15	28
24	234	710	670	1,050	630	360	388	199	222	188	51	21
25	210	1,090	601	1,210	515	346	374	188	210	166	39	18
26	199	1,210	532	1,010	498	333	346	177	199	125	32	15
27	166	1,170	498	690	481	320	333	182	177	97	25	15
28	155	1,130	481	650	465	294	307	188	166	80	21	15
29	145	1,700	735	610	449	270	294	177	388	69	18	25
30	140	3,180	860	570	-------	307	282	166	449	58	15	35
31	135	-------	1,050	465	-------	294	-------	135	-------	58	15	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,770	135	648	1.18	1.36
November	3,180	115	640	1.16	1.29
December	4,630	481	2,160	3.93	4.53
January	1,450	465	890	1.62	1.87
February	2,020	360	994	1.81	1.95
March	760	270	409	.744	.86
April	1,450	234	609	1.11	1.24
May	307	135	212	.385	.44
June	449	115	226	.411	.46
July	1,250	58	302	.549	.63
August	51	15	29.8	.054	.06
September	125	12	37.1	.067	.07
The year	4,630	12	596	1.08	14.76

SANGAMON RIVER AT RIVERTON, ILL.

LOCATION.—Chain gage in SW. ¼ sec. 9, T. 16 N., R. 4 W., at Wabash Railroad bridge in Riverton, 5 miles below mouth of South Fork. Zero of gage is 503.15 feet above mean sea level.

DRAINAGE AREA.—2,560 square miles.

RECORDS AVAILABLE.—February, 1908, to December, 1912; August, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, not determined; minimum, 74 second-feet September 10 (gage height, 7.92 feet).

1908–1912, 1914–1928: Maximum discharge, 30,200 second-feet October 4, 1926 (gage height, 32.0 feet); minimum, 3.0 second-feet October 3–15, 1914 (gage height, 6.9 feet).

REMARKS.—Records good. Some regulation of low-water flow by municipal reservoir at Decatur. No record October 26 to March 1.

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

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,880	1,820	1,030	1,280	805	3,540	995	100
2	11,800	1,740	1,030	1,030	775	2,850	1,560	100
3	13,600	1,660	995	995	865	2,600	1,780	96
4	14,000	1,620	995	895	865	2,500	1,170	92
5	12,700	1,520	1,420	865	895	2,300	745	88
6	12,100	1,480	3,960	865	835	2,100	655	85
7	8,560	1,420	6,570	865	835	3,000	655	81
8	7,790	1,380	7,640	775	1,340	3,200	570	77
9	6,820	1,420	7,360	745	1,860	2,750	470	77
10	5,180	1,520	7,360	745	2,100	2,100	375	74
11	4,490	1,560	6,820	745	2,100	1,660	332	86
12	4,280	1,520	6,330	775	2,100	1,520	291	108
12	4,080	1,560	5,800	745	1,980	1,480	252	197
14	3,720	1,620	4,560	685	1,590	1,900	233	745
15	3,600	1,780	3,840	655	1,420	1,780	188	835
16	3,250	2,020	3,200	685	960	1,280	188	745
17	3,360	1,780	2,950	1,140	865	835	172	495
18	2,800	1,940	2,700	2,400	775	655	155	397
19	2,220	1,820	2,180	4,700	865	570	155	291
20	1,980	1,660	2,020	4,560	895	520	147	188
21	1,780	1,560	1,940	4,280	1,380	625	131	172
22	1,620	1,450	1,940	3,000	1,940	1,140	123	155
23	1,480	1,340	1,820	2,900	2,060	1,420	131	139
24	1,340	1,380	1,940	1,980	2,500	1,140	131	115
25	1,200	1,240	1,590	1,450	3,000	925	131	97
26	-------	1,310	1,480	1,280	2,750	805	139	97
27	-------	1,340	1,480	1,240	2,020	625	139	91
28	-------	1,240	1,310	1,060	1,700	545	131	94
29	-------	1,170	1,240	960	3,900	470	123	100
30	-------	1,140	1,100	925	4,080	420	115	108
31	-------	1,060	-------	865	-------	397	108	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October 1–25	14,000	1,200	5,710	2.23	2.07
March	2,020	1,060	1,520	.594	.68
April	7,640	995	3,150	1.23	1.37
May	4,700	655	1,490	.582	.67
June	4,080	775	1,670	.652	.73
July	3,540	397	1,540	.602	.69
August	1,780	108	403	.157	.18
September	835	74	204	.080	.09

SOUTH FORK OF SANGAMON RIVER AT POWER PLANT NEAR TAYLORVILLE, ILL.

