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RAY LYMAN WILBUR, Secretary
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Water-Supply Paper 625

SURFACE WATER SUPPLY *of the* UNITED STATES 1926

PART V
HUDSON BAY AND UPPER MISSISSIPPI RIVER BASINS

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ILLUSTRATION

SURFACE WATER SUPPLY OF HUDSON BAY AND UPPER MISSISSIPPI RIVER BASINS, 1926

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting records of measurements of flow made on streams in the United States during the year ending September 30, 1926.

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, 1895–1927

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

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 10.

Measurements of stream flow have been made at about 5,250 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1926, 1,730 gaging stations were being maintained by the Geological Survey and the cooperating organiza-

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

DEFINITION OF TERMS

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet, and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, run-off in inches, acre-feet, and millions of cubic 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 depth 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 sections of the stream channel below the gage which determines the stage-discharge relation at the gage. It should be noted that the control may not be the same section or sections at all stages.

The "point of zero flow" for a gaging station is that point on the gage—the gage height—at which water ceases to flow over the control.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1925, and ending September 30, 1926. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as ground 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 consists of records of stage, measurements of discharge, and general information used to

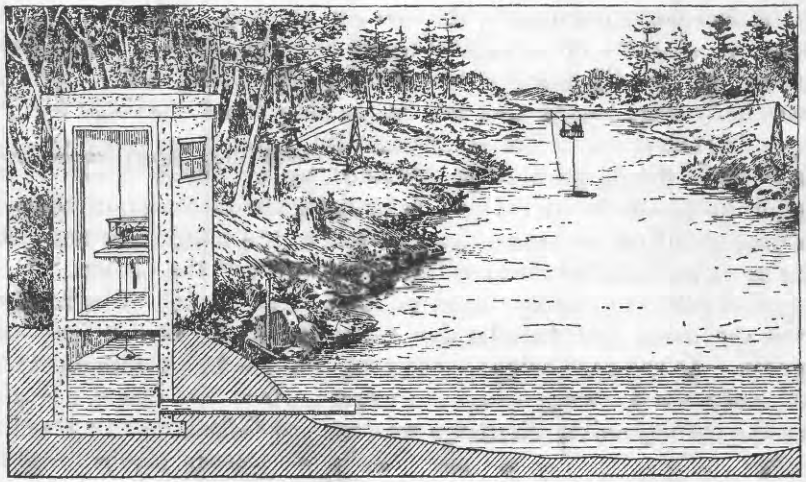

FIGURE 1.—Typical gaging station

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. 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 computed.

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table giving records

of discharge measurements, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

If the base data are insufficient to determine the daily discharge tables giving daily gage height and records of discharge measurements are published.

The description of the station gives, in addition to statements regarding location and equipment, information in regard to any condition that may affect the permanence of the stage-discharge relation, covering such subjects as the occurrence of ice, the use of the stream for log driving, shifting of control, and the cause and effect of backwater; it gives also 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 table of daily discharge gives, in general, the discharge in second-feet corresponding to the mean of the gage heights read each day. 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 operating on the principle of the planimeter and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest. As the gage height is the mean for the day it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise, in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. 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.

A paragraph in the description of the station gives information regarding the (1) permanence of the stage-discharge relation, (2) precision with which the discharge rating curve is defined, (3) refinement of gage readings, (4) frequency of gage readings, and (5) methods of applying daily gage height to the rating table to obtain the daily discharge.

For the rating tables "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

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

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. To give an idea of the amount of prior appropriations, a paragraph on diversions is presented in each station description. The figures given can not be considered exact but represent the best information available.

The table of monthly discharge gives only a general idea of the flow at the station and should not be used for other than preliminary estimates; the tables of daily discharge allow 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.

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.
III. Ohio River Basin.
IV. St. Lawrence River Basin.
V. Upper Mississippi River and Hudson Bay Basins.
VI. Missouri River Basin.
VII. Lower Mississippi River Basin.
VIII. Western Gulf of Mexico basins.
IX. Colorado River Basin.
X. 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 of 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.
Albany, N. Y., 904 Home Savings Bank Building.
Hartford, Conn., 64 State Capitol.
Trenton, N. J., 423 Statehouse Annex.
Charlottesville, Va., Brooks Museum, University of Virginia.
Asheville, N. C., 608 City Hall.
Tuscaloosa, Ala., Post Office Building.
Chattanooga, Tenn., 630 Power Building.
South Charleston, W. Va., Naval Ordnance Plant.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Chicago, Ill., 1510 Consumers Building.
Thief River Falls, Minn., 618 Knight Avenue, N.
Madison, Wis., 337N State Capitol.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Topeka, Kans., 23 Federal Building.
Helena, Mont., 45–46 Federal Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Tacoma, Wash., 404 Federal Building.

Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 600 Federal Building.
Tucson, Ariz., 104 Agricultural Building, University of Arizona.
Austin, Tex., State Capitol.
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 5,250 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	
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	Description, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907 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.

NOTE.—No data regarding stream flow are given in the Fifteenth and Seventeenth Annual Reports.

The records at most of the stations discussed in these reports extend over a series of years, and miscellaneous measurements at many points other than regular gaging stations have been made each year. 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 1926. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data for Machias River at Whitneyville, Maine, 1903 to 1921, are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, 321, 351, 381, 401, 431, 451, 471, 501, and 521, which contain records for the New England streams from 1903 to 1921. Results of miscellaneous measurements are published by drainage basins.

Numbers of water-supply papers containing results of stream measurements, 1899–1926

[For basins included see p. 6]

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
												A	B	C
1899[a]	35	[b]35, 36	36	36	36	[c]36, 37	37	37	[d]37, 38	38, [e]39	38, [f]39	38	38	38
1900[g]	47, [h]48	48	48, [i]49	49	49	49, [j]50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	[k]65, 66, 75	66, 75	[l]65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	[b]82, 83	83	[f]82, 83	[k]83, 85	84	[k]83, 84	84	85	85	85	85	85	85
1903	97	[b]97, 98	98	97	[k]98, 99, [m]100	99	[k]98, 99	99	100	100	100	100	100	100
1904	[n]124, [o]125 [p]126	[p]126, 127	128	129	[k]128, 130	130, [q]131	[k]128, 131	132	133	133, [r]134	134	135	135	135
1905	[n]165, [o]166, [p]167	[p]167, 168	169	170	171	172	[k]169, 173	174	175, [s]177	176, [r]177	177	178	178	[t]177, 178
1906	[n]201, [s]202 [p]203	[p]203, 204	205	206	207	208	[k]205, 209	210	211	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

[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 of 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

In Montana the work was carried on in cooperation with the United States Bureau of Reclamation. All stations in Montana were maintained jointly with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

In Minnesota the work in the Red River Basin, with the exception of the station on Kawishiwi River near Winton, was carried on in cooperation with the Minnesota State Drainage Commission, E. V. Willard, commissioner. The following organizations cooperated in maintaining certain stations: United States Engineer Corps (Mississippi River at Elk River and Minnesota River Near Montevideo), Ford Motor Co. (Mississippi River at St. Paul and Minnesota River at Mankato), and Prairie River Power Co. (Mississippi River above Sandy River, near Libby).

The work in Wisconsin was done in cooperation with the Railroad Commission of Wisconsin, C. M. Larson, chief engineer, and with 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).

In Iowa the work was carried on in cooperation with the Iowa Geological Survey, George F. Kay, director; Iowa Highway Commission, F. R. White, chief engineer; and with the Engineering Experiment Station of Iowa State College, Anson Marston, director.

The United States Weather Bureau paid the salary of gage observer for station on Cedar River at Cedar Rapids and part of salaries of observers for stations on Des Moines River near Boone and Tracy and on Raccoon River at Van Meter. The Mississippi River Power Co., of Keokuk, Iowa, cooperated in the maintenance of stations on Iowa River at Wapello, Skunk River near Coppock and Augusta, Des Moines River at Keosauqua, and Sugar Creek near Keokuk. Interstate Power Co., of Chicago, paid the salary of the observer for station on Upper Iowa River near Decorah.

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

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

DIVISION OF WORK

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

The data for stations in the Hudson Bay Basin in Minnesota were collected and prepared for publication under the direction of S. B. Soulé, district engineer, and by E. F. Chandler, assisted by A. R. Gray.

The data for stations in the Mississippi River Basin in Wisconsin and Minnesota were collected and prepared for publication under the direction of S. B. Soulé, district engineer, assisted by F. C. Christopherson, W. J. Parson, jr., and G. W. Martin.

The data for stations in the upper Mississippi River Basin in Iowa were collected under the direction of J. B. Spiegel, district engineer; after February 1, 1926, the work was done by Karl Jetter, engineer in charge, who also prepared the records for publication.

The data for stations in the upper Mississippi River Basin in Illinois were collected and prepared for publication under the direction of H. E. Grosbach, district engineer, assisted by A. M. Wahl.

The data for stations in the upper Mississippi River Basin in Missouri were collected and prepared for publication under the direction of H. C. Beckman, district engineer, assisted by V. L. Austin and W. A. Werner.

The records were reviewed and manuscript assembled by F. C. Christopherson.

GAGING-STATION RECORDS

HUDSON BAY DRAINAGE BASIN

ST. MARY RIVER NEAR KIMBALL, ALBERTA

LOCATION.—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.

DRAINAGE AREA.—497 square miles (revised; measured on topographic map).

RECORDS AVAILABLE.—January 1, 1913, to September 30, 1926. September 1, 1902, to December 31, 1912, records were obtained at point half a mile north of international boundary. Records were also obtained by the Irrigation Branch, Department of the Interior, Canada, at a point half a mile below present station, from 1905 to 1912. The discharge at the three points is practically the same.

GAGE.—Stevens continuous water-stage recorder on right bank used during open-water season. During winter a chain gage on highway bridge 3 miles below station is used. Read by W. Nicolls.

DISCHARGE MEASUREMENTS.—Made from cable 1,200 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed of stream at gage and at control composed of boulders and sandstone ledges. Control formed by an outcropping ledge of sandstone covered with boulders near left bank; subject to occasional shifts.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.04 feet at 11 p. m. October 12 (discharge, 1,300 second-feet); minimum discharge, 48 second-feet, January 31 (stage-discharge relation affected by ice).

1902–1926: Maximum discharge recorded, 18,000 second-feet June 5, 1908 (estimated by comparison with record for station near Babb); minimum discharge, 46 second-feet December 1, 1919 (stage-discharge relation affected by ice).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—St. Mary Canal diverts water from St. Mary River near Babb, Mont., to the North Fork of Milk River. Alberta Railway & Irrigation Co.'s canal diverts from St. Mary River 2 miles below station.

REGULATION.—Flow of Swiftcurrent Creek regulated by gate operations at Sherburne Lake Reservoir.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by a shift in control during the ice period. Rating curves used during the open-water periods are well defined. Operation of water-stage recorder satisfactory October 1 to November 13 and April 13 to September 30. Chain gage read to hundredths once daily December 1 to April 9. Daily discharge for periods when water-stage recorder was in operation ascertained by applying to rating tables mean daily gage height obtained by inspection of recorder graph. Open-water records good; winter records fair.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

Discharge measurements of St. Mary River near Kimball, Alberta, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 5	2.76	335	Mar. 9	[a] [b] 3.72	109	July 16	[b] 3.06	29.0
Oct. 12	3.92	1,070	Mar. 12	[a] [b] 3.48	122	Aug. 5	2.72	345
Oct. 13	4.02	1,210	Mar. 30	[a] [b] 3.64	161	Do	[b] 3.00	22.7
Nov. 12	[a] [b] 2.45	263	Apr. 28	3.42	734	Aug. 14	2.54	282
Do	[a] [b] 3.92	262	May 7	3.77	967	Do	2.54	287
Nov. 30	[a] [b] 3.64	155	May 30	[b] 2.84	33.6	Aug. 20	2.24	195
Dec. 4	[a] [b] 3.57	156	June 17	[b] 3.07	36.6	Aug. 28	2.54	272
Dec. 29	[a] [b] 4.29	206	Do	3.19	609	Do	[b] 2.97	20.4
Jan. 4	[a] [b] 4.37	66	June 23	3.59	842	Sept. 9	[b] 4.16	336
Feb. 1	[a] [b] 4.80	46.5	July 7	3.27	632			
Feb. 5	[a] [b] 5.20	84	July 16	3.14	555			

[a] Stage-discharge relation affected by ice. [b] Made at winter gage.

Daily discharge, in second-feet, of St. Mary River near Kimball, Alberta, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	432	307	146	105	50	148	156	934	585	750	376	363
2	410	301	146	90	55	151	156	1,060	585	770	394	380
3	405	293	159	75	58	130	143	1,090	579	743	385	506
4	380	288	148	65	73	118	130	1,060	585	716	367	516
5	348	295	148	65	85	105	130	1,050	591	710	346	562
6	334	284	156	63	90	105	143	1,020	615	650	333	640
7	330	277	223	63	94	105	143	981	658	634	318	646
8	444	277	206	61	96	108	156	911	703	658	326	684
9	782	270	173	61	101	110	156	811	723	671	333	690
10	989	267	176	61	105	118	160	729	729	646	322	646
11	1,200	267	162	60	94	122	170	697	697	628	303	646
12	1,200	264	176	60	96	125	180	658	646	603	296	723
13	1,280	258	170	60	98	156	192	658	615	585	286	671
14	1,190	251	162	57	101	184	198	622	640	574	279	634
15	1,060	249	153	57	101	184	220	628	665	579	279	609
16	926	249	162	55	103	130	286	640	597	556	276	628
17	768	250	156	55	105	130	367	665	579	556	286	690
18	656	249	151	53	108	122	418	658	597	533	282	652
19	558	248	151	53	110	130	413	678	710	500	276	615
20	486	246	143	51	112	130	678	710	832	500	228	585

Daily discharge, in second-feet, of St. Mary River near Kimball, Alberta, for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	450	245	138	51	115	135	868	763	811	562	307	562
22	426	220	138	55	118	130	1,000	797	804	516	266	556
23	405	200	135	56	120	135	1,010	797	839	473	269	550
24	390	200	133	58	122	130	911	790	839	447	266	533
25	380	190	130	60	128	130	853	770	832	422	260	516
26	361	180	130	62	133	138	790	804	811	399	266	500
27	338	170	148	64	138	143	736	710	783	358	289	500
28	325	170	194	61	143	143	736	652	763	363	279	489
29	330	160	206	57	-------	146	770	622	743	447	279	473
30	338	160	210	51	-------	156	875	609	743	399	303	452
31	325	-------	156	48	-------	156	-------	597	-------	413	341	------

NOTE.—Stage-discharge relation affected by ice Nov. 13 to Dec. 4, Dec. 17 to Mar. 12, and Mar. 31 to Apr. 10; daily discharge obtained by a study of discharge measurements, observer's notes, and weather records. Discharge estimated Apr. 10–12 and July 5 and 6 because of missing gage heights.

Monthly discharge of St. Mary River near Kimball, Alberta, for the year ending September 30, 1926

[Drainage area, 497 square miles]

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,280	325	589	36,200
November	307	160	243	14,500
December	223	130	161	9,900
January	105	48	61.1	3,760
February	143	50	102	5,660
March	184	105	134	8,240
April	1,010	130	438	26,100
May	1,090	597	780	48,000
June	839	579	697	41,500
July	770	358	560	34,400
August	394	228	304	18,700
September	723	363	574	34,200
The year	1,280	48	388	281,000

ST. MARY CANAL AT INTAKE NEAR BABB, MONT.

LOCATION.—In NW. ¼ NE. ¼ sec. 27, T. 36 N., R. 14 W., 600 feet below intake of the canal on Blackfeet Indian Reservation, 1 mile east of Babb, Glacier County.

RECORDS AVAILABLE.—June 1, 1918, to September 30, 1926.

GAGE.—Gurley printing water-stage recorder on right bank referred to a staff gage which is read once daily by ditch rider.

DISCHARGE MEASUREMENTS.—Made from cable near gage.

ACCURACY.—Stage-discharge relation permanent during season. Rating curve well defined. Operation of water-stage recorder unsatisfactory except for short periods. Observer's readings to hundredths once daily used during periods when water-stage recorder was not in operation. Daily discharge ascertained by applying daily gage height to rating table. Records good.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

St. Mary Canal diverts water from west bank of St. Mary River near Babb, Mont., 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.

Discharge measurements of St. Mary Canal at intake near Babb, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	------	6.9	June 14	6.45	538	Aug. 17	2.70	121
Apr. 22	4.89	322	July 9	6.76	597	Aug. 21	1.94	68
May 7	5.90	453	July 15	6.80	579	Aug. 27	2.43	94
June 12	6.25	495	July 28	4.03	209	Sept. 20	.42	6.6
Do	6.38	531	Aug. 9	2.82	111			

Daily discharge, in second-feet, of St. Mary Canal at intake near Babb, Mont. for the year ending September 30, 1926

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	547	------	394	457	571	160	122
2	544	------	442	456	573	133	150
3	531	------	443	456	571	131	208
4	518	------	460	457	571	131	231
5	516	------	460	457	571	130	222
6	515	------	460	459	570	129	252
7	484	------	459	462	570	130	254
8	462	------	456	466	576	125	256
9	301	------	453	466	590	119	302
10	237	------	452	467	594	119	336
11	119	------	450	470	594	119	320
12	56	------	459	530	590	118	147
13	7.0	------	476	534	590	118	146
14	6.9	------	491	536	590	111	140
15	------	------	508	557	592	111	121
16	------	35	518	563	590	111	120
17	------	58	532	562	589	111	------
18	------	66	546	562	587	109	------
19	------	187	551	570	584	144	------
20	------	232	551	571	570	98	------
21	------	289	557	568	524	95	------
22	------	325	565	570	518	114	------
23	------	342	578	568	515	108	------
24	------	365	592	570	515	105	------
25	------	365	552	571	512	105	------
26	------	364	469	573	506	96	------
27	------	365	469	571	462	93	------
28	------	365	466	571	298	96	------
29	------	365	464	573	238	101	------
30	------	366	463	573	202	105	------
31	------	------	463	------	170	115	------

Monthly discharge of St. Mary Canal at intake near Babb, Mont., for the year ending September 30, 1926

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1–14	547	6.9	346	9,610
April 16–30	366	35	273	8,120
May	592	394	490	30,100
June	573	456	526	31,300
July	594	170	519	31,900
August	160	93	116	7,130
September 1–16	336	120	208	6,600
The period	------	------	------	125,000

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

LOCATION.—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, Glacier County.

RECORDS AVAILABLE.—July 6, 1918, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder on right bank.

DISCHARGE MEASUREMENTS.—Made from cable 70 feet above gage.

CHANNEL AND CONTROL.—Control is located at entrance to steel flume. Subject to shift on account of silting of canal.

ACCURACY.—Stage-discharge relation permanent during season. Rating curves well defined. Operation of water-stage recorder satisfactory except October 1–14, April 18–22, and May 21–31 when observer's daily staff gage readings were used. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

Discharge measurements of St. Mary Canal at St. Mary crossing, near Babb, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	0.60	7.2	June 16	4.69	487	Aug. 14	2.11	103
Apr. 23	3.60	268	July 7	4.71	489	Aug. 19	2.15	105
May 7	4.30	410	July 17	4.76	478	Aug. 27	1.93	83
June 12	4.48	446	July 27	4.28	401	Sept. 22	Dry.	0

Daily discharge, in second-feet, of St. Mary Canal near St. Mary crossing, near Babb, Mont., for the year ending September 30, 1926

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	472		378	402	490	148	107
2	472		392	400	492	125	132
3	453		398	398	492	116	149
4	453		408	400	492	117	203
5	453		408	400	492	116	203
6	441		408	402	490	115	196
7	432		406	408	492	113	216
8	398		402	414	488	107	225
9	275		400	416	492	106	243
10	188		396	416	498	105	286
11	122		396	418	498	104	278
12	115		404	450	494	103	149
13	56		416	468	498	104	137
14	7.3		434	470	496	102	131
15			442	482	498	100	112
16			460	486	498	100	70
17			468	484	498	100	
18		32	480	486	496	100	
19		148	484	486	494	113	
20		174	488	488	492	138	
21		228	492	492	462	66	
22		270	502	490	446	104	
23		286	502	490	442	97	
24		319	506	492	440	94	
25		324	512	492	438	93	
26		320	474	490	436	89	
27		320	416	492	410	84	
28		322	414	492	320	88	
29		322	410	490	202	89	
30		329	408	490	198	101	
31			408		152	110	

NOTE.—Discharge estimated on account of missing gage heights May 13–14 and Sept. 12.

Monthly discharge of St. Mary Canal at St. Mary crossing, near Babb, Mont., for the year ending September 30, 1926

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1-14	472	7.3	310	8,610
April 18-30	329	32	261	6,730
May	512	378	436	26,800
June	492	398	456	27,100
July	498	152	446	27,400
August	148	66	105	6,460
September 1-16	286	70	177	5,600

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

LOCATION.—In sec. 5, T. 37 N., R. 11 W., 3 miles above canal outlet, 30 miles north of Browning, Glacier County, on Blackfeet Indian Reservation.

RECORDS AVAILABLE.—July 3, 1917, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder on right bank 50 feet above the first drop in canal.

DISCHARGE MEASUREMENTS.—Made from cable 500 feet above gage.

CHANNEL AND CONTROL.—Canal uniform in section. Control is a V-shaped notch in concrete drop just below gage.

ACCURACY.—Stage-discharge relation permanent during season. Rating curve well defined between 3 and 540 second-feet. Operation of water-stage recorder fairly satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good except for estimated periods, for which they are fair.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

Discharge measurements of St. Mary Canal at Hudson Bay divide, near Browning, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 19	1.02	3.8	June 17	6.16	481	Aug. 5	3.49	110
Apr. 23	4.95	266	June 24	6.17	507	Aug. 13	3.36	105
Apr. 27	5.28	310	July 7	6.15	488	Sept. 14	3.70	128
May 8	5.72	388	July 21	6.10	472	Sept. 24	Dry.	0
May 27	5.90	436	Aug. 4	3.50	107			

Daily discharge, in second-feet, of St. Mary Canal at Hudson Bay divide, near Browning, Mont., for the year ending September 30, 1926

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	484		315	402	494	145	102
2	472		334	394	496	135	115
3	464		357	394	494	115	135
4	454		379	398	492	110	175
5	450		390	388	489	110	190
6	450		396	392	487	110	193
7	438		398	392	487	107	200
8	425		396	400	489	103	213
9	386		392	394	485	102	215
10	225		390	396	487	98	252
11	140		388	396	489	103	287
12	114		390	410	492	102	237
13	65		396	438	489	102	146
14	20		410	459	489	100	129
15	15		420	474	492	98	117

Daily discharge, in second-feet, of St. Mary Canal at Hudson Bay divide, near Browning, Mont., for the year ending September 30, 1926—Continued

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
16	10		434	481	487	96	103
17	7		453	487	492	98	71
18	4		457	489	487	97	44
19	3.8		470	496	485	96	24.4
20			476	496	485	125	14.5
21			478	492	478	105	9.8
22			476	489	451	65	.0
23			485	489	442	96	
24		300	489	492	438	91	
25		310	496	492	436	88	
26		313	487	498	432	89	
27		313	432	494	430	83	
28		313	410	492	390	85	
29		313	408	492	244	88	
30		315	402	494	203	93	
31			398		165	98	

NOTE.—Water-stage recorder not in operation Oct. 1–19, Aug. 1–11, and Aug. 28 to Sept. 5. Observer's readings used Oct. 1–14. Discharge estimated from flow at upper station Oct. 15–19, Aug. 1–11, and Aug. 28 to Sept. 5.

Monthly discharge of St. Mary Canal at Hudson Bay divide, near Browning, Mont., for the year ending September 30, 1926

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1–19	484	3.8	244	9,200
April 24–30	315	300	311	4,320
May	496	315	419	25,800
June	498	388	450	26,800
July	496	165	448	27,500
August	145	65	101	6,210
September 1–22	287	0	135	5,890

SWIFTCURRENT CREEK AT MANY GLACIER, MONT.

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

DRAINAGE AREA.—31.4 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 6, 1912, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder on right bank.

DISCHARGE MEASUREMENTS.—Made from cable 1,000 feet below gage or by wading.

CHANNEL AND CONTROL.—Limestone outcrop at outlet of lake forms control; shifts slightly.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.41 feet at 1 p. m. May 5 (discharge, 491 second-feet); minimum stage, 1.49 feet November 8–11 (discharge, 37.2 second-feet).

1912–1926: Maximum stage recorded, 4.75 feet June 17, 1916 (discharge, 1,550 second-feet); minimum stage, 1.22 feet November 6–7, 1921 (discharge, 10 second-feet).

ICE.—Stage-discharge relation affected by ice. No records during winter.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during the period of no record. Two well-defined rating curves used during year, one applicable October 1 to November 11, the other applicable April 22 to September 30. Operation of water-stage recorder satisfactory except October 1–15, June 16–17, and September 7–13, when discharge was estimated. Daily discharge for periods when water-stage recorder was in operation ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good except for estimated periods for which they are fair.

COOPERATION.—Maintained in cooperation with Department of the Interior, Canada.

Discharge measurements of Swiftcurrent Creek at Many Glacier, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	1.67	46.9	June 15	2.20	139	Aug. 15	1.91	75
Apr. 22	2.80	299	July 6	2.42	196	Sept. 20	2.00	94
May 6	2.88	327	July 14	2.32	170			
May 20	2.74	274	Aug. 9	1.92	78			

Daily discharge, in second-feet, of Swiftcurrent Creek at Many Glacier, Mont., for the year ending September 30, 1926

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1		39.6		442	121	193	101	290
2		38.8		356	121	202	98	290
3		39.6		305	130	193	92	248
4		40.4		368	166	186	88	196
5		38.8		465	212	186	88	170
6		38.0		340	242	193	86	170
7		38.0		267	259	204	82	179
8	70	37.2		215	231	207	78	188
9		37.2		180	212	183	78	197
10		37.2		156	186	166	74	206
11		37.2		144	166	166	70	178
12				130	144	163	73	150
13				130	128	163	78	121
14				163	125	163	80	116
15				204	141	153	80	118
16	53.0			210	146	144	82	123
17	52.0			207	151	132	86	116
18	51.0			202	158	128	86	109
19	51.0			210	204	121	96	98
20	51.0			267	245	116	105	96
21	50.0			276	234	107	90	105
22	49.6		287	231	228	98	78	123
23	54.0		234	199	228	98	74	118
24	58.0		188	188	234	101	78	101
25	59.0		168	168	234	105	84	90
26	56.0		178	141	242	114	96	86
27	49.6		226	134	250	112	116	82
28	47.8		296	130	245	103	109	86
29	48.7		387	134	215	98	96	90
30	42.0		458	139	193	96	112	92
31	38.8			130		101	166	

NOTE.—Braced figure represents mean discharge for period indicated.

Monthly discharge of Swiftcurrent River at Many Glacier, Mont., for the year ending September 30, 1926

[Drainage area, 31.4 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October	70.0	38.8	60.0	1.91	2.20	3,690
November 1–11	40.4	37.2	38.4	1.22	.50	838
April 22–30	458	168	269	8.57	2.87	4,800
May	465	130	220	7.01	8.08	13,500
June	259	121	193	6.15	6.86	11,500
July	207	96	145	4.62	5.33	8,920
August	166	70	90.3	2.87	3.31	5,550
September	290	82	144	4.59	5.12	8,570

SWIFTCURRENT CREEK AT SHERBURNE, MONT.

LOCATION.—In sec. 35, T. 36 N., R. 15 W., 800 feet below spillway of Sherburne Lake Dam at Sherburne, Glacier County.

DRAINAGE AREA.—64 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 1, 1912, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder on left bank.

DISCHARGE MEASUREMENTS.—Made from cable 450 feet above gage or by wading.

CHANNEL AND CONTROL.—An outcropping limestone ledge, somewhat broken and irregular, forms the control; subject to slight shifts.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.84 feet at 10 a. m. October 10 (discharge, 1,120 second-feet); minimum stage, 0.90 foot September 30 (discharge, 12.0 second-feet).

1912–1926: Maximum stage recorded, 7.85 feet June 17, 1916 (discharge, 2,280 second-feet); no flow at various times when gates were closed.

ICE.—Stage-discharge relation affected by ice, observations discontinued during winter.

DIVERSIONS.—None.

REGULATION.—Flow regulated by gate operations.

ACCURACY.—Stage-discharge relation changed slightly during period of no record. Two well-defined rating curves used during year, one applicable October 1–31 and the other applicable April 18 to September 30. Operation of water-stage recorder satisfactory, except October 29–31 and September 24–29, when discharge was estimated. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

Discharge measurements of Swiftcurrent Creek at Sherburne, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	4.16	452	June 1	3.60	334	Sept. 20	0.98	13.6
Apr. 21	4.17	461	July 14	4.26	488			
May 7	2.00	81	Aug. 9	2.16	102			

Daily discharge, in second-feet, of Swiftcurrent Creek at Sherburne, Mont., for the year ending September 30, 1926

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	502		268	328	344	125	243
2	488		233	332	316	124	314
3	480		163	336	322	124	332
4	471		70	344	367	118	314
5	454		82	346	361	112	271
6	435		82	346	358	110	257
7	571		83	346	387	106	264
8	912		103	346	407	105	296
9	1,080		106	344	405	100	300
10	1,080		133	330	398	101	227
11	1,010		204	324	394	95	107
12	877		281	378	402	91	79
13	769		320	378	422	91	82
14	619		365	372	469	91	78
15	477		405	324	448	94	66
16	264		413	346	464	98	50
17	149		363	369	456	106	17.6
18	102	324	369	365	445	108	15.6
19	86	356	402	344	480	114	14.0
20	85	467	402	332	438	109	13.8
21	77	464	405	312	428	110	13.6
22	52	389	405	312	418	101	13.4
23	65	290	391	306	425	100	13.4
24	105	264	361	288	435	95	13.2
25	63	240	338	284	413	94	13.0
26	72	198	232	286	290	110	12.8
27	74	193	228	284	208	125	12.6
28	66	203	250	292	160	119	12.4
29	60	225	281	348	145	121	12.2
30	54	221	296	378	131	142	12.0
31	50		308		126	178	

Monthly discharge of Swiftcurrent Creek at Sherburne, Mont., for the year ending September 30, 1926

[Drainage area, 64 square miles]

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,080	50	376	23,100
April 18–30	467	193	295	7,610
May	413	70	269	16,500
June	378	284	334	19,900
July	480	126	363	22,300
August	178	91	110	6,760
September	332	12	116	6,900

CANYON CREEK NEAR MANY GLACIER, MONT.

LOCATION.—At edge of heavy timber area, half a mile above mouth, in Glacier National Park, 2 miles southeast of Many Glacier, Glacier County.

DRAINAGE AREA.—7.0 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 12, 1918, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder on left bank.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage or by wading.

CHANNEL AND CONTROL.—Bed covered with heavy boulders and cobblestones. Control is riffle 20 feet below gage; subject to shifts.

EXTREMES OF DISCHARGE.—Maximum discharge during year estimated 62 second-feet September 1; minimum discharge recorded, 8.8 second-feet at 3 p. m. August 11 (gage height, 0.67 foot).

1918–1926: Maximum stage, 3.34 feet May 16, 1922 (discharge, estimated 500 second-feet); minimum stage, 0.56 foot October 4, 1919 (discharge, 3.3 second-feet).

ICE.—Observations discontinued during winter.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during spring break-up. Two well-defined rating curves used during year, one applicable during October and the other applicable April 22 to September 30. Operation of water-stage recorder satisfactory except as noted in footnote to daily-discharge table. Daily discharge for days when water-stage recorder was in operation ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good except for estimated periods, for which they are fair.

COOPERATION.—Maintained in cooperation with the Department of the Interior, Canada.

Discharge measurements of Canyon Creek near Many Glacier, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	0.67	10.2	May 20	1.28	46.6	Aug. 15	0.71	10.2
Apr. 22	1.10	30.2	June 15	1.04	24.5	Sept. 20	.93	20.8
May 6	1.18	36.4	July 13	1.03	25.1			

Daily discharge, in second-feet, of Canyon Creek near Many Glacier, Mont., for the year ending September 30, 1926

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	13.9		22.5	18.0	36.3	15.8	62.0
2	13.6		32.0	19.5	39.1	14.9	60.0
3	13.6		32.9	21.0	38.0	13.6	50.0
4	13.6		22.5	24.1	36.0	13.6	45.0
5	13.9		25.9	32.0	33.0	13.6	40.0
6	13.6		32.9	35.4	31.2	13.1	39.0
7	13.6		32.0	35.4	32.0	13.6	31.0
8	13.3		25.3	31.2	29.5	12.6	31.0
9	13.0		21.5	29.0	25.9	12.2	32.0
10	12.6		20.0	27.0	25.3	10.0	32.0
11	12.0		17.6	26.0	24.7	9.2	28.0
12	12.0		15.8	25.0	25.3	9.0	25.0
13	11.0		16.7	24.0	25.3	10.0	23.0
14	11.0		21.5	24.0	25.3	10.4	22.0
15	10.1		27.1	25.9	24.0	9.5	23.0
16	10.1		25.9	27.0	22.0	10.8	23.0
17	9.8		26.5	30.0	20.0	11.8	22.0
18	10.1		27.1	35.0	18.0	11.0	21.0
19	9.8		30.4	45.0	17.0	12.0	20.0
20	9.8		45.7	49.0	16.0	15.0	21.0
21	11.0		42.4	49.5	15.0	11.0	22.5
22	15.3	34.6	34.6	49.0	15.0	9.5	22.0
23	13.9	43.5	30.4	49.0	15.0	10.0	19.5
24	12.6	52.0	28.3	50.0	15.0	10.4	20.5
25	11.0	53.0	23.5	50.0	16.0	10.8	19.5
26	10.4	45.7	20.5	49.0	16.0	12.6	15.8
27	10.0	39.1	20.5	46.8	15.0	17.2	15.8
28	10.0	29.5	19.5	41.3	14.9	14.4	15.8
29	10.0	23.5	20.0	35.4	14.0	14.9	15.8
30	10.0	22.5	20.0	32.9	14.0	25.9	15.8
31	10.0		18.5		15.4	60.0	

NOTE.—Gage-height record missing Oct. 11–14, 27–31 June 9–14, 16–24, July 3–5, 15–27, Aug. 18–21, and Aug. 31 to September 19. Discharge estimated by comparison with records for Swiftcurrent Creek at Many Glacier.

Monthly discharge of Canyon Creek near Many Glacier, Mont., for the year ending September 30, 1926

[Drainage area, 7.0 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October	15.3	9.8	11.8	1.68	1.94	726
April 22-30	53.0	22.5	38.2	5.46	1.83	682
May	45.7	15.8	25.8	3.69	4.25	1,590
June	50.0	18.0	34.5	4.93	5.50	2,050
July	39.1	14.0	22.9	3.27	3.77	1,410
August	60.0	9.0	14.1	2.01	2.32	867
September	62.0	15.8	27.5	3.93	4.38	1,640

BOIS DES SIOUX RIVER NEAR TENNEY, MINN.

LOCATION.—Near center of sec. 22, T. 130 N., R. 47 W., at Soo Railway bridge 5 miles west of Tenney, Wilkin County, Minn., and 2 miles east of Fairmount, N. Dak.

DRAINAGE AREA.—1,460 square miles.

RECORDS AVAILABLE.—April 1, 1919 to September 30, 1926.

GAGE.—Vertical staff gage attached to piling pier of the Soo railway bridge; read by Harry Voss.

DISCHARGE MEASUREMENTS.—Made from highway bridge, from railway bridge, or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and fine clay, overgrown with weeds, which clog the channel by an amount varying with the season. No considerable shifts in channel likely because normal velocities are insufficient to erode.

EXTREMES OF DISCHARGE.—Maximum discharge recorded during year, 32 second-feet March 18 and 19; no flow during greater part of year.

1919–1926: Maximum discharge recorded 390 second-feet April 22, 1922; no flow during several long periods.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—None.

REGULATION.—There are no reservoirs or power plants which affect the flow. The station is 15 miles below the outlet of Lake Traverse with no considerable tributaries entering between so that abrupt changes in discharge are unlikely. Very extensive ditching and drainage work in the tributary area during the past twenty years may affect the distribution of flow.

ACCURACY.—Stage-discharge relation during March probably affected by ice and by shifting control. No discharge measurements made; 1923 rating used. Records poor. Report of no flow during rest of year is reliable.

During the years ending September 30, 1924 and 1925 the observer reported no flow during the entire climatic years. The report of no flow was confirmed by three visits made by the hydrographer during those years.

Daily discharge, in second-feet, of Bois des Sioux River near Tenney, Minn., for the year ending September 30, 1926

Day	Mar.	Day	Mar.	Day	Mar.
8	11	16	18	24	24
9	11	17	25	25	22
10	10	18	32		
		19	32	26	18
11	8	20	30	27	14
12	6			28	10
13	4	21	28	29	5
14	4	22	27		
15	11	23	25		

NOTE.—No flow during year except Mar. 8–29.

RED LAKE RIVER AT THIEF RIVER FALLS, MINN.

LOCATION.—In sec. 33, T. 154 N., R. 43 W., one-third mile below dam at Thief River Falls, Pennington County, and 1 mile below mouth of Thief River.

DRAINAGE AREA.—3,430 square miles.

RECORDS AVAILABLE.—July 1, 1909, to September 30, 1918, and March 25, 1920, to September 30, 1926.

GAGE.—Inclined staff gage on right bank; read by Thomas Hastad.