LOCATION.—Chain gage in NE. ¼ sec. 14, T. 13 N., R. 3 W., at Chicago & Illinois Midland Railway bridge 6 miles west of Taylorville.

DRAINAGE AREA.—510 square miles.

RECORDS AVAILABLE.—May, 1917, to September, 1928.

EXTREMES.—Maximum and minimum stages during year not recorded.

1917–1928: Maximum discharge, 11,800 second-feet March 15, 1922 (gage height, 26.6 feet); no flow August 29 and October 6–23, 1922.

REMARKS.—Records good. Discharge interpolated October 5, 20, November 5, August 15, 21, and 26. No record for periods for which no discharge is shown.

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

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	910	129		156	105	1,430	320	7.8
2	1,080	138		156	93	1,510	344	7.8
3	1,750	183		138	86		369	6.7
4	1,850	192						6.7
5	1,900	192						5.7
6	1,950	192						4.9
7	1,670	129						4.9
8	1,550	121						4.2
9	1,240	113			810	320		3.6
10	1,000			105	1,010			4.2
11	770			105	1,210			3.6
12	710			105	1,300			9.0
13	930	320		99	950			138
14	1,030	422		93	580		21	105
15	1,080			89	231		19	147
16	1,100			97	201		17	129
17	1,080			690	165		15	64
18	850			1,240	156		14	52
19	495						12	22
20	402						12	16
21	308						11	10
22	221						9.2	9.0
23	192				1,030		9.2	7.8
24	174			320	1,000		11	6.7
25	165				980		9.2	5.7
26	147				830		8.6	4.9
27	138		211		810	52	8.0	5.7
29	138		192		650		8.0	9.0
29	121		174	129	1,000		6.9	10
30	129		174	121	1,360		9.2	10
31	138			113			9.2	

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,950	121	813	1.59	1.83
September	147	3.6	27.3	.054	.06

CROOKED CREEK AT RIPLEY, ILL.

LOCATION.—Chain gage in NE. ¼ sec. 33, T. 1 N., R. 2 W., at highway bridge a quarter of a mile east of Ripley. Zero of gage is 431.31 feet above mean sea level.

DRAINAGE AREA.—1,310 square miles.

RECORDS AVAILABLE.—March, 1921, to September, 1928.

EXTREMES.—Maximum stage during year 16.3 feet January 12 (discharge not determined); minimum discharge, 33 second-feet August 30 (gage height 3.07 feet).

1921–1928: Maximum discharge, 12,500 second-feet July 25, 1924 (gage height, 25.0 feet); minimum, 9 second-feet September 8 and 9, 1922.

Old high-water marks are at gage height 26.0 feet, date unknown.