DISCHARGE MEASUREMENTS.—Made from cable near gage.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders; nearly permanent.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 8.0 feet June 22 (discharge, 2,550 second-feet); minimum discharge, estimated 19 second-feet March 4 (stage-discharge relation affected by ice).

1909–1918; 1920–1926: Maximum open-water stage recorded, 12.2 feet April 19–21, 1916 (discharge, 7,040 second-feet); no flow July 17 and August 27, 1911.

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—A short distance above station is a dam owned by Hanson & Barzen Milling Co. and the city lighting plant. The variation in load on the turbines due to operation of the lighting plant (at night) and of the mill (chiefly during the day) causes fluctuations in stage at the gage.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve fairly well defined. Gage read to half-tenths once daily during summer and two or three times weekly during winter, but owing to regulation the gage reading at low stages may not accurately represent the mean daily gage height. Daily discharge ascertained by applying daily gage height to rating table. Open-water records at medium and high stages, good; at low stages, fair. Winter records poor.

No discharge measurements made at station during year.

Daily discharge, in second-feet, of Red Lake River at Thief River Falls, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	795	318	240	370	301	170	750	464	548	750	221	89
2	845	352	192	370	301	120	795	352	570	705	318	89
3	845	388	370	395	301	70	660	660	548	660	89	154
4	705	425	560	420	301	19	352	484	570	570	352	219
5	660	388	750	444	301	130	388	352	505	570	140	284
6	615	352	650	420	301	236	615	570	505	615	352	221
7	615	192	570	400	301	220	1,050	548	464	660	89	206
8	548	206	510	380	301	210	795	505	570	570	165	505
9	526	206	450	370	301	206	895	388	464	660	284	89
10	548	352	388	370	301	206	795	548	548	660	352	252
11	548	370	415	370	301	206	1,500	526	570	464	114	268
12	570	380	444	370	301	206	1,720	570	570	615	406	221
13	505	390	352	370	301	206	1,500	505	505	505	89	301
14	505	406	340	380	370	236	1,640	352	570	548	352	248
15	526	400	330	400	330	260	945	505	615	570	221	284
16	484	388	318	406	300	320	895	318	570	505	89	252
17	505	395	360	370	268	400	845	526	570	505	425	252
18	406	400	400	335	250	526	660	548	660	425	352	284
19	318	410	444	330	240	570	845	352	660	464	464	221
20	388	420	420	320	236	570	660	425	705	444	425	268
21	425	425	390	310	236	1,050	615	425	1,950	464	301	268
22	425	464	360	310	240	1,640	464	464	2,550	425	284	301
23	425	425	335	301	245	2,110	570	464	2,280	352	284	335
24	548	420	320	310	250	2,460	570	548	1,870	318	66	335
25	505	420	310	320	255	2,110	464	548	1,570	221	284	318
26	505	420	301	335	260	2,370	615	570	1,430	388	406	221
27	388	400	320	320	268	2,280	464	570	1,170	236	66	444
28	425	388	340	320	220	1,800	388	570	1,110	352	89	221
29	64	340	350	310	-------	1,230	352	505	845	388	114	318
30	388	290	370	301	-------	995	526	505	845	318	66	268
31	425	-------	370	301	-------	795	-------	615	-------	352	66	-------

NOTE.—Stage-discharge relation affected by ice Nov. 5 to Apr. 8; discharge determined by a study of gage-height records, observer's notes, and temperature records.

Monthly discharge of Red Lake River at Thief River Falls, Minn., for the year ending September 30, 1926

[Drainage area, 3,430 square miles]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	845	64	515	May	660	318	493
November	464	192	371	June	2,550	464	897
December	750	192	396	July	750	221	493
January	444	301	356	August	464	66	236
February	370	220	281	September	505	89	258
March	2,460	19	772				
April	1,720	352	778	The year	2,550	19	488

RED LAKE RIVER AT CROOKSTON, MINN.

LOCATION.—In sec. 30, T. 150 N., R. 46 W. at Sampson's Addition highway bridge in Crookston, Polk County, one-fourth mile below dam and power house of Crookston Light, Water & Power Co. No tributaries enter within several miles.

DRAINAGE AREA.—5,320 square miles.

RECORDS AVAILABLE.—May 19, 1901, to September 30, 1926.

GAGE.—A chain gage attached to middle span of bridge; read by J. A. McLean. Zero of gage is 833.54 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from highway bridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt, gravel, and small boulders; control not well defined. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.3 feet March 24 (discharge, 6,500 second-feet); minimum discharge, 92 second-feet measured by current meter on August 30.

1901–1926: Maximum discharge 14,700 second-feet July 5, 1919; minimum stage, 2.0 feet August 6–8, 1925 (discharge, 5 second-feet). Minimum discharge due to regulation.

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Diurnal fluctuation in stage, particularly at low water, is caused by operation of power plant immediately above the station and by another plant 8 miles upstream. Storage at these plants is small, so that mean monthly flow should represent nearly the natural flow.

ACCURACY.—Stage-discharge relation not permanent; affected by ice during winter and by aquatic growth during summer. Standard rating curve well defined. Gage read to tenths once daily. At low stages the mean daily gage height may be considerably in error on account of regulation. Daily discharge ascertained by applying daily gage height to rating table. Shifting-control method applied June 27 to September 30 on account of aquatic growth in channel. Records fair except for periods of low water or ice effect, for which they are poor.

The following discharge measurements were made:

October 30, 1925: Gage height, 3.34 feet; discharge, 352 second-feet.

August 30, 1926: Gage height, 3.61 feet; discharge, 92 second-feet.

September 1, 1926: Gage height, 4.28 feet; discharge, 283 second-feet.

Daily discharge, in second-feet, of Red Lake River at Crookston, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	630	445	380	460	395	540	3,300	710	800	1,320	510	260
2	990	420	350	470	395	550	2,800	670	940	1,260	510	260
3	845	395	325	470	400	400	2,410	670	940	1,260	430	260
4	1,090	400	360	470	400	300	2,240	710	940	1,200	430	230
5	1,260	420	395	470	430	250	2,180	710	940	1,200	290	290
6	990	440	360	480	430	230	2,130	710	800	1,090	470	260
7	845	460	430	490	430	240	2,080	710	800	1,090	395	290
8	630	480	500	510	400	280	1,800	710	670	1,090	395	290
9	590	500	670	510	325	360	1,500	710	890	1,090	395	290
10	550	540	620	510	330	350	1,200	710	800	990	395	290
11	550	590	560	510	340	340	1,200	710	710	990	430	325
12	590	580	510	510	350	330	1,200	800	710	1,040	395	325
13	590	560	480	490	360	325	1,140	670	710	1,040	430	325
14	510	550	460	470	350	340	1,140	710	800	990	360	290
15	550	580	430	470	340	360	1,090	670	800	990	360	260
16	590	610	430	470	325	395	1,090	670	800	940	360	325
17	510	640	430	470	325	410	1,040	755	940	940	395	360
18	520	670	430	470	325	430	1,090	800	940	940	360	290
19	540	600	430	430	325	450	1,200	710	990	940	360	290
20	550	540	430	400	325	470	1,200	710	1,040	670	360	290
21	560	470	430	400	340	1,000	1,040	670	1,380	630	360	360
22	580	470	430	400	360	2,980	940	670	2,900	670	325	360
23	590	470	430	395	395	5,060	1,040	670	3,430	470	325	360
24	630	470	430	395	420	6,500	990	670	3,350	670	325	360
25	630	470	430	395	450	6,000	800	710	2,970	630	290	360
26	630	470	430	395	480	5,400	755	710	2,340	630	290	395
27	710	470	430	395	510	4,800	670	845	2,210	590	260	395
28	590	470	430	395	530	4,800	670	800	1,880	590	260	395
29	395	440	430	395	-------	4,890	670	755	1,560	550	260	325
30	395	410	440	395	-------	4,500	670	710	1,440	510	260	290
31	470	-------	450	395	-------	3,900	-------	710	-------	510	290	------

NOTE.—Stage-discharge relation affected by ice Nov. 11 to Mar. 23; discharge estimated from occasional gage readings, weather records, and by comparison with records for station at Thief River Falls. No gage readings available Oct. 18–22, Nov. 1, 2, 4–10, Mar. 25, 26, 28, 30, 31, Apr. 1, 2, 4–6, 8, 9, and July 17; discharge interpolated.

Monthly discharge of Red Lake River at Crookston, Minn., for the year ending September 30, 1926

[Drainage area, 5,320 square miles]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	1,260	395	648	May	845	670	714
November	590	395	501	June	3,430	670	1,350
December	670	325	443	July	1,320	510	888
January	510	395	448	August	510	260	364
February	530	325	385	September	360	230	313
March	6,500	230	1,840				
April	3,300	670	1,380	The year	6,500	230	775

ROSEAU RIVER AT CARIBOU, MINN.

LOCATION.—In sec. 34, T. 164 N., R. 45 W. at highway bridge at Caribou, Kittson County, 1 mile south of international boundary and 3 miles upstream from crossing of boundary line by river.

DRAINAGE AREA.—1,650 square miles.

RECORDS AVAILABLE.—April 1 to October 6, 1917; April 12, 1920, to September 30, 1926.

GAGE.—Chain gage attached to downstream handrail of bridge, 60 feet from left abutment; read by James A. McKibbin. Zero of gage is 1,000.3 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Channel is artificial, of trapezoidal cross section, 100 feet wide and 10 feet deep. Bed composed of hardpan with a few scattered large boulders.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.5 feet July 6–8 (discharge, 1,900 second-feet); minimum discharge, estimated, 31 second-feet December 30 and March 13–19 (stage-discharge relation affected by ice.

1917; 1920–1926: Maximum stage recorded, 12.5 feet May 2, 1923 (discharge, 2,980 second-feet); minimum discharge, 4 second-feet September 10–12, 29, 30, 1917.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—No diversions involving storage or loss of water. A small channel 3½ miles long was dredged some years ago from a point 4 miles above station to a point 1 mile below station. At all stages above a height of about 6.0 feet water flows in this channel and is measured and included as a part of the flow past the station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent, except as affected by ice. Rating curve well defined. Gage read to half-tenths twice daily. Except for ice period daily discharge was ascertained by applying daily gage height to rating table. Open-water records good; winter records poor.

The following discharge measurement was made:

August 31, 1926: Gage height, 4.31 feet; discharge, 126 second-feet.

Daily discharge, in second-feet, of Roseau River at Caribou, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	122	323	170	40	40	34	461	160	360	1,680	83	103
2	148	341	167	45	40	34	550	154	360	1,720	66	134
3	181	341	160	50	40	34	599	154	341	1,770	50	181
4	209	323	150	55	40	34	625	128	305	1,810	45	202
5	224	323	150	60	40	34	599	134	320	1,860	45	202
6	216	341	140	65	38	33	599	134	320	1,900	45	216
7	202	341	130	68	38	33	527	134	320	1,900	45	209
8	202	330	130	68	38	33	527	134	320	1,900	45	202
9	195	310	120	68	38	33	440	128	330	1,860	45	195
10	188	300	115	68	38	33	399	141	330	1,860	50	202
11	188	290	110	68	38	32	527	141	330	1,860	50	195
12	181	280	100	68	38	32	788	148	340	1,770	60	188
13	167	271	100	68	38	31	760	141	340	1,680	71	174
14	167	265	90	68	38	31	505	128	350	1,600	83	154
15	167	260	80	68	38	31	440	122	350	1,470	83	141
16	167	255	80	65	38	31	440	122	360	1,430	71	134
17	167	250	75	60	38	31	440	115	399	1,390	60	128
18	167	245	68	60	38	31	379	115	505	1,350	60	128
19	174	239	60	60	38	31	360	103	574	1,190	66	128
20	174	235	55	55	36	44	360	109	817	1,080	77	122
21	181	230	50	52	36	57	360	109	1,190	878	97	128
22	188	225	45	50	36	141	360	109	1,270	678	115	134
23	202	220	40	50	36	271	330	103	1,310	527	160	148
24	216	220	38	50	36	483	300	134	1,350	360	188	167
25	224	215	36	50	34	440	260	154	1,390	271	174	188
26	255	210	35	45	34	419	230	167	1,430	216	154	202
27	288	209	34	45	34	399	202	255	1,470	167	141	216
28	305	200	33	45	34	419	195	360	1,550	148	128	224
29	323	190	32	45	------	399	195	379	1,600	122	109	224
30	323	180	31	42	------	399	181	379	1,640	109	91	239
31	323	------	35	40	------	399	------	360	------	97	128	------

NOTE.—Stage-discharge relation affected by ice Nov. 13 to Apr. 7; discharge estimated from a few gage heights; weather records and by comparison with discharge in other drainage basins. Gage not read Nov. 8–12, Apr. 23–26, and June 5–15; discharge estimated.

Monthly discharge of Roseau River at Caribou, Minn., for the year ending September 30, 1926

[Drainage area, 1,650 square miles]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	323	122	208	May	379	103	166
November	341	180	265	June	1,640	305	720
December	170	31	86	July	1,900	97	1,180
January	68	40	56	August	188	45	87
February	40	34	37	September	239	103	174
March	483	31	145				
April	788	181	431	The year	1,900	31	298

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 3,000 feet below Garden Lake, near west line of Lake County, and 2½ miles east of Winton, St. Louis County.

DRAINAGE AREA.—1,200 square miles.

RECORDS AVAILABLE.—June 21, 1905, to June 30, 1907; October 14, 1912, to September 30, 1919; and September 1, 1923, to September 30, 1926.

DISCHARGE.—Discharge of turbines in second-feet corresponding to gate opening and head on wheels is determined for each hour during the day. From this data is computed the mean daily discharge through the plant. Water is seldom wasted over the dam, but when it is wasted the quantity is computed from theoretical formulas and added to the flow through the wheels.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge recorded during year, 3,010 second-feet October 6; minimum mean daily discharge, no flow on numerous days during the year.

1905–1907; 1912–1919; and 1923–1926: Maximum discharge recorded, 5,370 second-feet April 30 and May 7, 1916; minimum discharge, no flow a number of times in 1905, 1906, 1907, 1923, 1924, 1925, and 1926. Maximum and minimum discharge are the result of regulation.

REGULATION.—Practically the entire discharge of the stream is controlled by reservoirs in the interest of power development.

ACCURACY.—Computations of discharge through the wheels are based on a calibration made in December, 1924, by the salt-velocity method. Records good except on rare occasions when water is wasted over the dam, when the records are fair.

COOPERATION.—Records furnished by Minnesota Power & Light Co.

Daily discharge, in second-feet, of Kawishiwi River near Winton, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,890	430	960	654	250	313	0	1,840	499	1,200	919	416
2	1,890	464	879	696	483	569	0	1,830	496	1,310	952	409
3	1,920	441	837	696	348	867	0	2,070	496	1,650	952	409
4	1,980	456	956	696	348	872	0	1,940	498	1,500	952	409
5	2,550	456	956	696	28	868	0	1,710	609	1,220	952	466
6	3,010	510	952	696	0	345	0	1,580	1,250	991	952	233
7	2,620	532	884	696	69	53	0	1,580	1,350	960	952	547
8	2,180	213	632	696	0	720	40	1,590	1,320	1,000	707	708
9	1,890	433	350	696	20	872	0	1,370	996	956	954	467
10	1,740	306	793	695	226	595	0	1,580	720	784	654	573
11	1,360	481	960	695	225	361	0	1,640	820	346	683	472
12	1,470	480	960	695	117	346	0	1,230	1,130	1,920	958	221
13	1,340	480	467	695	0	346	0	1,240	1,480	864	956	474
14	1,350	480	614	695	0	347	0	1,240	1,690	1,810	952	474
15	1,240	238	960	694	204	347	0	1,220	1,240	2,260	480	430
16	762	732	956	694	350	346	0	984	956	2,780	820	536
17	606	960	956	562	350	180	0	1,160	960	2,590	749	586
18	410	860	952	534	350	180	0	1,410	1,230	2,770	900	472
19	556	186	948	534	293	180	0	1,230	1,460	2,180	924	64
20	628	190	942	534	0	105	0	960	1,120	1,490	652	288
21	614	543	639	535	0	0	233	960	1,460	1,010	468	359
22	610	392	696	534	280	0	0	956	2,240	952	0	624
23	600	796	696	328	396	0	0	124	2,310	952	489	919
24	604	960	696	0	396	0	0	280	1,510	952	700	1,330
25	389	915	0	197	396	0	0	428	950	810	880	1,480
26	564	260	102	336	396	0	730	467	956	780	960	1,480
27	622	214	0	350	480	0	1,860	439	1,000	952	792	2,060
28	620	960	558	350	288	0	1,850	476	2,050	952	700	2,250
29	602	960	700	354	-------	0	1,830	573	1,890	950	700	2,090
30	529	849	696	154	-------	0	2,010	0	1,050	952	414	2,050
31	590	-------	696	0	6,293	0	-------	221	-------	952	416	-------

Monthly discharge of Kawishiwi River near Winton, Minn., for the year ending September 30, 1926

[Drainage area, 1,200 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,010	389	1,220	1.020	1.18
November	960	186	539	.449	.50
December	960	0	722	.602	.69
January	696	0	529	.441	.51
February	483	0	225	.188	.20
March	872	0	284	.237	.27
April	2,010	0	285	.238	.27
May	2,070	0	1,110	.925	1.07
June	2,310	496	1,190	.992	1.11
July	2,870	346	1,320	1.100	1.27
August	960	0	759	.632	.73
September	2,250	64	777	.647	.72
The year	3,010	0	751	.626	8.52

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER ABOVE SANDY RIVER, NEAR LIBBY, MINN.

LOCATION.—In SE. ¼ sec. 2, T. 50 N., R. 24 W., 4 miles north of Libby post office, Aitkin County, 4 miles above mouth of Sandy River, the outlet of Sandy Lake Reservoir. Libby Creek enters from left just below gage.

DRAINAGE AREA.—4,560 square miles.

RECORDS AVAILABLE.—August 1, 1925, to September 30, 1926. From September 1, 1895, to September 30, 1915, records were obtained by the United States Engineer Corps at a station 4 miles downstream, having practically the same drainage area.

GAGE.—Gurley water-stage recorder on left bank; inspected by G. Buckholts.

DISCHARGE MEASUREMENTS.—Made from boat in vicinity of gage.

CHANNEL AND CONTROL.—Bed composed of sand and silt; control not well defined. Banks of medium height and will seldom be overflowed.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period, 22.40 feet October 3 (discharge, 2,320 second-feet); minimum stage, 18.20 feet August 17 (discharge, 411 second-feet).

REGULATION.—The Itasca Paper Co. operates a power plant at Grand Rapids, 40 miles above station, but the regulation from this plant is very slight. Three of the system of six reservoirs operated by the United States Government in the interests of navigation discharge into Mississippi River above the station. Total capacity of these reservoirs is 82 billion cubic feet. Monthly discharge is affected by regulation, yearly discharge is probably nearly natural.

ACCURACY.—Stage-discharge relation probably permanent during year. Rating curve fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records fair.

The following discharge measurements were made:

October 8, 1925: Gage height, 21.61 feet; discharge, 1,960 second-feet.

September 5, 1926: Gage height, 19.25 feet; discharge, 805 second-feet.

Daily discharge, in second-feet, of Mississippi River above Sandy River, near Libby, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	June	July	Aug.	Sept.	Day	Oct.	Nov.	June	July	Aug.	Sept.
1	2,220	1,420	------	1,130	782	741	16	1,510	1,130	------	1,230	583	1,080
2	2,320	1,270	------	1,130	700	782	17	1,470	996	------	1,180	476	1,080
3	2,320	1,080	------	1,130	546	660	18	1,420	996	824	1,130	476	1,270
4	2,220	1,180	------	1,130	700	741	19	1,230	1,180	866	1,130	546	1,320
5	2,110	1,230	------	1,130	782	782	20	1,130	1,230	952	1,130	583	1,320
6	2,010	1,130	------	1,130	824	824	21	1,080	1,180	1,080	1,130	621	1,230
7	1,960	1,040	------	909	824	866	22	1,080	1,230	996	1,130	700	1,180
8	1,910	1,270	------	782	782	996	23	1,130	1,130	1,180	1,130	741	1,370
9	2,010	1,470	------	952	782	1,080	24	1,180	1,080	1,130	1,080	782	1,560
10	2,010	1,370	------	1,130	621	996	25	1,230	1,370	1,130	1,080	909	1,610
11	1,910	1,230	------	1,230	621	952	26	1,270	1,610	1,270	1,130	866	1,470
12	1,710	1,130	------	1,180	700	996	27	952	1,560	1,420	782	866	1,320
13	1,510	1,130	------	1,130	700	1,040	28	952	1,560	1,320	824	866	1,130
14	1,470	1,230	------	1,230	660	952	29	1,130	1,560	1,270	546	866	1,270
15	1,510	1,230	------	1,270	583	1,040	30	1,320	1,660	1,230	621	782	1,420
							31	1,320	------	------	741	660	------

NOTE.—No record Dec. 1 to June 17.

Monthly discharge of Mississippi River above Sandy River, near Libby, Minn., for the year ending September 30, 1926

[Drainage area, 4,560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,320	952	1,570	0.344	0.40
November	1,660	996	1,260	.276	.31
June 18–30	1,420	824	1,130	.248	.12
July	1,270	546	1,050	.230	.27
August	909	476	707	.155	.18
September	1,610	660	1,100	.241	.27

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, Morrison County, and 5 miles below mouth of Swan River.

DRAINAGE AREA.—11,600 square miles.

RECORDS AVAILABLE.—March 8, 1924, to September 30, 1926.

DISCHARGE.—Discharge of turbines in second-feet corresponding to the gate opening and head is determined for each hour during the day and used to compute mean daily discharge through the plant. The waste is computed from a calibration of discharge through the Taintor gates at various openings and added to the discharge through the wheels.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge recorded during year, 5,910 second-feet March 26; minimum mean daily discharge, 625 second-feet January 2.

1924–1926: Maximum discharge recorded, 7,640 second-feet August 7, 1924; minimum discharge, 351 second-feet January 4, 1925.

REGULATION.—Considerable diurnal fluctuation is caused by operation of power plants. Flow of the river is controlled by Government reservoirs on the upper river for the purpose of increasing the low-water open-season flow in the interests of navigation.

ACCURACY.—Computation of discharge through the plant based on manufacturer's rating of wheels. Computation of waste based on calibration of Taintor gates. Records good for low and medium stages; fair for high stages.

COOPERATION.—Records of daily discharge furnished by Minnesota Power & Light Co.

Daily discharge, in second-feet, of Mississippi River near Royalton, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,740	1,810	1,750	996	899	1,060	4,880	2,750	1,750	1,950	1,160	1,740
2	3,570	1,560	1,920	625	742	1,040	4,150	2,100	1,770	1,910	980	1,770
3	3,680	1,960	1,720	934	1,190	1,160	3,770	2,310	1,680	1,890	901	2,250
4	4,120	2,670	1,800	948	846	1,080	3,670	2,180	1,820	1,750	1,210	3,280
5	3,720	2,560	1,250	1,020	876	1,080	2,580	2,100	1,720	1,890	1,290	2,180
6	3,720	2,140	1,360	943	929	1,170	3,080	2,150	1,980	1,740	1,330	2,050
7	3,610	1,430	1,760	746	796	1,050	2,980	2,000	1,680	1,740	1,160	2,300
8	3,760	809	1,540	931	820	1,090	3,230	2,230	1,890	1,690	1,210	2,700
9	3,230	1,960	1,870	996	987	1,050	2,970	1,940	2,050	1,850	1,310	2,710
10	3,240	2,220	1,560	795	1,080	1,030	3,230	2,000	2,150	1,990	1,340	2,450
11	3,120	2,430	1,700	913	916	1,020	3,440	2,060	2,540	1,560	1,280	2,720
12	2,820	2,650	1,500	699	974	1,040	2,950	1,840	1,600	1,570	1,380	2,830
13	3,360	2,150	1,380	1,010	973	996	3,240	1,680	1,310	1,200	1,490	2,650
14	2,930	1,940	1,650	885	1,010	895	3,260	2,010	1,320	1,940	1,240	2,780
15	2,930	2,240	1,510	1,070	915	1,120	3,000	1,880	1,000	2,000	1,400	3,050
16	2,430	2,180	1,560	927	971	905	3,730	1,740	1,180	1,880	1,290	2,710
17	2,410	2,350	1,360	989	1,080	962	3,900	1,910	1,200	1,680	1,260	3,280
18	1,800	1,890	1,290	1,000	1,060	1,180	3,820	1,670	1,410	1,570	1,580	4,480
19	2,190	2,330	1,550	851	1,080	1,080	3,600	1,560	1,490	1,770	1,880	4,560
20	2,450	2,360	1,100	1,080	1,040	1,280	2,970	1,780	1,360	1,870	1,600	3,740
21	2,650	1,980	1,590	752	1,010	1,650	2,700	1,890	1,720	1,710	1,660	4,110
22	2,230	1,400	1,370	872	1,020	3,150	3,020	1,820	2,520	1,590	1,220	4,120
23	2,180	1,260	1,490	877	962	3,620	2,850	1,810	1,600	1,480	1,620	4,140
24	1,990	1,080	1,370	831	1,020	4,710	2,300	1,710	1,600	1,430	1,440	3,740
25	2,060	1,320	1,000	943	1,070	5,760	2,310	1,580	1,960	1,640	1,680	3,760
26	2,150	1,340	1,080	776	969	5,910	2,140	1,580	2,050	1,540	1,670	3,790
27	2,120	1,270	1,110	942	1,010	5,810	2,340	1,800	1,690	1,320	1,850	3,720
28	1,880	936	1,070	908	1,060	5,510	2,360	1,700	1,860	1,640	1,630	3,900
29	1,570	1,340	1,230	959	-------	5,760	2,420	1,800	1,800	1,590	1,630	3,560
30	1,530	1,570	1,220	931	-------	4,450	2,410	1,720	1,920	1,520	1,590	3,780
31	1,740	-------	788	898	-------	5,510	-------	1,710	-------	1,400	1,530	-------

Monthly discharge of Mississippi River near Royalton, Minn., for the year ending September 30, 1926

[Drainage area, 11,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,120	1,530	2,740	0.236	0.27
November	2,670	809	1,840	.159	.18
December	1,920	788	1,430	.123	.14
January	1,080	625	905	.078	.09
February	1,190	742	975	.084	.09
March	5,910	895	2,360	.203	.23
April	4,880	2,140	3,110	.268	.30
May	2,750	1,560	1,900	.164	.19
June	2,540	1,000	1,720	.148	.16
July	2,000	1,200	1,690	.146	.17
August	1,880	901	1,410	.122	.14
September	4,560	1,740	3,160	.272	.30
The year	5,910	625	1,940	.167	2.26

MISSISSIPPI RIVER AT ELK RIVER, MINN.

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

DRAINAGE AREA.—14,500 square miles.

RECORDS AVAILABLE.—July 22, 1915, to September 30, 1926.

GAGE.—Chain gage bolted to downstream handrail of bridge near right bank; read by W. H. Ebner.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control poorly defined. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.72 feet at 7.10 p. m. March 27 (discharge, 13,100 second-feet); minimum discharge, estimated 633 second-feet February 10. (Stage-discharge relation affected by ice.)

1915–1926: Maximum open-water stage recorded, 10.8 feet April 7, 1916 (discharge, 27,000 second-feet); minimum discharge, that of February 10, 1926.

Maximum discharge probably occurred on April 5, 1917, and has been estimated at about 34,000 second-feet from records of discharge at Coon Rapids power plant.

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Nearest dam above station is at St. Cloud, 40 miles upstream. An observed systematic diurnal fluctuation at gage of about 0.1 foot is doubtless due to regulation at St. Cloud, but most of the effect of regulation is eliminated before reaching station. Flow of river is controlled by Government dams on the upper river for the purpose of increasing low-water open-season flow in the interests of navigation. Daily and monthly discharge somewhat affected by regulation, but yearly discharge represents very nearly the natural flow.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as explained in footnote to table of daily discharge. Open-water records excellent; winter records fair.

COOPERATION.—Gage-height record furnished by United States Engineer Corps.

The following discharge measurement was made:

August 30, 1926: Gage height, 2.80 feet; discharge, 2,230 second-feet.

Daily discharge, in second-feet, of Mississippi River at Elk River, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,610	2,000	1,340	1,160	926	1,280	8,240	2,550	2,090	2,190	2,190	2,300
2	3,610	2,300	1,830	1,320	962	1,060	6,700	2,700	2,090	2,420	1,910	2,300
3	3,400	1,910	2,040	1,270	935	1,050	5,500	2,860	2,090	2,300	1,740	2,420
4	3,840	2,090	2,120	1,400	899	1,020	4,910	2,550	2,190	2,190	1,670	3,210
5	3,610	2,700	1,870	984	789	1,130	4,620	2,300	2,090	2,300	1,740	3,610
6	3,840	2,700	1,100	1,170	862	1,160	4,620	2,300	2,090	2,190	1,910	3,610
7	4,080	2,420	1,400	1,040	1,030	1,100	3,610	2,420	2,000	2,190	1,910	3,030
8	3,840	2,300	1,510	1,010	918	973	4,620	2,420	2,000	2,190	1,910	3,210
9	4,080	2,090	2,120	1,090	679	965	3,840	2,420	2,000	2,190	1,820	4,340
10	3,610	2,090	1,970	1,160	633	954	3,610	2,300	2,090	2,190	1,820	4,340
11	3,210	2,420	2,090	1,320	651	918	3,610	2,300	2,300	2,190	1,910	4,910
12	2,860	2,550	2,210	1,080	954	995	3,610	2,300	2,550	2,190	2,000	5,200
13	2,860	2,700	1,920	1,000	1,150	859	3,610	2,300	2,190	2,090	2,090	5,200
14	2,860	2,550	1,790	1,040	852	808	3,400	2,300	2,300	2,000	2,090	5,200
15	2,860	2,190	1,560	1,110	1,060	1,040	3,210	2,300	1,910	1,910	2,090	5,200

Daily discharge, in second-feet, of Mississippi River at Elk River, Minn., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	2,860	2,300	1,570	1,020	882	1,130	3,400	2,190	1,910	2,300	2,090	5,800
17	3,030	2,190	1,720	762	962	1,090	3,840	2,190	1,910	2,190	2,190	5,500
18	2,700	2,090	1,470	1,220	899	1,190	4,080	2,300	1,910	2,090	2,090	5,500
19	2,420	2,300	1,290	1,360	945	1,480	3,840	2,300	1,910	2,000	2,700	7,930
20	2,420	2,190	1,370	1,030	962	1,950	3,610	2,090	2,000	2,090	2,550	7,310
21	2,420	2,300	1,440	899	808	2,230	3,210	2,090	2,190	2,300	2,550	6,400
22	2,860	2,420	1,450	993	1,010	3,620	3,210	2,300	2,300	2,190	2,550	6,700
23	2,700	2,420	1,250	1,010	1,130	4,480	3,030	2,300	2,420	2,190	2,190	6,700
24	2,550	2,190	1,270	1,060	1,170	8,880	3,030	2,300	2,700	2,000	2,000	7,000
25	2,550	2,000	1,210	1,030	993	9,840	3,210	2,190	2,300	2,000	2,000	7,000
26	2,300	1,740	1,160	1,180	1,090	12,700	2,860	2,090	2,300	2,000	2,300	6,100
27	2,550	1,740	1,010	1,030	1,140	12,400	2,420	2,090	2,420	2,190	2,300	5,500
28	2,420	1,040	965	890	1,170	11,800	2,300	2,090	2,300	2,090	2,300	5,800
29	2,550	789	1,800	863	-------	11,800	2,300	2,090	2,090	2,000	2,300	6,100
30	2,190	1,350	1,080	841	-------	11,400	2,550	2,190	2,190	2,090	2,300	5,800
31	2,000	-------	1,090	667	-------	9,520	-------	2,190	-------	2,090	2,190	------

NOTE.—Stage-discharge relation affected by ice Nov. 28 to Mar. 23; discharge estimated by comparison with computed flow at Coon Rapids power plant of Northern States Power Co.

Monthly discharge of Mississippi River at Elk River, Minn., for the year ending September 30, 1926

[Drainage area, 14,500 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,080	2,000	2,990	0.206	0.24
November	2,700	789	2,140	.148	.17
December	2,210	965	1,550	.107	.12
January	1,400	667	1,060	.073	.08
February	1,170	633	947	.065	.07
March	12,700	808	3,900	.269	.31
April	8,240	2,300	3,820	.263	.29
May	2,860	2,090	2,230	.154	.18
June	2,700	1,910	2,160	.149	.17
July	2,420	1,910	2,150	.148	.17
August	2,700	1,670	2,050	.141	.16
September	7,930	2,300	5,110	.352	.39
The year	12,700	633	2,510	.173	2.35

MISSISSIPPI RIVER AT ST. PAUL, MINN.

LOCATION.—At upstream end of shear fence protecting left end of Chicago Great Western Railway bridge 300 feet above Robert Street Bridge, St. Paul, Ramsay County, 6 miles below mouth of Minnesota River.

DRAINAGE AREA.—35,700 square miles.

RECORDS AVAILABLE.—March 22, 1887, to September 30, 1926. Observation of stage was begun in 1873 by United States Signal Service and continued by United States Weather Bureau. Many discharge measurements made prior to 1900 by United States Engineer Corps.

GAGE.—Au water-stage recorder installed in a wooden well and shelter attached to upstream end of shear fence. Inspected by W. S. Olson.

DISCHARGE MEASUREMENTS.—Made from downstream side of Wabasha Street Bridge or from Chicago Great Western Railway bridge.

CHANNEL AND CONTROL.—Channel fairly permanent. Control not well defined. Dredging work for the improvement of navigation has lowered the low-water control about 2 feet in past 20 years.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.3 feet at 1 a. m. March 28 (discharge, 14,500 second-feet); minimum stage, −2.3 feet at noon November 29 (discharge, 1,730 second-feet).

1887–1926: Maximum stage recorded, 18.0 feet April 6, 1897 (discharge, 80,800 second-feet); minimum discharge, 1,060 second-feet February 4, 1895. Greatest known discharge, 117,000 second-feet July 22, 1867.

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—During low water operation of Ford power plant at the Government high dam, just above mouth of Minnesota River, causes diurnal fluctuation of stage at St. Paul. Flow is regulated by Government reservoirs on the headwaters at Lake Winnebigoshish, Leach Lake, Pokegama Lake, Sandy Lake, Pine River, and Gull Lake to increase the low-water open-season flow in the interests of navigation, but the effect of this regulation is very gradual at St. Paul.

ACCURACY.—Stage-discharge relation fairly permanent during year except as affected by ice. Rating curve fairly well defined. Operation of water-stage recorder satisfactory during open-water periods. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good.

Discharge measurements of Mississippi River at St. Paul, Minn., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 11	−0.28	4,040	July 19	−1.40	2,790
July 17	−1.44	2,630	July 20	−1.57	2,270

Daily discharge, in second-feet, of Mississippi River at St. Paul, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,750	2,690	2,480	1,900		1,820	11,600	5,090	3,020	2,800	2,480	3,380
2	5,580	2,800	2,910	2,220		1,820	11,200	5,090	2,690	2,910	2,580	3,640
3	5,090	3,260	3,260	1,920		1,820	10,600	4,180	2,690	3,020	2,380	3,770
4	5,250	2,690	3,770	2,100		1,820	10,600	4,470	2,910	3,140	2,000	3,770
5	5,410	3,020	3,510	1,890		1,820	9,030	4,320	2,800	2,690	1,910	4,930
6	5,580	3,770	2,380	2,020		1,820	8,840	3,900	2,380	2,690	2,000	4,930
7	5,750	4,040	2,390	2,850		1,820	8,460	3,900	2,480	2,580	2,090	5,090
8	5,580	3,140	2,460	1,770		1,820	8,080	4,040	2,580	2,480	2,090	5,410
9	5,750	2,180	3,040	1,840		1,820	8,080	4,180	2,180	2,480	2,180	5,920
10	5,580	2,690	2,860	1,860		1,820	7,890	3,900	2,690	2,690	2,000	6,800
11	5,410	2,800	2,810	2,050		1,820	7,160	4,040	3,020	2,280	1,820	6,800
12	4,770	3,900	3,150	1,950		1,820	6,980	3,770	3,020	2,580	2,180	7,700
13	4,470	3,510	2,690	1,780		1,820	6,980	4,180	3,380	2,480	2,280	8,080
14	4,620	3,510	2,520	1,780		1,820	6,800	3,900	2,800	2,180	2,280	8,460
15	4,180	3,380	2,280	1,780	1,680	1,820	6,620	3,510	3,020	2,380	2,280	8,650
16	4,320	3,020	2,400	1,780		1,820	6,440	3,260	2,280	2,380	3,260	8,270
17	4,620	3,260	2,540	1,780		3,220	5,920	3,380	2,480	2,690	2,690	9,030
18	4,320	3,380	2,240	1,780		3,780	6,620	3,260	2,480	2,480	2,910	10,000
19	3,770	3,510	2,070	1,780		3,950	7,160	3,380	2,280	2,690	3,020	10,400
20	3,770	3,260	2,060	1,780		4,830	6,980	3,380	3,770	2,380	4,320	12,000
21	3,640	3,260	2,070	1,780		5,410	6,620	3,510	2,800	2,690	4,470	12,300
22	3,380	3,380	2,300	1,780		6,980	6,440	2,800	2,800	2,800	3,900	11,800
23	3,770	2,580	2,150	1,780		10,600	5,580	3,380	3,380	2,800	3,900	12,300
24	4,180	2,180	2,080	1,780		11,800	5,580	3,140	3,260	2,480	3,510	12,900
25	3,510	2,580	2,320	1,780		13,100	5,090	3,020	3,640	2,690	3,380	12,900
26	2,910	2,800	2,200	1,780		14,000	5,410	3,260	3,020	2,280	3,140	12,500
27	3,140	2,180	1,930	1,780		14,200	4,930	2,910	2,910	2,280	3,380	12,000
28	3,260	2,280	2,070	1,780		14,000	4,320	3,020	2,800	2,480	3,380	11,600
29	2,910	2,000	1,930	1,780	-------	13,400	4,320	2,690	3,020	2,690	3,260	11,800
30	2,480	2,580	1,790	1,780	-------	13,100	4,180	3,020	2,800	2,480	3,020	11,800
31	2,690	-------	1,930	1,780	-------	12,700	-------	3,140	-------	2,690	3,140	-------

NOTE.—Stage-discharge relation affected by ice Dec. 7 to Mar. 20; records of stage not obtained. Discharge for this period estimated from records of flow computed at Ford power plant 6 miles above gage, an allowance being made for the estimated flow of Minnesota River which enters between the station and power plant.