REMARKS.—Records fair except those for estimated periods, which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	163	385	1,870			310	201	235	106	244	1,870	52
2	1,280	510	1,790			298	201	226	124	226	1,390	63
3	3,050	620				274	209	226	118	218	860	106
4	3,300	1,010				264	218	218	124	226	335	81
5	3,300	980				254	244	218	118	235	201	76
6	1,470	510				244	1,630	209	485	360	163	72
7		285				254	3,990	209	740	335	136	68
8		254				285	4,100	201	4,210	226	130	76
9		163				322	2,950	201	3,990	106	112	81
10		156				360	1,950	201	1,990	106	112	91
11		149				410	1,080	201	460	101	106	1,110
12		149				485	890	193	410	96	96	2,030
13		156				560		149	335	96	91	2,030
14		186				1,010		130	310	96	91	2,520
15		178				560		142	285	96	86	2,120
	[a]1,350				[a]1,140							
16		1,470		[a]832		510		170	124	91	81	2,080
17		1,870	[a]451			254		226	136	91	535	1,910
18		1,790				460		410	890	86	460	1,080
19		1,670				435		3,940	1,080	81	130	101
20		740				410		1,950	3,150	76	112	91
							[a]690					
21		385				385		1,140	860	72	136	81
22		335				254		560	510	920	156	72
23		298				254		535	274	920	149	72
24		285				485		510	274	890	142	68
25	274	285				460		264	264	890	124	68
26	264	274				460		264	264	860	118	68
27	218	740				435		218	264	860	106	72
28	209	1,220				410	285	201	410	830	101	72
29	209	1,790				322	274	178	2,700	235	76	76
30	235	2,520			--------	298	226	149	1,870	264	33	76
31	264	-------			--------	186	-------	136	-------	1,870	44	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	3,300	----------	1,240	0.947	1.09
November	2,520	149	712	.544	.61
December	1,870	----------	540	.412	.48
January	----------	----------	832	.635	.73
February	----------	----------	1,140	.870	.94
March	1,010	186	384	.293	.34
April	4,100	201	960	.733	.82
May	3,940	130	445	.340	.39
June	4,210	106	896	.684	.76
July	1,870	72	381	.291	.34
August	1,870	33	267	.204	.24
September	2,520	52	552	.421	.47
The year	----------	33	693	.529	7.21

[a] Estimated because of backwater from Illinois River.

MACOUPIN CREEK NEAR KANE, ILL.

LOCATION.—Chain gage in NW. ¼ sec. 7, T. 9 N., R. 11 W., at Chicago & Alton Railway bridge 3 miles northwest of Kane.

DRAINAGE AREA.—865 square miles.

RECORDS AVAILABLE.—March, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 11,700 second-feet December 2 (gage height, 19.6 feet); minimum, 20 second-feet September 10 (gage height, 2.38 feet).