Monthly discharge of Mississippi River at St. Paul, Minn., for the year ending September 30, 1926

[Drainage area, 35,700 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5,750	2,480	4,370	0.122	0.14
November	4,040	2,000	2,990	.084	.09
December	3,770	1,790	2,470	.069	.08
January	----------	----------	1,880	.053	.06
February	----------	----------	1,680	.047	.05
March	14,200	----------	5,620	.157	.18
April	11,600	4,180	7,150	.200	.22
May	5,090	2,690	3,650	.102	.12
June	3,770	2,180	2,850	.080	.09
July	3,140	2,180	2,590	.073	.08
August	4,470	1,820	2,810	.079	.09
September	12,900	3,380	8,630	.242	.27
The year	14,200	----------	3,890	.109	1.47

MINNESOTA RIVER NEAR MONTEVIDEO, MINN.

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

DRAINAGE AREA.—6,300 square miles.

RECORDS AVAILABLE.—July 22, 1909, to September 30, 1926.

GAGE.—Chain gage attached to upstream handrail of bridge near left bank; read by Elizabeth Hendricks.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and sand; fairly permanent. There is a slight riffle just below gage, but control section is poorly defined. Banks subject to overflow at a stage of 14 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.50 feet at 5.30 a. m. March 23 (discharge, 1,130 second-feet); minimum stage, 1.50 feet July 28, 29, and 31 (discharge, 34 second-feet).

1909–1926: Maximum stage recorded, about 18.85 feet June 25, 1919 (discharge, about 22,000 second-feet); minimum discharge, 6.8 second-feet measured by current meter February 9, 1912.

ICE.—Stage-discharge relation seriously affected by ice; discharge not determined during winter.

REGULATION.—No regulation on Minnesota River above station. Regulation of Chippewa River at plant of Chippewa Milling Co., in Montevideo, causes slight fluctuation in stage of Minnesota River at gage.

ACCURACY.—Stage-discharge relation probably fairly permanent during year. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurement was made:

August 28, 1926: Gage height, 3.77 feet; discharge, 380 second-feet.

Daily discharge, in second-feet, of Minnesota River near Montevideo, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	67		619	846	216	171	64	35	198
2	73	67		580	846	244	180	63	38	162
3	69	76		540	817	264	138	57	38	198
4	67	79		540	788	216	114	54	38	198
5	79	98		540	675	207	105	50	40	207
6	78	100		481	703	198	110	49	36	225
7	80	96		421	647	146	154	46	46	225
8	66			362	647	207	110	41	47	294
9	84			386	619	189	79	43	38	316
10	74			410	566	254	64	65	36	274
11	55			410	540	225	51	62	42	316
12	63			410	514	207	60	50	44	362
13	71			445	488	244	71	48	50	364
14	66			480	566	216	72	47	51	338
15	76			514	488	207	69	50	53	386
16	80			527	462	198	82	46	48	362
17	75			540	462	189	225	49	62	316
18	67			693	410	180	225	46	69	362
19	84			846	386	171	171	43	138	410
20	91			918	362	162	130	38	254	410
21	76			990	386	146	138	41	338	362
22	67			1,062	386	180	198	42	462	462
23	62			1,095	316	123	138	41	647	436
24	74			998	410	123	116	38	619	462
25	76			846	410	112	112	39	514	410
26	71			817	316	108	115	36	488	362
27	90		162	1,030	244	123	105	38	410	338
28	96		189	936	316	99	78	34	362	316
29	87			906	234	85	74	34	362	338
30	85			876	225	116	71	37	264	294
31	71			846		116		36	225	

NOTE.—Stage-discharge relation affected by ice Nov. 8 to Feb. 26; discharge not determined.

Monthly discharge of Minnesota River near Montevideo, Minn., for the year ending September 30, 1926

[Drainage area, 6,300 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	96	55	75.2	0.012	0.01
March	1,095	362	679	.108	.12
April	846	225	502	.080	.09
May	264	85	176	.028	.03
June	225	51	118	.019	.02
July	65	34	46	.007	.01
August	647	35	190	.030	.03
September	462	162	323	.051	.06

MINNESOTA RIVER AT MANKATO, MINN.

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

DRAINAGE AREA.—14,600 square miles.

RECORDS AVAILABLE.—March 15, 1922, to September 30, 1926, at present site; May 20, 1903, to October 19, 1921, at Sibley Park 2 miles upstream. Drainage area practically the same at the two sites.

GAGE.—Au water-stage recorder on left bank at downstream side of bridge; gage inspected by J. J. Pihale.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—Bed composed of sand and light gravel; shifts during high stages. Banks moderately high and not subject to overflow. Control poorly defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.8 feet at midnight March 22 (discharge, 4,880 second-feet); minimum stage, 3.20 feet at 6 p. m. November 27 (discharge, 96 second-feet).

1903–1926: Maximum stage recorded, 21.2 feet at old site at Sibley Park June 26, 1908 (discharge, 43,800 second-feet); minimum discharge, 89 second-feet August 31 to September 2, 1911.

The highest-known stage occurred in 1881 and is shown in Mankato by a well-marked line, about 27 feet above zero of Sibley Park gage (discharge, estimated 65,000 second-feet).

ICE.—Stage-discharge relation affected by ice; observations discontinued during winter.

REGULATION.—Nearest dam on Minnesota River is at Minnesota Falls, 140 miles upstream. A dam on Blue Earth River at Rapidan, a few miles above mouth, controls the flow of that river, which is about 20 per cent of the flow at Mankato station and produces considerable daily fluctuation at gage, amounting at times to more than a foot.

ACCURACY.—Stage-discharge relation changed probably during ice period. Rating curve for 1925, which was assumed to be applicable, used October 1 to January 11 and is fairly well defined. Curve used March 16 to September 30 poorly defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Shifting-control method used July 1 to September 30. Records poor.

The following discharge measurement was made:

August 27, 1928: Gage height, 3.87 feet; discharge, 578 second-feet.

Daily discharge, in second-feet, of Minnesota River at Mankato, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	430	270	281	232		1,740	732	431	356	431	604
2	558	259	293	237		1,900	765	380	380	380	573
3	657	281	293	270		1,740	765	356	356	333	604
4	590	339	293	248		1,580	732	333	380	288	635
5	525	270	657	270		1,580	699	333	310	267	543
6	493	316	657	237		1,500	635	380	310	267	513
7	430	345	493	226		1,580	667	356	288	246	485
8	357	216	430	226		1,500	635	333	267	246	667
9	399	259	351	237		1,340	699	333	267	246	765
10	399	281	298	248		1,260	699	310	267	246	699
11	430	351	276	281		1,180	732	310	246	246	798
12	264	339	254			1,110	635	310	226	246	866
13	248	387	270			1,110	699	380	226	246	798
14	310	351	293			1,110	667	333	226	246	798
15	339	430	327			1,110	635	380	222	246	866
16	293	351	226		1,260	1,040	604	356	218	431	900
17	281	363	216		1,740	1,040	635	380	218	457	969
18	316	339	237		1,660	1,040	573	457	222	485	2,060
19	232	327	237		2,140	969	573	431	214	288	2,320
20	237	351	226		3,000	1,040	573	405	203	333	2,500
21	270	339	226		3,800	969	543	485	195	405	3,400
22	264	310	270		4,650	969	485	485	199	356	3,800
23	281	216	281		4,540	832	485	485	191	431	4,100
24	287	270	281		4,430	866	513	457	203	431	3,600
25	293	259	339		3,800	900	573	457	203	431	3,400
26	281	351	333		2,900	866	485	543	203	485	3,200
27	327	176	339		2,500	900	457	485	199	573	3,300
28	237	254	339		2,140	900	457	380	210	667	2,900
29	226	270	281		1,980	798	405	380	310	667	2,410
30	216	276	232		1,900	765	431	356	356	604	2,230
31	226		232		1,900		405		380	604	

NOTE.—Stage-discharge affected by ice Jan. 12 to Mar. 15; discharge not determined.

Monthly discharge of Minnesota River at Mankato, Minn., for the year ending September 30, 1926

[Drainage area, 14,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	657	216	345	0.024	0.03
November	430	176	305	.021	.02
December	657	216	315	.022	.03
January 1–11	281	226	247	.017	.01
March 16–31	4,650	1,260	2,770	.190	.11
April	1,900	765	1,170	.081	.09
May	765	405	600	.041	.05
June	543	310	393	.027	.03
July	380	191	260	.018	.02
August	667	246	380	.026	.03
September	4,100	485	1,710	.117	.13

ST. CROIX RIVER AT SWISS, WIS.

LOCATION.—In sec. 33, T. 42 N., R. 15 W., at highway bridge near Swiss, Burnett County, 2 miles above point where St. Croix River becomes boundary line between Wisconsin and Minnesota and 10 miles northeast of Danbury, Wis., on Minneapolis, St. Paul & Sault Ste. Marie Railway. Namakagon River enters 3½ miles above station.

DRAINAGE AREA.—1,550 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—March 13, 1914, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by Capt. Richard Goldschmidt.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of gravel, smooth. Aquatic plants during summer may cause a small amount of backwater. Left bank high and not subject to overflow; right bank of medium height and may be overflowed during extremely high water.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 2.2 feet April 17 and 18 (discharge, 2,030 second-feet); minimum discharge, estimated 541 second-feet November 26–28 (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded, 6.73 feet at 6.45 a. m. April 22, 1916 (discharge, 8,480 second-feet); minimum stage, 0.22 foot several times during later half of August, 1925 (discharge, 518 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent during the year except as affected by ice. Rating curve fairly well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as indicated in footnote to table of daily discharge. Records good.

The following discharge measurements were made:

December 23, 1925: Gage height, 1.40 feet; discharge, 630 second-feet (stage-discharge relation affected by ice).

February 9, 1926: Gage height, 2 feet; discharge, 622 second-feet (stage-discharge relation affected by ice).

July 14, 1926: Gage height, 0.75 foot; discharge, 860 second-feet.

Daily discharge, in second-feet, of St. Croix River at Swiss, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	693	614	693	565	588	750	1,150	1,490	1,010	875	693	750
2	693	614	750	588	614	750	1,150	1,490	1,010	875	750	750
3	693	614	750	588	614	750	1,080	1,490	940	810	693	875
4	693	639	810	588	614	750	1,080	1,490	940	750	750	1,010
5	639	639	693	614	614	750	1,080	1,490	940	750	810	1,150
6	639	693	693	639	614	750	1,010	1,400	940	750	810	1,150
7	639	693	693	639	639	750	1,010	1,310	940	810	750	1,230
8	693	693	639	614	639	693	1,150	1,310	875	810	750	1,310
9	750	693	693	588	639	693	1,230	1,230	810	875	750	1,310
10	750	693	875	588	614	693	1,670	1,230	810	940	750	1,310
11	693	693	875	588	639	693	1,400	1,150	810	940	750	1,310
12	693	693	875	588	639	693	1,580	1,150	750	875	875	1,310
13	639	693	810	588	639	750	1,760	1,150	750	875	875	1,230
14	639	693	693	588	639	750	1,940	1,150	750	875	875	1,230
15	639	693	639	614	639	750	2,030	1,080	750	810	875	1,150
16	639	639	639	614	639	750	1,940	1,010	750	810	875	1,150
17	639	614	614	614	639	750	2,030	940	810	750	810	1,150
18	639	614	614	614	693	810	2,030	940	810	750	875	1,670
19	639	588	563	614	693	875	1,940	940	810	750	1,010	1,760
20	639	588	565	639	693	940	1,940	875	940	750	1,580	1,850
21	639	614	588	639	693	1,010	1,850	875	1,230	750	1,580	1,850
22	639	614	614	639	693	1,080	1,850	875	1,490	693	1,490	1,850
23	639	614	639	639	693	1,230	1,760	875	1,580	750	1,400	1,760
24	639	614	639	614	693	1,400	1,760	875	1,580	750	1,310	1,670
25	614	614	639	588	693	1,490	1,850	810	1,490	750	1,230	1,670
26	614	541	639	588	693	1,670	1,760	1,010	1,490	750	1,150	1,580
27	588	541	639	588	693	1,490	1,760	1,150	1,400	750	1,010	1,400
28	588	541	614	588	693	1,400	1,670	1,080	1,230	693	940	1,310
29	588	565	588	588	-------	1,310	1,580	1,080	1,150	693	875	1,230
30	588	588	565	588	-------	1,230	1,490	1,080	1,010	750	810	1,150
31	614	-------	565	588	-------	1,010	-------	1,080	-------	693	810	-------

NOTE.—Stage-discharge relation affected by ice Oct. 30 to Nov. 3, Nov. 7–13, and Nov. 23 to Apr. 9; daily discharge based on gage heights corrected for ice effect by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of St. Croix River at Swiss, Wis., for the year ending September 30, 1926

[Drainage area, 1,550 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	750	588	649	0.419	0.48
November	693	541	631	.407	.45
December	875	565	674	.435	.50
January	639	565	604	.390	.45
February	693	588	653	.421	.44
March	1,670	693	949	.612	.71
April	2,030	1,010	1,580	1.02	1.14
May	1,490	810	1,130	.729	.84
June	1,580	750	1,030	.665	.74
July	940	693	789	.509	.59
August	1,580	693	952	.614	.71
September	1,850	750	1,340	.865	.97
The year	2,030	541	915	.590	8.02

ST. CROIX RIVER NEAR GRANTSBURG, WIS.

LOCATION.—Near center of sec. 30, T. 40 N., R. 18 W. at Norway Point ferry, 6 miles above mouth of Kettle River, and 10 miles north of Grantsburg, Burnett County. Sand Creek enters half a mile above station.

DRAINAGE AREA.—2,820 square miles.

RECORDS AVAILABLE.—April 18, 1923, to September 30, 1926.

GAGE.—Chain gage fastened to a cantilever arm supported by two trees just above the highway and ferry site on left bank; read by Charles Panser.

DISCHARGE MEASUREMENTS.—Made from ferryboat.

CHANNEL AND CONTROL.—Bed composed of sand. Control poorly defined; apparently does not shift.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 6.6 feet September 20 (discharge, 4,180 second-feet); minimum discharge, estimated 695 second-feet December 6 (stage-discharge relation affected by ice).

1923–1926: Maximum stage recorded, 8.20 feet at 6 p. m. May 13, 1924 discharge, 7,000 second-feet); minimum discharge, estimated 695 second-feet December 6, 1925 (stage-discharge relation affected by ice).

ACCURACY.—Stage-discharge relation permanent except as affected by ice and by growth of grass in the channel. Rating curves fairly well defined above 920 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Shifting-control method applied June 21 to September 30 on account of backwater from grass. Open-water records good; winter records poor.

COOPERATION.—Gage-height record furnished by Northern States Power Co.

The following discharge measurements were made:

February 1, 1926: Gage height, 4.60 feet; discharge, 864 second-feet (stage-discharge relation affected by ice).

July 14, 1926: Gage height, 4.14 feet; discharge, 1,300 second-feet.

Daily discharge, in second-feet, of St. Croix River near Grantsburg, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,340	1,340	860	860	860	985	1,760	1,940	1,760	1,580	1,050	1,260
2	1,340	1,340	920	860	860	985	1,760	2,040	1,760	1,500	1,050	1,260
3	1,340	1,420	920	920	860	985	1,670	2,140	1,760	1,420	1,050	1,340
4	1,340	1,420	985	920	860	985	1,760	2,240	1,670	1,260	1,120	1,420
5	1,340	1,420	800	920	860	985	1,670	2,140	1,670	1,260	1,120	1,670
6	1,340	1,420	695	985	800	985	1,850	2,140	1,580	1,260	1,190	1,940
7	1,340	1,260	800	985	800	985	1,850	1,940	1,580	1,260	1,190	1,940
8	1,340	1,340	800	985	860	985	1,940	1,850	1,500	1,260	1,120	2,040
9	1,340	1,340	920	985	860	985	2,040	1,760	1,500	1,340	1,190	2,040
10	1,340	1,340	920	920	860	985	2,240	1,580	1,500	1,340	1,120	1,940
11	1,420	1,340	920	920	920	985	2,440	1,580	1,500	1,420	1,120	1,940
12	1,340	1,340	920	920	920	920	2,340	1,500	1,420	1,420	1,190	1,940
13	1,340	1,340	920	920	920	920	2,550	1,500	1,340	1,260	1,260	1,940
14	1,340	1,340	920	920	920	920	2,550	1,420	1,420	1,340	1,260	1,940
15	1,340	1,340	985	920	920	920	2,550	1,420	1,260	1,260	1,340	1,940
16	1,340	1,340	860	860	985	920	2,660	1,420	1,420	1,260	1,340	1,940
17	1,260	1,340	860	860	985	985	2,550	1,340	1,500	1,120	1,260	1,940
18	1,260	1,340	860	860	985	985	2,550	1,340	1,500	1,120	1,420	2,340
19	1,260	1,340	920	860	920	1,050	2,550	1,340	1,500	1,120	1,580	3,560
20	1,260	1,340	920	860	985	1,050	2,440	1,340	1,420	1,120	2,140	4,180
21	1,260	1,340	920	860	985	1,190	2,440	1,260	1,760	1,120	2,550	3,860
22	1,260	1,260	920	860	920	1,260	2,340	1,420	2,340	1,120	2,550	3,420
23	1,260	1,260	920	860	920	1,500	2,340	1,580	2,780	1,190	2,550	3,280
24	1,260	1,340	920	860	920	2,040	2,240	1,580	2,900	1,120	2,340	3,150
25	1,260	1,340	920	860	920	2,440	2,240	1,580	2,780	1,120	2,140	3,150
26	1,260	1,190	860	860	920	2,440	2,340	1,580	2,550	1,190	1,940	3,020
27	1,260	920	920	800	920	2,440	2,340	1,670	2,340	1,190	1,760	2,780
28	1,260	800	860	745	1,050	2,340	2,140	1,760	2,240	1,120	1,580	2,550
29	1,260	745	860	800	-------	2,240	2,040	1,850	1,940	1,050	1,500	2,340
20	1,260	800	860	800	-------	2,040	1,940	1,760	1,850	1,050	1,420	2,240
31	1,260	-------	860	800	-------	1,940	-------	1,760	-------	1,120	1,420	------

NOTE.—Stage-discharge relation affected by ice Oct. 30 and 31, Nov. 8-15, and Nov. 24 to Apr. 10; discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of St. Croix River near Grantsburg, Wis., for the year ending September 30, 1926

[Drainage area, 2,820 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,420	1,260	1,300	0.461	0.53
November	1,420	745	1,270	.450	.50
December	985	695	888	.315	.36
January	985	745	882	.313	.36
February	1,050	800	911	.323	.34
March	2,440	920	1,330	.471	.54
April	2,660	1,670	2,200	.780	.87
May	2,240	1,260	1,670	.592	.68
June	2,900	1,260	1,800	.638	.71
July	1,580	1,050	1,240	.440	.51
August	2,550	1,050	1,510	.535	.62
September	4,180	1,260	2,340	.830	.93
The year	4,180	695	1,450	.514	6.95

ST. CROIX RIVER NEAR RUSH CITY, MINN.

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

DRAINAGE AREA.—5,120 square miles.

RECORDS AVAILABLE.—April 18, 1923, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of railroad bridge near right end; read by Fred Heinrich.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand and silt; not permanent. Control poorly defined. Aquatic plants cause backwater during summer.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 4.5 feet September 20 and 21 (discharge, 5,660 second-feet); minimum discharge, estimated 820 second-feet several days during December, January, and March (stage-discharge relation affected by ice).

1923–1926: Maximum open-water stage recorded, 6.3 feet May 14 and 15, 1924 (discharge, 13,700 second-feet); minimum discharge, 820 second-feet August 26 and 27, 1925. A discharge of 820 second-feet was also estimated several times in December, 1925, and January and March, 1926.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by growth of grass in channel. Rating curve fairly well defined between 820 and 5,020 second-feet. Gage read to tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Shifting-control method used June 18 to September 30. Open-water records fair; winter records poor.

COOPERATION.—Gage-height record furnished by Northern States Power Co.

The following discharge measurements were made:

February 2, 1926: Gage height, 3.57 feet; discharge, 1,090 second-feet (stage-discharge relation affected by ice).

July 13, 1926: Gage height, 2.98 feet; discharge, 1,530 second-feet.

Daily discharge, in second-feet, of St. Croix River near Rush City, Minn., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	1,580	1,000	1,190	1,000	1,000	2,030	3,050	1,800	2,030	1,190	1,580
2	1,380	1,190	1,190	1,000	1,000	1,000	2,030	3,050	1,800	1,800	1,190	1,580
3	1,380	1,380	1,190	1,000	1,000	820	2,270	3,050	1,800	1,580	1,190	1,800
4	1,380	1,380	1,380	1,000	1,000	820	2,270	3,330	1,800	1,380	1,190	2,030
5	1,380	1,380	1,580	1,000	1,190	820	2,520	3,330	1,800	1,190	1,190	2,270
6	1,380	1,380	1,800	1,000	1,190	1,000	2,520	3,050	1,800	1,190	1,190	2,520
7	1,380	1,000	1,380	1,000	1,190	1,000	2,270	2,050	1,800	1,190	1,190	2,780
8	1,380	1,190	1,380	1,000	1,000	820	2,520	2,780	1,800	1,190	1,190	3,050
9	1,380	1,190	1,380	1,000	1,000	820	3,050	2,780	1,800	1,380	1,190	3,330
10	1,380	1,190	1,190	1,000	1,000	1,000	3,890	2,780	1,580	1,580	1,190	3,890
11	1,380	1,380	1,380	1,000	1,000	1,000	3,890	2,780	1,580	1,580	1,190	3,610
12	1,380	1,800	1,190	1,190	1,000	1,000	3,890	2,520	1,580	1,580	1,190	3,330
13	1,380	1,800	1,190	1,190	1,000	1,000	3,890	2,270	1,580	1,580	1,380	3,330
14	1,380	2,270	1,000	1,190	1,000	820	4,180	2,270	1,580	1,380	1,380	3,330
15	1,380	1,380	1,000	1,000	1,000	820	4,180	2,270	1,580	1,580	1,380	3,330
16	1,380	1,580	820	820	1,190	820	4,180	2,270	1,580	1,380	1,380	3,050
17	1,380	1,190	820	1,000	1,190	1,000	4,180	2,270	1,580	1,380	1,380	3,050
18	1,380	1,380	820	820	1,190	1,000	4,180	2,030	1,380	1,190	1,580	3,610
19	1,380	1,380	1,000	1,000	1,000	1,000	4,180	2,030	1,380	1,190	1,800	3,890
20	1,380	1,380	1,000	1,190	1,000	1,190	4,180	1,800	1,380	1,190	2,030	5,660
21	1,380	1,380	1,000	1,190	1,000	1,380	3,890	1,800	1,800	1,190	3,050	5,660
22	1,380	1,580	1,190	1,000	1,000	2,270	3,610	1,800	2,520	1,190	3,330	5,060
23	1,190	1,380	1,000	1,000	1,000	2,780	3,610	1,800	3,330	1,190	3,330	4,760
24	1,190	1,190	1,000	1,190	1,000	3,050	3,610	1,800	3,330	1,190	3,050	4,470
25	1,190	1,000	1,190	1,190	1,000	4,760	3,610	1,800	3,330	1,380	2,780	5,060
26	1,190	1,190	1,190	1,190	1,000	5,060	3,610	1,800	3,050	1,190	2,520	5,060
27	1,190	1,580	1,190	1,190	1,000	5,060	3,610	1,800	2,780	1,190	2,270	5,060
28	1,380	1,190	1,580	1,000	1,000	3,610	3,330	1,800	2,780	1,190	2,030	4,470
29	1,580	1,000	1,380	1,000	-------	2,780	3,330	2,030	2,780	1,190	1,800	4,180
30	1,580	1,190	1,580	1,000	-------	2,780	3,330	2,030	2,520	1,190	1,580	3,890
31	1,380	-------	1,190	1,000	-------	2,520	-------	1,800	-------	1,190	1,580	------

NOTE.—State-discharge relation affected by ice Dec. 1 to Apr. 10; discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of St. Croix River near Rush City, Minn., for the year ending September 30, 1926

[Drainage area, 5,120 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,580	1,190	1,360	0.266	0.31
November	2,270	1,000	1,370	.268	.30
December	1,580	820	1,200	.234	.27
January	1,190	820	1,050	.205	.24
February	1,190	1,000	1,040	.203	.21
March	5,060	820	1,760	.344	.40
April	4,180	2,030	3,390	.662	.74
May	3,330	1,800	2,360	.461	.53
June	3,330	1,380	2,040	.398	.44
July	2,030	1,190	1,350	.264	.30
August	3,330	1,190	1,740	.340	.39
September	5,660	1,580	3,620	.707	.79
The year	5,660	820	1,860	.365	4.92

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., on Wisconsin side of St. Croix River near St. Croix Falls, Polk County.

DRAINAGE AREA.—5,930 square miles.

RECORDS AVAILABLE.—January 1, 1910, to September 30, 1926. Discharge measurements for 1903 published in Water-Supply Paper 98, under St. Croix River near Taylors Falls, Minn. Records from January 10, 1902, to December, 1909, published in "Report of water-resources investigation of Minnesota, 1909–1912" by Minnesota State Drainage Commission.

DISCHARGE.—Determinations of discharge based on kilowatt output of generators and exciters plus flow over spillway, considered as a weir.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge recorded during year, 6,140 second-feet September 22; minimum mean daily discharge, 499 second-feet December 13.

1902–1905; 1910–1926: Maximum discharge recorded, 35,800 second-feet March 26, 1920; minimum discharge recorded, 75 second-feet July 17, 1910 (caused by regulation).

REGULATION.—Low-water flow controlled by operation of gates of power plant and by storage and release of water at Never's dam, 10 miles upstream.

ACCURACY.—During June and July, 1925, a test of efficiency of wheels at this plant was made by the Byllesby Engineering & Management Corporation, using the salt-titration method. The discharge determined by this method was 5 per cent less than that given by the old calibration curves, which remained in use until December 31, 1925. New calibration curves, based on the the test made during June and July, 1925, were prepared, and were used for obtaining discharge beginning January 1, 1926. Records good.

COOPERATION.—Records furnished by the Northern States Power Co.

Daily discharge, in second-feet, of St. Croix River near St. Croix Falls, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,290	915	1,250	755	1,340	1,610	4,030	3,980	2,590	2,700	1,380	1,940
2	1,170	1,440	1,270	1,090	1,220	1,510	4,400	1,720	2,220	2,570	1,230	2,010
3	1,460	1,620	1,600	781	1,170	1,430	4,370	3,410	2,160	2,080	1,430	3,050
4	1,130	1,680	1,440	1,220	1,270	1,580	1,860	3,400	2,130	1,670	1,520	3,070
5	1,670	1,700	1,580	1,330	1,170	1,380	3,680	3,540	2,200	1,560	1,320	1,360
6	1,700	1,620	704	1,390	1,220	1,690	3,240	3,380	1,960	1,690	1,630	1,350
7	1,650	1,280	1,350	1,310	825	572	2,870	2,900	1,990	1,580	1,570	3,190
8	2,030	982	1,300	1,210	1,420	1,530	3,010	2,760	1,540	1,620	1,510	3,300
9	1,900	1,460	1,500	1,250	1,320	1,450	3,280	1,710	1,800	1,630	1,730	3,040
10	1,540	1,420	1,460	595	1,260	1,470	3,400	3,410	1,680	1,670	1,660	3,820
11	1,120	1,560	1,390	1,380	1,330	1,470	1,370	2,930	1,880	1,490	1,620	3,630
12	1,760	1,560	1,600	1,400	1,270	1,230	4,210	2,810	2,070	1,970	1,680	1,250
13	1,800	1,760	499	1,130	1,260	1,510	5,500	3,180	2,050	1,810	1,570	3,860
14	1,730	1,970	1,860	1,260	966	793	4,380	2,500	1,550	1,820	1,620	4,070
15	1,600	795	1,660	1,290	1,460	1,430	3,970	2,460	1,910	1,740	1,600	3,860
16	1,680	2,210	1,720	1,350	1,540	1,470	3,990	1,690	1,810	1,660	1,770	3,560
17	1,420	1,820	1,600	608	1,520	1,460	4,020	2,650	2,050	1,840	1,690	3,870
18	1,120	1,790	1,510	1,330	1,500	1,500	2,330	2,340	1,880	1,560	1,880	4,550
19	1,720	1,870	1,280	1,290	1,440	1,930	3,860	2,380	2,050	1,680	2,490	3,510
20	1,780	1,790	864	1,320	1,510	1,950	3,970	2,450	2,100	1,410	3,600	4,600
21	1,590	1,730	1,530	1,320	786	2,260	4,100	2,330	2,710	1,560	3,170	5,880
22	1,720	619	1,500	1,270	1,660	3,790	3,930	2,110	2,820	1,630	1,220	6,140
23	1,560	1,690	1,580	1,360	1,570	3,300	3,840	1,930	3,180	1,540	3,990	5,440
24	1,540	1,530	1,280	641	1,490	3,810	3,820	2,140	4,090	1,550	3,510	5,420
25	1,190	1,270	690	1,200	1,410	4,720	2,270	2,120	4,100	1,360	3,250	5,350
26	1,640	580	1,440	1,390	1,420	4,510	3,970	2,760	3,020	1,510	2,740	4,140
27	1,950	1,570	891	1,380	1,500	4,080	4,260	2,100	1,840	1,540	2,700	5,910
28	1,580	1,530	1,630	1,160	741	2,020	4,050	2,030	2,860	1,550	2,360	5,870
29	1,240	539	1,340	1,230	-------	4,370	3,940	2,480	3,140	1,530	1,490	5,090
30	1,460	1,470	1,350	1,200	-------	5,140	3,870	1,750	3,160	1,630	2,550	4,910
31	964	-------	1,180	771	-------	4,900	-------	1,560	-------	1,530	2,180	-------

Monthly discharge of St. Croix River near St. Croix Falls, Wis., for the year ending September 30, 1926

[Drainage area, 5,930 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,030	964	1,540	0.260	0.30
November	2,210	539	1,460	.246	.27
December	1,860	499	1,350	.228	.26
January	1,400	595	1,170	.197	.23
February	1,660	741	1,310	.221	.23
March	5,140	572	2,320	.391	.45
April	5,500	1,370	3,660	.617	.69
May	3,980	1,560	2,550	.430	.50
June	4,100	1,540	2,350	.396	.44
July	2,700	1,360	1,700	.287	.33
August	3,990	1,220	2,050	.346	.40
September	6,140	1,250	3,900	.658	.73
The year	6,140	499	2,110	.356	4.83

NOTE.—Computed by engineers of the U. S. Geol. Survey from records of daily discharge furnished by Northern States Power Co.

NAMAKAGON RIVER AT TREGO, WIS.

LOCATION.—In sec. 35, T. 40 N., R. 12 W., at Chicago & Northwestern Railway bridge at Trego, Washburn County, 20 miles above confluence of Namakagon and Totogatic Rivers.

DRAINAGE AREA.—420 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—March 11, 1914, to September 30, 1926.

GAGE.—Staff gage fastened to retaining wall on left bank, just above railroad bridge; read by Patrick Lawton.

DISCHARGE MEASUREMENTS.—Made from lower chords of railroad bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel. Banks medium high and not subject to overflow. Small island downstream with rapids on either side forms control; permanent except as affected by growth of aquatic plants during summer.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 2.18 feet April 14 (discharge, 733 second-feet); minimum discharge, estimated 180 second-feet March 4 (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded, 3.60 feet April 11, 1922 (discharge, 1,810 second-feet); minimum discharge, that of 1926.

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent except as affected by ice and by aquatic growth. Rating curve well defined above 250 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table except as shown in footnote to table of daily discharge. Open-water records good; winter records fair.

The following discharge measurements were made:

December 22, 1925: Gage height, 2.17 feet; discharge, 270 second-feet (stage-discharge relation affected by ice).

February 8, 1926: Gage height, 2.50 feet; discharge, 237 second-feet (stage-discharge relation affected by ice).

July 15, 1926: Gage height, 1.53 feet; discharge, 341 second-feet.

Daily discharge, in second-feet, of Namakagon River at Trego, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	344	322	322	250	190	200	417	597	417	366	303	322
2	322	303	344	245	195	195	417	630	417	344	303	322
3	303	303	303	240	205	190	392	597	417	303	303	344
4	322	322	322	230	215	180	472	564	392	284	417	502
5	303	344	251	225	220	190	366	532	392	303	444	597
6	303	344	250	230	225	195	366	532	392	322	366	532
7	303	322	250	240	230	195	366	502	366	366	344	502
8	303	344	220	230	240	195	392	472	366	344	322	532
9	303	344	190	215	240	200	417	502	366	366	322	502
10	303	303	240	215	240	205	444	472	366	366	322	472
11	303	244	285	215	230	210	597	472	366	344	322	502
12	284	322	285	215	225	215	630	472	392	366	322	532
13	284	303	270	215	225	210	664	472	344	366	344	502
14	284	303	250	210	225	205	733	444	392	344	322	472
15	284	303	260	205	220	200	698	444	366	344	303	472
16	284	284	270	205	215	195	698	417	344	366	344	444
17	284	303	270	205	210	195	698	417	366	344	344	472
18	284	303	270	205	205	190	664	392	344	344	344	532
19	284	303	280	205	200	205	664	366	344	344	366	597
20	284	303	285	210	195	240	630	366	392	344	502	597
21	284	303	280	215	195	305	664	392	564	344	502	564
22	284	303	270	205	195	415	597	392	597	344	472	532
23	284	303	270	195	200	502	597	392	564	322	444	502
24	284	305	270	195	205	597	597	392	564	344	417	502
25	268	285	255	195	210	597	564	392	564	322	417	472
26	268	285	240	195	215	532	532	472	502	322	392	444
27	268	268	240	195	210	564	532	444	444	322	366	392
28	251	238	240	190	205	597	502	417	444	322	366	392
29	303	322	230	190	-------	502	532	417	417	322	322	417
30	238	344	225	190	-------	597	564	417	392	344	322	417
31	280	-------	240	190	-------	444	-------	392	-------	303	322	-------

NOTE.—Stage-discharge relation affected by ice Oct. 31, Nov. 24–26, and Dec. 6 to Mar. 22; daily discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records. Shifting-control method used Oct. 1–31 on account of backwater from grass.

Monthly discharge of Namakagon River at Trego, Wis., for the year ending September 30, 1926

[Drainage area, 420 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	344	238	290	0.690	0.80
November	344	238	309	.736	.82
December	344	190	264	.629	.73
January	250	190	212	.505	.58
February	240	190	214	.510	.53
March	597	180	312	.743	.86
April	733	366	547	1.30	1.45
May	630	366	457	1.09	1.26
June	597	344	420	1.00	1.12
July	366	284	338	.805	.93
August	502	303	365	.869	1.00
September	597	322	479	1.14	1.27
The year	733	180	351	.836	11.35

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, St. Croix County, and 2 miles above mouth.

DRAINAGE AREA.—550 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—January, 1901, to September 30, 1926.

GAGE.—Vertical staff gages are used in determining head on wheels.

DETERMINATION OF DISCHARGE.—The discharge through plant is determined from tables based on data collected in a series of tests using a sharp-crested weir, made in September, 1920. Daily discharge of the turbines is computed from hourly observations of the kilowatt output and the number of wheels in operation. To this is added leakage through the average number of wheels idle each day, the sum giving the daily flow through power house. Water is seldom wasted over spillway of dam, but when it is so wasted the quantity is computed from weir formulas and added to flow through plant. Records do not include the constant leakage of 3 second-feet through gate and flashboards.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge recorded during year, 932 second-feet March 25; minimum mean daily discharge, 40 second-feet July 16.

1904–1926: Maximum mean daily discharge recorded, 2,280 second-feet in June, 1905; minimum mean daily discharge, 20 second-feet June 26, 1921. Owing to regulation computed minimum discharge has no bearing on natural minimum flow.

REGULATION.—There are a number of power plants above station. The pondage of these plants is small, and though daily flow may be controlled to some extent, mean monthly flow probably represents nearly the natural flow.

COOPERATION.—Records furnished by Northern States Power Co.

No discharge measurements made at station during year.