1921–1928: Maximum discharge, 22,200 second-feet October 4, 1926; maximum gage height, 24.6 feet March 15, 1922; minimum discharge, 1 second-foot September 29 and October 3, 1922.

High water of 1915 reached gage height of 29.5 feet.

REMARKS.—Records fair except those for January 26 to February 3, which are estimated.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,140	108	9,070	237	255	275	195	156	108	355	4,060	39
2	5,060	212	11,700	315	220	255	187	148	102	275	4,220	34
3	4,860	255	10,800	375	203	237	179	141	84	237	3,090	28
4	3,030	195	3,680	164	315	237	156	127	195	187	1,240	26
5	928	120	1,210	171	3,610	212	5,800	114	220	3,750	460	26
6	460	90	955	156	3,610	220	9,430	120	195	845	485	23
7	955	96	5,060	872	8,550	220	11,000	114	148	2,420	435	25
8	1,490	96	4,220	872	8,220	255	10,000	108	1,630	3,330	220	22
9	635	84	2,910	928	5,360	818	1,980	108	3,330	4,060	195	21
10	535	102	1,010	710	3,900	635	1,060	102	1,980	1,390	415	20
11	635	90	635	685	1,300	395	685	96	415	435	212	127
12	2,300	220	610	610	900	375	585	96	255	275	141	1,330
13	1,740	375	1,010	610	735	485	535	96	375	195	96	415
14	1,040	220	3,270	560	1,940	845	982	96	237	179	90	148
15	435	1,770	2,380	510	1,880	415	735	96	203	164	79	275
16	315	2,760	1,040	435	982	335	485	3,030	164	148	74	148
17	275	1,420	635	395	900	237	435	2,660	148	127	74	57
18	220	275	395	395	735	237	415	2,100	510	108	90	63
19	212	355	295	790	355	220	375	2,020	660	114	64	54
20	195	335	275	900	335	220	295	535	3,150	96	60	45
21	187	275	275	735	295	203	315	355	2,300	79	56	33
22	156	255	255	315	315	195	395	237	818	74	46	30
23	164	315	255	295	275	187	335	212	685	84	46	28
24	134	1,660	237	1,630	237	187	275	179	610	74	275	27
25	120	1,770	220	2,260	212	212	255	156	435	46	96	26
26	108	872	212	1,630	237	237	237	141	335	30	74	25
27	102	535	203	635	237	220	220	134	237	28	54	26
28	102	735	585	585	220	203	220	127	585	54	45	42
29	96	1,840	818	485	275	195	203	120	275	49	40	40
30	96	9,620	610	335	------	187	187	108	610	46	30	28
31	90	------	415	275	------	195	------	171	------	1,630	30	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	5,060	90	994	1.15	1.33
November	9,620	84	902	1.04	1.16
December	11,700	203	2,100	2.43	2.80
January	2,260	164	641	.740	.85
February	8,550	203	1,610	1.86	2.01
March	845	187	302	.349	.40
April	11,000	156	1,610	1.86	2.08
May	3,030	96	452	.522	.60
June	3,330	84	700	.809	.90
July	4,060	28	674	.779	.90
August	4,220	30	535	.618	.71
September	1,330	20	108	.125	.14
The year	11,700	20	882	1.02	13.88

KASKASKIA RIVER AT VANDALIA, ILL.

LOCATION.—Chain gage in SE. ¼ sec. 16, T. 6 N., R. 1 E., at Gallatin Street Bridge, Vandalia. Zero of gage is 456.23 feet above mean sea level.

DRAINAGE AREA.—1,980 square miles.

RECORDS AVAILABLE.—February, 1908, to December, 1912; August, 1914, to September, 1928.

EXTREMES.—Maximum discharge during year, 11,800 second-feet December 1 (gage height, 20.6 feet); minimum, 60 second-feet September 25–30 (gage height, 1.1 feet).

1908–1912, 1914–1928: Maximum discharge, 20,000 second-feet October 4, 1926; maximum stage, 23.0 feet June 5, 1917; minimum discharge, 3.5 second-feet August 22, 1911.

REMARKS.—Records good.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,770	750	11,800	2,160	2,520	1,330	1,080	810	690	2,680	3,240	96
2	7,100	720	10,800	1,960	2,320	1,610	1,050	750	665	1,640	1,400	90
3	9,660	750	10,600	1,680	2,440	1,640	960	720	690	1,330	440	84
4	9,820	720	7,680	1,540	3,040	1,640	900	665	810	1,080	380	79
5	9,030	690	7,560	1,610	5,700	1,360	900	665	900	780	615	74
6	8,600	640	7,560	1,640	6,010	1,140	2,760	615	1,300	870	230	69
7	8,060	615	7,560	1,750	7,440	1,050	8,460	590	1,360	810	230	69
8	8,320	565	7,800	2,120	7,320	960	7,680	565	2,080	750	230	64
9	8,880	490	8,060	2,160	7,100	1,500	6,180	540	3,940	1,330	214	64
10	8,060	615	7,680	2,200	6,660	1,300	4,710	515	4,350	1,500	190	64
11	7,100	810	7,100	2,200	6,180	1,300	4,530	515	2,960	1,050	183	64
12	6,880	990	6,660	2,160	6,010	1,140	3,990	490	2,480	870	168	96
13	7,560	1,050	6,880	2,120	5,420	1,400	3,080	465	2,040	1,020	161	84
14	8,320	810	7,440	2,120	5,770	1,780	2,760	465	1,860	900	154	64
15	7,100	1,470	8,060	1,820	5,850	1,720	2,440	465	1,750	690	147	230
16	5,630	2,560	7,100	1,750	5,210	1,330	2,120	490	1,360	590	147	247
17	4,410	2,440	6,360	1,680	4,710	1,200	1,750	4,710	1,360	515	140	206
18	3,290	1,720	5,930	1,610	4,240	1,110	1,610	7,100	1,540	440	134	176
19	2,800	1,440	5,280	3,390	3,200	990	1,540	4,590	2,360	400	127	161
20	1,960	1,330	4,890	3,990	2,720	900	1,750	3,590	3,490	340	120	140
21	1,720	1,330	3,840	5,930	2,200	900	2,240	3,040	4,710	400	114	108
22	1,580	1,330	3,240	5,010	2,040	870	1,960	2,680	6,360	440	114	90
23	1,440	1,330	2,880	4,710	1,820	840	1,720	2,200	4,710	615	108	79
24	1,300	1,330	2,560	4,530	1,720	810	1,330	1,960	2,760	440	96	74
25	1,200	1,330	2,360	4,410	1,540	780	1,230	1,750	2,720	420	134	60
26	1,110	1,330	2,160	4,350	1,470	780	1,110	1,580	2,120	360	127	60
27	1,020	1,400	1,860	4,190	1,300	780	1,020	1,400	1,780	320	120	60
28	930	1,720	1,720	3,640	1,400	780	930	990	1,400	320	108	60
29	870	2,840	2,080	3,440	1,360	1,080	900	900	2,360	282	108	60
30	810	5,420	2,280	3,390	-------	1,230	840	840	4,470	264	108	60
31	780	-------	2,200	2,800	-------	1,330	-------	780	-------	380	102	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	9,820	780	4,840	2.44	2.81
November	5,420	490	1,350	.682	.76
December	11,800	1,720	5,800	2.93	3.38
January	5,930	1,540	2,840	1.43	1.65
February	7,440	1,300	3,960	2.00	2.16
March	1,780	780	1,180	.596	.69
April	8,460	840	2,450	1.24	1.38
May	7,100	465	1,530	.773	.89
June	6,360	665	2,380	1.20	1.34
July	2,680	264	769	.388	.45
August	3,240	96	319	.161	.19
September	247	60	97.7	.049	.05
The year	11,800	60	2,290	1.16	15.75