Daily discharge, in second-feet, of Apple River near Somerset, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	131	99	108	128	121	122	244	196	187	95	164	161
2	193	169	175	152	150	171	271	161	233	145	158	139
3	162	132	163	109	149	226	303	248	171	149	115	247
4	135	186	91	143	146	162	344	234	127	128	180	560
5	124	171	160	131	141	119	270	212	138	95	126	754
6	141	204	72	128	110	126	227	194	124	117	192	666
7	183	162	178	142	170	125	241	194	86	157	179	505
8	156	60	142	114	106	133	263	192	60	82	152	501
9	152	155	150	172	211	222	281	179	98	150	141	430
10	213	156	166	100	109	167	247	150	101	181	151	447
11	108	195	151	120	159	180	250	168	93	152	208	299
12	152	147	137	122	135	163	285	210	123	122	61	281
13	171	124	96	157	181	193	279	223	144	145	97	394
14	145	196	126	161	151	113	261	154	140	172	139	330
15	120	90	140	128	88	190	269	191	200	84	171	260
16	147	154	124	155	144	197	284	160	139	40	129	339
17	170	122	117	115	158	166	225	109	187	112	128	325
18	134	135	125	151	173	220	167	151	172	120	150	584
19	128	175	120	131	209	189	200	172	227	128	232	677
20	167	127	130	130	236	359	221	227	117	128	179	715
21	162	173	118	127	170	368	258	160	132	87	207	605
22	111	111	122	131	121	492	260	182	180	159	254	568
23	127	148	100	125	180	526	301	153	210	163	208	564
24	122	101	137	101	160	839	223	174	232	148	224	511
25	110	168	89	121	196	932	169	180	196	210	219	491
26	114	97	125	129	215	691	219	169	161	152	238	460
27	89	130	111	127	161	650	245	162	129	154	200	326
28	105	124	158	123	156	596	218	148	149	143	157	417
29	126	107	137	133	-------	571	200	194	196	185	133	353
30	110	129	126	161	-------	543	250	82	173	184	153	329
31	126	-------	149	138	-------	542	-------	112	-------	154	179	-------

Monthly discharge of Apple River near Somerset, Wis., for the year ending September 30, 1926

[Drainage area, 550 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	213	89	140	0.255	0.29
November	204	60	142	.258	.29
December	178	72	130	.236	.27
January	172	100	132	.240	.28
February	236	88	157	.285	.30
March	932	113	332	.604	.70
April	344	167	249	.453	.51
May	248	82	176	.320	.37
June	233	60	154	.280	.31
July	210	40	137	.249	.29
August	254	61	169	.307	.35
September	754	139	441	.802	.89
The year	932	40	196	.356	4.85

CHIPPEWA RIVER AT BISHOPS BRIDGE, NEAR WINTER, WIS.

LOCATION.—In sec. 23, T. 39 N., R. 6 W., at highway bridge 3 miles downstream from Chippewa Reservoir dam, and 4 miles by road northwest of Winter, Sawyer County.

DRAINAGE AREA.—775 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—February 23, 1912, to September 30, 1926.

GAGE.—Chain gage fastened to bridge; read by Mrs. Ludvig Larson.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; free from vegetation; practically permanent. Control is head of rapids 1,000 feet below gage. One channel at all stages. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.50 feet September 20–24 (discharge, 4,920 second-feet); minimum stage, 3.5 feet April 10–12 (discharge, 33 second-feet). Both maximum and minimum stages are the result of regulation and have no bearing on the natural flow.

1912–1926: Maximum stage recorded, 9.56 feet April 22, 1916 (discharge, 6,940 second-feet); minimum stage, 3.25 feet April 17–20 and May 1–5, 1925 (discharge, 14 second-feet).

REGULATION.—The entire flow of the stream at the station is regulated by the Chippewa Reservoir owned by Northern States Power Co. This reservoir is just below the confluence of East and West Forks of Chippewa River 3 miles above station and has a capacity of 10 billion cubic feet. There is also a reservoir 16 miles above station that has a capacity of 550 million cubic feet.

ICE.—Stage-discharge relation seriously affected by ice during year.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined above 200 second-feet and fairly well defined below. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Open-water records for medium and high stages, excellent; for low stages, fair. Winter records poor.

The following discharge measurement was made:

June 18, 1926: Gage height, 3.63 feet; discharge, 57 second-feet.

Daily discharge, in second-feet, of Chippewa River at Bishops Bridge, near Winter, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.
1	52	1,150	1,050	430	430	430	420	52	52	52	44	640
2	675	1,150	1,000	430	430	430	420	52	52	52	44	790
3	675	1,150	1,000	430	430	430	420	52	52	52	44	420
4	710	1,100	1,000	430	430	430	420	52	52	52	44	180
5	710	1,100	1,000	430	430	430	420	47	52	52	44	145
6	710	1,000	1,000	430	430	430	420	44	52	52	44	145
7	710	1,100	1,250	430	430	430	420	44	52	52	44	162
8	710	1,100	870	430	430	430	420	52	52	52	44	180
9	710	1,100	870	430	430	430	420	44	52	52	52	750
10	710	1,100	1,250	430	430	430	33	44	52	52	52	1,570
11	710	1,100	710	430	430	430	33	44	52	52	52	1,920
12	710	1,050	710	430	430	430	33	44	52	52	52	2,180
13	870	1,000	960	430	430	430	38	44	52	52	52	2,180
14	1,000	1,000	1,350	430	430	430	44	44	52	52	52	2,180
15	1,000	1,000	1,150	430	430	430	52	44	52	52	52	1,800
16	1,000	1,000	1,050	430	430	430	52	44	52	52	52	1,300
17	1,000	1,000	1,000	430	430	430	52	44	52	52	52	1,570
18	1,000	1,000	1,050	430	430	430	52	44	52	52	52	3,540
19	960	1,000	790	430	430	430	44	44	52	52	52	4,410
20	960	1,000	430	430	430	430	44	44	52	52	145	4,920
21	960	1,000	430	430	430	430	44	44	66	52	145	4,920
22	960	960	430	430	430	430	44	44	61	52	145	4,920
23	1,150	960	430	430	430	87	44	44	61	52	61	4,920
24	1,150	960	430	430	430	420	44	44	61	52	61	3,400
25	1,150	1,050	430	430	430	420	44	44	61	52	222	1,980
26	1,150	1,150	430	430	430	420	52	44	61	44	445	1,980
27	1,150	1,150	430	430	430	420	52	52	61	44	445	1,980
28	1,150	1,570	430	430	430	420	52	52	52	44	445	1,800
29	1,150	1,150	430	430	-------	420	52	52	52	44	520	1,570
30	1,150	1,100	430	430	-------	420	52	52	52	44	550	1,570
31	1,150	-------	430	430	-------	420	-------	52	-------	44	640	-------

NOTE.—Stage-discharge relation affected by ice Dec. 20 to Mar. 22; discharge determined from records of gate openings at the Chippewa Reservoir dam.

Monthly discharge of Chippewa River at Bishops Bridge, near Winter, Wis., for the year ending September 30, 1926

[Drainage area, 775 square miles]

Month	Discharge in second-feet		
	Maximum	Minimum	Mean
October	1,150	52	898
November	1,570	960	1,080
December	1,350	430	781
January	430	430	430
February	430	430	430
March	430	87	416
April	420	33	158
May	52	44	46.7
June	66	52	54.3
July	52	44	50.4
August	640	44	153
September	4,920	145	2,000
The year	4,920	33	539

CHIPPEWA RIVER NEAR BRUCE, WIS.

LOCATION.—In sec. 4, T. 35 N., R. 7 W., at Minneapolis, St. Paul & Sault Ste. Marie Railway bridge 1 mile east of Bruce, Rusk County. Thornapple River enters immediately above station, and Flambeau River enters 21 miles below.

DRAINAGE AREA.—1,600 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—December 31, 1913, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by M. Pavlak.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand and small gravel; free from vegetation. First and second channels from the west fairly permanent; third channel nearest east bank has a tendency to fill with sand deposited by Thornapple River. Flow except during extremely high stages is confined within the banks.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.9 feet at 2.35 p. m. September 19 (discharge, 12,700 second-feet); minimum stage 1.15 feet August 1–3 (discharge, 275 second-feet). The minimum discharge was caused by regulation.

1914–1926: Maximum stage recorded, 13.7 feet at 4.30 p. m. April 10, 1922 (discharge, 14,900 second-feet); minimum stage recorded, 1.00 foot August 7–9, 1925 (discharge, 200 second-feet).

REGULATION.—Flow at station is largely controlled by reservoirs above gaging station at Bishops Bridge. (See p. 47.)

ACCURACY.—Stage-discharge relation shifted slightly during the year; affected by ice. Rating curve fairly well defined above 300 second-feet. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table except from April 11 to June 30, when shifting-control method was used. Records fair.

Discharge measurements of Chippewa River near Bruce, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 29	[a] 3.41	499	July 15	1.38	393
Feb. 10	[a] 3.00	412	Sept. 6	5.69	4,190
June 19	1.32	393			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Chippewa River near Bruce, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	502	1,280	1,240	500	410	410	680	925	882	355	275	968
2	328	1,190	1,240	500	410	410	680	1,370	800	328	275	925
3	300	1,190	1,240	500	410	410	680	1,560	680	300	275	1,460
4	760	1,370	1,190	535	410	410	720	1,370	605	300	410	4,880
5	882	1,370	1,140	535	380	380	760	1,190	502	300	968	5,860
6	882	1,280	1,100	535	380	380	840	1,060	470	300	1,010	4,660
7	882	1,190	1,060	535	380	410	925	925	440	300	840	3,220
8	840	1,280	1,060	535	410	440	1,190	840	410	300	720	2,420
9	840	1,370	1,010	535	410	440	1,460	760	410	470	642	2,130
10	840	1,280	970	470	410	440	1,940	642	410	470	535	2,820
11	840	1,190	880	440	410	470	3,320	605	382	502	410	2,820
12	840	1,190	840	440	410	470	3,520	570	382	605	440	3,820
13	968	1,140	800	440	410	470	3,720	535	410	535	410	3,720
14	1,060	1,140	800	440	410	440	3,720	535	470	470	410	3,320
15	1,140	1,140	760	470	410	440	3,520	470	470	410	410	3,320
16	1,140	1,100	720	470	380	440	2,920	440	440	410	410	2,720
17	1,140	1,100	720	470	380	440	2,520	410	410	382	410	2,320
18	1,140	1,100	680	470	410	440	2,130	382	382	382	470	6,790
19	1,140	1,100	640	470	410	500	1,750	382	382	382	535	12,600
20	1,140	1,100	640	470	410	535	1,560	382	410	300	4,880	12,300

Daily discharge, in second-feet, of Chippewa River near Bruce, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	1,140	1,100	605	410	410	605	1,370	502	502	300	6,550	10,400
22	1,140	1,060	570	410	410	680	1,190	605	1,750	300	4,980	8,380
23	1,280	1,060	570	410	410	800	1,190	605	2,620	300	3,320	6,910
24	1,370	1,100	535	410	410	970	1,280	570	2,220	410	2,130	6,670
25	1,370	1,190	535	410	410	1,010	2,130	535	1,370	410	1,370	3,820
26	1,280	1,190	500	410	410	1,010	2,520	570	1,010	382	1,100	3,520
27	1,280	1,280	500	380	410	1,010	2,620	680	800	328	1,010	3,220
28	1,190	1,280	500	380	410	970	1,750	680	680	328	925	3,120
29	1,190	1,280	500	380	-------	925	1,140	800	535	300	882	2,920
30	1,370	1,280	470	380	-------	840	1,060	882	440	300	882	2,520
31	1,370	-------	470	380	-------	760	-------	840	-------	300	840	-------

NOTE.—Stage-discharge relation affected by ice Nov. 27 to Apr. 10; discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of Chippewa River near Bruce, Wis., for the year ending September 30, 1926

[Drainage area, 1,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,370	300	1,020	0.638	0.74
November	1,370	1,060	1,200	.750	.84
December	1,240	470	790	.494	.57
January	535	380	455	.284	.33
February	410	380	405	.253	.26
March	1,010	380	592	.370	.43
April	3,720	680	1,830	1.14	1.27
May	1,560	382	730	.456	.53
June	2,620	382	722	.451	.50
July	605	300	370	.231	.27
August	6,550	275	1,250	.781	.90
September	12,600	925	4,490	2.81	3.14
The year	12,600	275	1,150	.719	9.78

CHIPPEWA RIVER AT CHIPPEWA FALLS, WIS.

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

DRAINAGE AREA.—5,600 square miles.

RECORDS AVAILABLE.—June 22, 1888, to September 30, 1926.

GAGE.—Gurley water-stage recorder on web between caisson piers supporting first right-hand span; inspected by F. N. Leslie.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of heavy gravel; fairly permanent. Banks high and are seldom overflowed.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.55 feet at 10 a. m. September 20 (discharge, 46,400 second-feet); minimum stage, −0.92 foot at 7 a. m. March 15 (discharge, about 126 second-feet). Maximum and minimum stages taken from recorder graph.

1888–1926: Maximum stage recorded, 26.03 feet December 6, 1896; September 10, 1884, a stage of 26.94 feet was reached. The extreme high stages in 1884 and 1896 were probably caused in part by backwater from log jams and the volume of discharge was probably considerably less than

the stage would indicate if the channel had been unobstructed. Exclusive of these floods, the maximum stage recorded was 17.0 feet March 27, 1920 (discharge, 78,000 second-feet); minimum discharge recorded, about 40 second-feet February 4, 1917. Minimum flow was caused by regulation.

ICE.—Stage-discharge relation not seriously affected by ice.

REGULATION.—Flow past station at low and medium stages controlled to a considerable extent by operation of Wissota power plant of the Northern States Power Co. This plant also causes large diurnal fluctuation. Owing to operation of storage reservoirs on Chippewa and Flambeau Rivers the flow at the station is not natural.

ACCURACY.—Stage-discharge relation practically permanent; not affected by ice during year. Rating curve well defined above 2,000 second-feet and fairly well defined below. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph, and for days of considerable fluctuation in stage by making corrections so as to approximate the results obtained by averaging the hourly discharge. Records fair.

The following discharge measurement was made:

July 12, 1926: Gage height, 1.99 feet; discharge, 5,240 second-feet.

Daily discharge, in second-feet, of Chippewa River at Chippewa Falls, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,640	940	3,800	740	950	2,300	3,130	7,130	3,310	2,230	816	3,910
2	1,700	2,280	3,800	1,890	1,080	2,500	2,800	6,340	3,950	2,550	2,690	3,160
3	1,870	3,460	2,650	800	840	1,990	2,900	7,840	4,060	2,030	3,160	4,680
4	1,170	2,570	2,650	1,840	990	2,400	510	13,100	3,900	1,450	2,920	7,260
5	2,680	3,170	3,430	1,830	1,200	2,400	4,180	9,680	3,010	887	2,150	26,200
6	2,640	4,520	800	1,180	1,630	2,190	5,180	8,560	1,260	968	4,420	28,200
7	2,660	4,480	1,790	1,080	670	1,150	6,580	8,690	2,430	1,290	7,990	22,400
8	3,690	1,440	2,610	1,130	800	2,230	6,990	15,300	2,540	1,050	4,890	16,300
9	3,280	2,590	2,840	1,410	890	2,020	6,910	2,790	2,060	968	3,160	13,400
10	2,500	3,330	1,900	740	800	2,020	5,790	4,630	2,060	968	3,160	10,400
11	975	3,310	2,010	1,220	800	1,840	3,390	4,200	2,730	750	3,410	11,700
12	2,640	3,880	2,300	910	1,430	1,890	10,200	4,060	2,900	2,660	3,650	9,170
13	2,220	3,390	670	1,240	1,430	2,570	19,200	3,550	1,580	4,090	3,910	13,000
14	1,860	3,860	2,180	1,350	400	290	19,200	2,800	3,960	2,230	3,160	11,100
15	2,560	905	2,340	1,410	950	1,990	20,200	2,590	2,960	2,660	1,100	8,810
16	2,530	3,230	2,380	1,880	1,100	2,390	18,500	700	2,840	3,620	3,160	9,900
17	2,790	2,800	1,900	620	1,040	2,500	16,100	1,650	2,700	2,010	2,690	10,400
18	1,030	2,140	1,730	1,090	1,020	2,390	13,800	2,650	2,960	1,090	4,170	9,530
19	2,700	2,630	2,050	1,110	1,490	1,430	12,800	2,250	1,830	2,370	3,910	30,700
20	2,740	2,680	670	1,340	1,470	1,370	12,400	2,350	1,620	2,250	6,260	39,000
21	2,940	3,190	2,380	1,190	330	420	8,240	2,230	4,230	3,160	17,400	34,000
22	2,060	860	1,680	1,700	850	3,460	7,490	3,190	5,150	2,050	28,200	29,000
23	1,710	2,560	2,610	2,100	1,470	6,530	9,190	1,080	7,520	1,840	25,400	23,300
24	1,730	2,680	2,360	1,790	1,580	7,700	10,100	4,200	8,340	2,350	16,800	20,800
25	1,140	2,500	615	1,790	1,580	5,220	6,330	2,310	8,340	1,110	12,900	18,100
26	2,240	1,640	910	1,600	2,020	3,900	13,600	5,060	6,660	2,920	8,720	14,000
27	2,640	1,480	800	1,510	2,240	2,580	9,810	5,340	2,640	2,690	7,710	11,100
28	2,630	2,190	1,420	1,700	310	610	9,810	4,740	6,130	2,580	7,710	10,600
29	2,590	800	2,280	2,200	-------	3,720	7,570	12,000	3,380	2,690	3,620	7,860
30	2,130	2,190	2,800	1,720	-------	4,120	7,680	2,670	2,900	2,900	3,410	9,610
31	2,180	-------	2,170	980	-------	4,080	-------	2,250	-------	2,470	3,410	-------

NOTE.—Operation of water-stage recorder unsatisfactory Oct. 8, Nov. 28 to Dec. 2, Dec. 6-9, Feb. 8, 10-12, and Mar. 1-6. Discharge estimated from a study of the kilowatt output of the Wissota power plant.

Monthly discharge of Chippewa River at Chippewa Falls, Wis., for the year ending September 30, 1926

[Drainage area, 5,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,690	975	2,290	0.409	0.47
November	4,520	800	2,590	.462	.52
December	3,800	615	2,080	.371	.43
January	2,200	620	1,390	.248	.29
February	2,240	310	1,120	.200	.21
March	7,700	290	2,650	.473	.55
April	20,200	510	9,350	1.670	1.86
May	15,300	700	5,030	.898	1.04
June	8,340	1,260	3,660	.654	.73
July	4,090	887	2,090	.373	.43
August	28,200	816	6,650	1.190	1.37
September	39,000	3,160	15,600	2.790	3.11
The year	39,000	290	4,530	.809	11.01

FLAMBEAU RIVER NEAR BUTTERNUT, WIS.

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

DRAINAGE AREA.—660 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—July 30, 1914, to September 30, 1926.