BIG MUDDY RIVER AT PLUMFIELD, ILL.

LOCATION.—Chain gage in W. ½ sec. 20, T. 7 S., R. 2 E., at highway bridge at Plumfield, 1½ miles below mouth of Middle Fork.

DRAINAGE AREA.—753 square miles.

RECORDS AVAILABLE.—August, 1914, to September 1928; June, 1908 to December, 1912, at Chicago, Burlington & Quincy Railroad bridge 2 miles upstream.

EXTREMES.—Maximum discharge during year, 8,680 second-feet December 16 (gage height, 24.3 feet); minimum, 5.3 second-feet September 18 (gage height, 1.02 feet).

1914–1928: Maximum discharge, 16,300 second-feet February 1, 1916 (gage height, 30.2 feet); no flow August 18–26, 1914.

REMARKS.—Records fair. Discharge estimated January 1–12.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	655	9.2	775	556	136	424	271	95	61	2,650	15	46
2	[a] 908	11	1,000	450	115	655	203	77	40	2,560	16	22
3	1,160	10	1,160	386	95	835	136	61	51	2,400	56	18
4	1,080	10	1,300	282	89	880	95	51	1,060	1,950	32	16
5	920	10	1,440	185	129	775	77	64	1,420	1,300	27	14
6	502	10	1,520	115	570	542	374	89	1,720	1,100	19	11
7	282	40	1,560	89	1,500	338	880	129	[a] 2,020	1,300	26	11
8	89	556	1,360	71	1,580	221	1,060	115	2,320	1,360	38	11
9	54	850	1,080	51	2,520	231	1,140	74	3,070	1,400	122	10
10	40	1,080	1,000	51	3,370	326	1,160	54	3,130	1,380	144	8.8
11	32	1,160	920	122	3,310	489	1,000	42	2,950	1,080	168	8.2
12	542	1,160	1,060	136	2,800	398	584	32	2,650	489	89	7.4
13	775	1,000	2,130	160	2,130	326	231	27	2,280	476	46	6.6
14	1,080	865	4,410	212	1,620	251	144	26	2,010	940	27	6.3
15	1,220	745	[a] 6,540	231	1,600	212	136	26	1,780	1,160	20	7.5
16	1,060	920	8,680	282	1,400	231	185	22	1,650	730	16	6.7
17	556	[a] 1,100	8,570	185	1,540	489	168	22	1,520	203	14	5.6
18	168	1,280	8,050	[a] 642	1,620	835	115	71	1,420	71	28	5.3
19	89	1,320	6,950	1,100	1,600	1,040	83	655	1,360	42	282	18
20	46	1,080	5,680	1,440	[a] 1,170	1,020	68	760	2,200	30	271	21
21	36	584	4,410	1,680	745	865	1,000	612	3,010	28	115	17
22	32	282	3,010	1,900	362	570	1,380	790	3,900	22	68	15
23	24	168	2,130	2,070	489	326	1,800	900	4,490	18	61	13
24	21	144	1,580	2,010	760	304	2,130	775	4,810	15	71	11
25	20	152	920	1,720	940	136	2,200	350	4,970	13	108	9.6
26	17	144	476	1,480	865	136	[a] 1,810	101	4,650	13	108	8.6
27	16	144	203	1,300	640	122	1,420	64	4,040	11	68	7.8
28	16	160	152	940	463	115	685	176	3,430	11	40	7.2
29	13	[a] 358	168	598	411	101	407	315	2,850	12	38	6.9
30	12	556	390	271	------	95	[a] 129	185	2,650	11	30	6.7
31	11	------	612	185	------	144	------	95	------	11	[a] 38	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,220	11	370	0.491	0.57
November	1,320	9.2	530	.704	.79
December	8,680	152	2,560	3.40	3.92
January	2,070	51	674	.895	1.03
February	3,370	89	1,190	1.58	1.70
March	1,040	95	433	.575	.66
April	2,200	68	703	.934	1.04
May	900	22	221	.293	.34
June	4,970	40	2,450	3.25	3.63
July	2,650	11	735	.976	1.13
August	282	14	71.0	.094	.11
September	46	5.3	12.1	.016	.02
The year	8,680	5.3	826	1.10	14.94

[a] Discharge interpolated.

BIG MUDDY RIVER AT MURPHYSBORO, ILL.

LOCATION.—Chain gage in SW. ¼ sec. 8, T. 9 S., R. 2 W., at South Twentieth Street highway bridge at Murphysboro. Zero of gage is 331.00 feet above mean sea level.

DRAINAGE AREA.—2,170 square miles.

RECORDS AVAILABLE.—December, 1916, to September, 1928.

EXTREMES.—Maximum and minimum discharge during year not determined because of backwater.

1916–1928: Maximum discharge determined, 15,600 second-feet January 10, 1917; minimum, 1.0 second-foot August 1, 1921.

In February, 1916, discharge estimated at 28,000 second-feet (gage height, 39.6 feet).

REMARKS.—Records fair. Backwater from Mississippi River October 2–31, November 8–13, 17–27, November 29 to December 23, December 31 to January 3, January 11–31, and February 6 to September 30. (Backwater effect when Weather Bureau gage at Chester, Illinois indicates stage above 10.0 feet). Discharge not determined.

Daily gage height, in feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.23	2.35	7.14	9.34	6.64	------	7.53	9.28	5.43	29.10	8.57	4.42
2	13.98	2.75	11.78	8.64	5.29	------	7.83	7.53	4.88	28.50	8.02	4.87
3	13.63	2.65	13.62	8.14	5.09	------	8.18	6.68	6.13	27.15	6.47	4.53
4	13.13	2.69	13.22	------	------	------	8.53	6.18	10.67	25.45	6.07	4.27
5	13.68	2.79	12.37	------	------	------	8.53	5.73	15.87	23.50	6.67	3.87
6	13.33	2.85	11.94	------	------	------	14.62	5.68	15.97	21.20	5.92	3.62
7	13.03	5.90	11.32	------	------	------	17.77	5.42	16.27	18.32	5.62	3.42
8	12.83	12.21	11.28	4.64	------	------	18.97	5.12	15.77	15.47	6.52	3.22
9	12.63	14.58	11.26	4.59	------	7.00	20.12	5.08	20.60	13.52	8.47	3.12
10	11.33	15.88	11.22	4.59	------	6.30	20.36	4.88	22.22	12.20	8.72	2.96
11	10.53	15.43	11.20	4.84	------	6.65	19.12	4.52	23.00	12.46	8.37	2.88
12	12.81	14.98	11.18	5.04	------	7.35	17.07	4.28	23.0[illegible]	12.57	7.72	2.82
13	14.33	13.99	22.41	5.29	------	7.40	14.97	4.03	24.00	11.78	7.07	2.72
14	14.43	13.01	25.01	5.54	------	6.85	17.78	3.93	24.35	10.58	6.72	2.68
15	14.48	13.63	27.66	5.79	------	6.50	11.20	3.73	24.35	11.18	6.22	2.68
16	13.98	15.03	29.86	6.19	------	7.00	10.74	3.68	23.90	11.50	5.72	7.92
17	13.28	15.38	------	6.34	------	8.85	10.56	3.68	22.00	10.67	5.27	9.42
18	11.33	15.63	------	7.19	------	11.92	10.38	3.93	22.30	9.83	4.77	8.72
19	9.80	14.53	------	13.02	------	13.90	9.93	6.33	21.90	8.58	4.32	7.92
20	7.65	13.38	------	16.22	------	14.45	9.48	8.58	25.20	7.83	4.27	7.26
21	5.85	12.27	------	18.52	------	14.15	15.82	9.93	28.45	7.58	4.27	6.61
22	4.75	10.81	28.96	18.22	------	12.65	18.72	10.82	29.92	7.33	4.22	5.91
23	4.30	8.75	27.41	17.27	------	11.20	20.48	10.52	30.99	7.03	6.73	5.31
24	3.85	6.70	25.46	16.37	------	9.75	21.36	10.44	31.14	6.78	7.02	4.71
25	3.65	5.80	23.03	16.62	------	8.30	21.24	10.36	31.33	7.23	6.82	3.76
26	3.50	5.50	21.07	16.57	------	7.30	20.02	9.89	30.75	8.13	5.77	3.11
27	3.35	5.25	16.52	16.42	------	6.70	18.77	7.78	29.65	8.18	5.32	2.81
28	3.25	5.15	12.96	15.00	------	6.15	16.47	7.28	30.05	7.68	5.02	2.75
29	3.11	5.00	12.32	12.17	------	5.45	14.42	6.63	29.75	7.08	4.62	2.71
30	2.99	6.05	11.44	10.72	------	5.60	11.87	6.23	29.75	6.58	4.32	2.67
31	2.85	------	10.52	9.39	------	6.90	------	5.98	------	6.18	5.02	------

MISCELLANEOUS DISCHARGE MEASUREMENTS

Measurements of stream flow in the Hudson Bay and upper Mississippi River Basins at points other than regular gaging stations are listed in the following table:

Miscellaneous discharge measurements in Hudson Bay and upper Mississippi River drainage basins during the year ending September 30, 1928

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
July 27	State ditch No. 85	North Fork of Two Rivers.	County-road crossing at southwest corner sec. 6, T. 162 N., R. 46 W., near Lancaster, Minn.	2.96	77.1
Aug. 9	do	do	do	1.40	17.5
23	do	do	do	.94	5.22
May 13	Mississippi River	Gulf of Mexico	Hastings, Minn., just above mouth of St. Croix River.	4.40	9,250
22	do	do	do	3.20	7,860
Sept. 13	Namakagon River	St. Croix River	Former gaging station at Trego, Wis.	2.75	1,010
Jan. 11	Tomahawk River	Wisconsin River	Former gaging station 4 miles north of Bradley, Wis.	3.62	472
Feb. 4	do	do	do	4.56	696
July 19	do	do	do	2.38	352
Sept. 10	Maquoketa River	Mississippi River	Near Manchester, Iowa	4.19	254
10	do	do	do	4.51	339
11	do	do	do	6.74	1,448
11	do	do	Below Delhi, Iowa	4.90	1,170

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