GAGE.—Chain gage supported by a built-up cantilever, attached to post set in right bank; read by Carl G. Elm.

DISCHARGE MEASUREMENTS.—Made from cable 1,500 feet downstream from gage.

CHANNEL AND CONTROL.—Bed at gage composed of mud and rock. Left bank is low and subject to overflow; right bank slopes back gradually to high-water mark. At cable site bed is rock and banks are high. Control is at head of Schultz Rapids, 1,700 feet below gage; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.46 feet July 10 and 11 (discharge, 1,120 second-feet); minimum discharge, estimated 150 second-feet March 25 (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded, 9.0 feet April 22 and 23, 1916 (discharge, 5,430 second-feet); minimum stage, 0.25 foot September 18 and 19, 1925 (discharge, 91 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—The Flambeau Reservoir dam—situated on south line of sec. 34, T. 42 N., R. 2 E., 9 miles above gage, and having an estimated capacity of 6,000,000,000 cubic feet—was put into operation on March 16, 1926. This reservoir is owned by Chippewa & Flambeau Improvement Co. and operated by it in the interests of power development. The Flambeau Reservoir together with other smaller reservoirs having an aggregate capacity of 1.15 billion cubic feet regulate the entire flow at the station.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined. Gage read to quarter-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Open-water records good; winter records fair.

Discharge measurements of Flambeau River near Butternut, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 17	[a] 2.10	245	July 21	2.28	636
Feb. 13	[a] 2.47	278	Sept. 8	2.16	569
Mar. 22	[a] 2.77	302			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Flambeau River near Butternut, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	400	263	170	260	310	270	370	263	385	327	592	592
2	432	228	170	275	305	265	355	300	385	327	592	673
3	449	218	180	265	300	260	325	327	385	314	592	673
4	466	218	180	265	300	250	315	314	385	341	632	632
5	466	240	185	265	300	255	300	275	370	370	466	483
6	466	263	195	260	300	260	290	240	385	370	341	449
7	449	288	195	255	300	265	275	218	385	895	341	432
8	449	300	205	250	295	270	260	207	385	895	327	554
9	432	300	205	260	290	275	260	178	385	940	327	518
10	400	288	220	275	285	280	260	197	385	1120	327	483
11	370	275	230	270	280	280	260	228	370	1120	314	466
12	327	275	240	265	275	285	260	240	385	632	592	449
13	240	263	240	260	270	295	260	300	370	532	592	449
14	228	263	250	250	270	300	260	432	355	592	592	432
15	228	251	250	240	275	290	260	400	341	592	592	432
16	197	240	265	235	280	275	260	632	341	592	592	416
17	168	240	270	230	280	290	260	760	327	592	592	416
18	151	228	275	235	275	300	263	895	483	592	592	592
19	218	228	275	235	280	300	302	895	518	592	592	327
20	275	230	275	240	290	305	341	895	518	592	592	327
21	275	230	270	245	300	305	341	850	632	592	554	218
22	263	178	265	250	290	260	370	895	518	592	592	263
23	263	180	250	260	275	220	385	895	483	592	554	416
24	251	180	235	275	280	185	417	895	466	592	518	400
25	251	180	220	280	280	150	449	895	449	592	449	385
26	197	180	230	290	275	205	355	632	416	592	385	370
27	151	180	240	300	275	260	275	416	370	592	355	355
28	240	180	240	300	270	315	218	400	355	592	341	327
29	341	180	240	300	-------	335	197	400	341	592	327	327
30	327	180	245	310	-------	355	228	400	327	592	327	314
31	300	-------	250	315	-------	360	-------	400	-------	592	592	-------

NOTE.—Stage-discharge relation affected by ice Nov. 20–21 and Nov. 23 to Apr. 17; daily discharge based on gage heights corrected for ice effect by means of three discharge measurements, observer's notes, and weather records.

Monthly discharge of Flambeau River near Butternut, Wis., for the year ending September 30, 1926

[Drainage area, 660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	466	151	312	0.473	0.55
November	300	178	232	.352	.39
December	275	170	231	.350	.40
January	315	230	265	.402	.46
February	310	270	286	.433	.45
March	360	150	275	.417	.48
April	449	197	299	.453	.51
May	895	178	493	.747	.86
June	632	327	407	.617	.69
July	1,120	314	608	.921	1.06
August	632	314	489	.741	.85
September	673	218	439	.665	.74
The year	1,120	150	361	.547	7.44

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., 6 miles northeast of Tony, and 12 miles northeast of Ladysmith, Rusk County.

DRAINAGE AREA.—1,910 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—October 1, 1923, to September 30, 1926. From January 2, 1914, to September 30, 1923, at a station 8 miles below present site, and February 15, 1903, to December 2, 1906, at Ladysmith, 14 miles downstream.

DISCHARGE MEASUREMENTS.—Made from boat or by wading.

DETERMINATION OF DISCHARGE.—Daily discharge computed from hourly determinations of flow through each turbine based on kilowatt output, and the flow through waste gates and over spillway as computed from hourly determinations based on theoretical formulas.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge recorded during year, 8,860 second-feet September 19; minimum mean daily discharge, 323 second-feet November 23.

1903–1906; 1914–1926: Maximum discharge recorded, 19,500 second-feet April 11, 1922; minimum discharge, 176 second-feet August 30, 1925. The minimum discharge was caused by regulation.

REGULATION.—Diurnal fluctuation is caused by operation of power plant at which station is located. The Chippewa & Flambeau Improvement Co. operate storage reservoirs on the headwaters having an effective capacity of 7.15 billion cubic feet. See "Regulation" in station description for Flambeau River near Butternut. Weekly fluctuations at station are caused by operation of power plants at Park Falls and storage reservoirs.

ACCURACY.—Computation of discharge through turbines and waste gates is based on a series of discharge measurements made by engineers of the Geological Survey in October, 1925. The computation of discharge through the turbines is good. Computation of waste is poor. Records good except at high stages, for which they are fair.

COOPERATION.—Power-house data furnished by Lake Superior District Power Co.

Daily discharge, in second-feet, of Flambeau River near Ladysmith, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	911	614	564	562	545	573	1,040	2,040	1,710	999	952	1,400
2	980	652	598	592	544	524	670	2,530	1,630	843	1,260	1,750
3	1,020	721	650	503	540	576	911	2,730	1,550	908	1,290	3,550
4	939	770	607	569	522	551	776	2,290	1,500	720	1,720	7,490
5	1,200	770	529	536	509	570	906	2,360	1,380	636	3,620	8,820
6	980	882	440	541	509	536	727	2,430	854	904	3,490	6,480
7	1,010	682	570	573	503	543	808	2,040	1,460	934	2,840	5,600
8	980	739	615	582	538	581	761	1,850	1,300	1,540	2,420	4,600
9	953	1,050	605	576	520	520	868	1,800	1,380	2,470	2,340	4,190
10	1,030	1,000	577	527	522	525	985	1,800	1,420	2,400	1,900	3,820
11	729	1,060	640	544	524	524	1,350	1,540	1,450	2,280	1,550	3,760
12	846	962	682	491	545	533	2,220	1,330	1,210	1,820	1,520	3,370
13	753	857	665	503	545	518	3,030	1,160	553	1,980	1,540	2,530
14	666	943	608	511	494	533	4,010	1,260	1,560	1,870	1,730	2,620
15	682	646	659	560	549	546	4,060	1,330	956	1,670	1,490	2,570
16	663	632	635	547	532	550	4,550	1,420	1,070	1,550	1,830	2,290
17	564	612	586	485	531	531	4,580	1,600	983	1,290	1,430	3,130
18	371	758	603	473	573	509	4,670	1,230	1,330	1,290	1,660	6,930
19	542	660	588	411	501	546	4,520	1,500	1,310	1,450	2,370	8,860
20	494	637	625	450	578	582	3,460	1,610	579	993	6,150	7,540

Daily discharge, in second-feet, of Flambeau River near Ladysmith, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	571	770	640	494	560	639	3,530	1,940	2,000	1,150	6,150	6,740
22	643	400	598	507	600	833	3,050	2,240	2,670	1,220	6,020	5,610
23	643	323	616	464	544	828	3,010	1,860	2,710	1,170	5,120	4,840
24	697	598	655	523	579	1,050	3,350	1,730	2,460	1,440	4,750	4,560
25	636	734	741	503	547	914	3,570	1,880	1,880	920	4,140	4,270
26	622	450	582	498	512	951	3,310	2,640	1,790	1,450	3,210	4,210
27	636	501	367	461	521	897	3,130	2,470	1,720	1,240	2,570	3,080
28	585	444	494	490	538	730	2,790	2,100	1,580	1,120	2,310	2,780
29	487	468	507	527	------	1,010	2,570	1,860	1,330	1,160	1,850	2,440
30	514	593	490	468	------	949	2,180	1,880	858	1,290	1,720	2,310
31	666	------	499	517	------	943	------	1,840	------	1,780	1,300	------

NOTE.—Daily discharge computed from power-house data furnished by the Lake Superior District Power Co.

Monthly discharge of Flambeau River near Ladysmith, Wis., for the year ending September 30, 1926

[Drainage area, 1,910 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,200	371	742	0.388	0.45
November	1,060	323	698	.365	.41
December	741	367	588	.308	.36
January	592	411	516	.270	.31
February	600	490	537	.281	.29
March	1,050	509	665	.348	.40
April	4,670	670	2,510	1.31	1.46
May	2,730	1,160	1,880	.984	1.13
June	2,710	553	1,470	.770	.86
July	2,470	636	1,370	.717	.83
August	6,150	952	2,650	1.39	1.60
September	8,860	1,400	4,400	2.30	2.57
The year	8,860	323	1,500	.785	10.67

JUMP RIVER AT SHELDON, WIS.

LOCATION.—In sec. 26, T. 33 N., R. 5 W., at highway bridge in Sheldon, Rusk County, 11 miles above mouth of river.

DRAINAGE AREA.—510 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—July 22, 1915, to September 30, 1926.

GAGE.—Chain gage attached to downstream handrail of bridge; read by Susan Dietze.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy gravel, clean, and free from vegetation. Right bank high and not subject to overflow; left bank may be overflowed occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.5 feet at 5 p. m. September 19 (discharge, 7,220 second-feet); minimum discharge, estimated 35 second-feet December 22–30 and January 1–30 (stage-discharge relation affected by ice).

1915–1926: Maximum stage recorded, 11.48 feet March 26, 1920 (discharge, 15,600 second-feet); minimum discharge, estimated 14 second-feet January 25–31, 1924 (stage-discharge relation affected by ice).

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined above 75 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Open-water records good, except at extremely low stages, for which they are fair. Winter records fair.

Discharge measurements of Jump River at Sheldon, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 30	[a] 3.78	33.0	Apr. 12	6.73	3,450	July 16	3.08	91
Feb. 11	[a] 3.78	48.5	Do	7.10	4,180	Sept. 7	6.54	3,110

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Jump River at Sheldon, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	103	135	35	40	55	260	820	750	194	230	123
2	194	96	143	35	40	55	255	1,500	648	135	221	550
3	208	86	164	35	40	55	260	2,160	680	123	230	970
4	164	103	194	35	45	55	270	2,700	435	103	330	4,190
5	123	208	194	35	45	55	280	1,920	380	111	680	5,180
6	111	330	185	35	50	55	290	1,400	380	123	890	4,380
7	103	462	185	35	50	55	300	1,130	305	103	785	3,140
8	111	435	144	35	50	55	320	930	305	86	750	2,290
9	68	435	103	35	50	60	400	680	270	103	820	1,700
10	42	330	85	35	50	60	1,000	550	240	123	820	1,500
11	103	280	85	35	50	60	2,500	408	221	111	820	1,130
12	96	255	70	35	50	60	4,000	330	221	103	330	1,400
13	75	185	70	35	50	60	4,970	380	221	111	177	1,310
14	68	185	55	35	50	60	5,180	330	185	123	164	1,130
15	86	177	55	35	50	60	4,970	280	208	103	143	1,310
16	75	164	55	35	50	60	4,190	820	230	103	164	1,400
17	55	135	55	35	50	60	3,640	194	230	86	164	1,220
18	75	123	40	35	50	60	2,700	185	240	75	240	2,990
19	103	135	40	35	50	65	2,040	164	255	68	380	6,510
20	103	123	40	35	50	80	1,500	151	270	68	1,700	6,050
21	194	103	40	35	50	100	1,310	280	490	75	3,820	4,000
22	255	103	35	35	50	120	1,220	435	970	86	5,610	2,700
23	164	103	35	35	50	150	1,130	355	1,050	96	4,380	1,810
24	86	123	35	35	50	175	1,130	380	890	111	2,700	2,160
25	86	123	35	35	50	190	1,700	435	820	123	1,500	1,700
26	75	103	35	35	50	200	1,700	435	648	221	890	1,600
27	86	111	35	35	50	210	1,500	680	380	230	520	1,130
28	103	123	35	35	50	215	1,130	820	280	151	380	970
29	103	103	35	35	-------	220	1,050	648	208	143	270	820
30	103	111	35	35	-------	225	890	615	185	143	208	680
31	103	-------	40	40	-------	240	-------	750	-------	177	143	-------

NOTE.—Stage-discharge relation affected by ice Dec. 10 to Apr. 11; daily discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge at Jump River at Sheldon, Wis., for the year ending September 30, 1926

[Drainage area, 510 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	255	42	111	0.218	0.25
November	462	86	182	.357	.40
December	194	35	80.4	.158	.18
January	40	35	35.2	.069	.08
February	50	40	48.6	.095	.10
March	240	55	104	.204	.24
April	5,180	250	1,740	3.41	3.80
May	2,700	151	738	1.45	1.67
June	1,050	185	420	.824	.92
July	230	68	120	.235	.27
August	5,610	143	983	1.93	2.22
September	6,510	123	2,200	4.31	4.81
The year	6,510	35	561	1.10	14.94

EAU CLAIRE RIVER NEAR AUGUSTA, WIS.

LOCATION.—In sec. 12, T. 26 N., R. 6 E., at Trouble Water Bridge, 7 miles northeast of Augusta, Eau Claire County. South Fork of Eau Claire River enters 4 miles above station.

DRAINAGE AREA.—500 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—July 16, 1914, to September 30, 1926, when station was discontinued.

GAGE.—Chain gage on downstream side of bridge; read by Albert Wagner.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed at bridge and above is sandy and shifting; a short distance below gage channel narrows and a rock outcrop overlain with large boulders forms the control. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum open-water stage recorded during year, 8.0 feet at 8 a. m. August 22 (discharge, 4,560 second-feet; minimum discharge, estimated 40 second-feet January 27–30 (stage-discharge relation affected by ice).

1914–1926: Maximum open-water stage recorded, 12.0 feet at 9 a. m. March 27, 1920 (discharge, 8,720 second-feet); minimum discharge, 3.5 second-feet, January 27, 1918, from discharge measurement made through complete ice cover.

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation not permanent. Affected by ice and by shifting control. Rating curve fairly well defined. Gage read to quarter-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records at medium and high stages fair; low-water and winter records poor.

The following discharge measurements were made:

January 1, 1926: Gage height, 1.05 feet; discharge, 79 second-feet (stage-discharge relation affected by ice).

July 11, 1926: Gage height, 0.10 foot; discharge, 85.4 second-feet.

Daily discharge, in second-feet, of Eau Claire River near Augusta, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,470	167	125	70	45	50	640	355	372	116	104	135
2	1,350	135	135	75	45	50	815	460	396	116	135	125
3	780	145	145	75	45	50	1,010	1,100	292	116	111	116
4	605	190	265	75	45	50	1,250	815	214	99	107	265
5	710	930	280	85	50	50	2,080	710	190	99	107	1,050
6	565	1,200	305	80	50	50	1,830	605	156	91	104	1,530
7	425	815	340	75	50	50	1,410	460	145	84	91	1,250
8	355	530	355	75	50	50	1,200	355	125	84	77	780
9	306	460	355	75	50	45	1,950	292	125	77	77	710
10	278	355	355	70	50	50	3,180	239	116	84	75	745
11	252	292	340	70	50	55	3,350	214	111	77	75	930
12	239	265	320	70	50	55	3,900	202	121	77	71	1,650
13	214	265	305	65	50	55	2,500	190	111	77	71	3,020
14	190	265	250	65	50	50	1,710	178	226	77	65	1,250
15	167	239	215	65	50	50	1,410	178	710	68	65	1,470
16	167	214	200	65	45	50	970	167	530	68	71	1,410
17	145	202	165	65	45	50	780	167	372	60	75	970
18	145	167	155	60	45	60	675	145	530	60	156	850
19	145	190	135	60	45	70	565	145	425	60	125	2,500
20	167	178	135	60	45	105	460	135	278	57	1,830	3,180
21	167	167	125	50	45	125	425	156	265	57	4,180	1,950
22	167	167	115	45	45	250	390	178	530	55	4,560	2,010
23	167	116	105	45	45	265	338	167	530	55	2,360	1,950
24	167	167	105	45	45	290	530	156	372	65	1,010	1,650
25	178	178	100	45	45	305	1,590	145	214	71	640	1,830
26	190	145	95	45	45	320	1,300	178	202	65	425	1,050
27	239	99	90	40	45	340	890	605	167	65	320	710
28	239	105	80	40	50	355	675	408	145	84	239	565
29	214	115	75	40	------	390	605	265	135	80	190	178
30	116	125	70	40	------	425	442	425	116	71	167	408
31	190	------	70	45	------	495	------	390	------	84	145	------

NOTE.—Stage-discharge relation affected by ice Nov. 28 to Dec. 2 and Dec. 5 to Apr. 4. Daily discharge based on gage heights corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Eau Claire River near Augusta, Wis., for the year ending September 30, 1926

[Drainage area, 500 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,470	116	345	0.690	0.80
November	1,200	99	286	.572	.64
December	355	70	191	.382	.44
January	85	40	60.6	.121	.14
February	50	45	47.1	.094	.10
March	495	45	150	.300	.35
April	3,900	338	1,300	2.60	2.90
May	1,100	135	329	.658	.76
June	710	111	274	.548	.61
July	116	55	77.4	.155	.18
August	4,560	65	575	1.15	1.33
September	3,180	116	1,210	2.42	2.70
The year	4,560	40	402	.804	10.95

RED CEDAR RIVER NEAR COLFAX, WIS.

LOCATION.—In sec. 27, T. 30 N., R. 11 W., at highway bridge 4½ miles north of Colfax, Dunn County. Trout Creek enters 3½ miles above station and Hay River 11 miles below.

DRAINAGE AREA.—1,100 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—March 19, 1914, to September 30, 1926.

GAGE.—Friez water-stage recorder on right bank 150 feet above bridge; inspected by Gilman Loftsgaard.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of rock and gravel; small amount of grass growth during summer. Left bank high and not subject to overflow; right bank medium high and may be overflowed during extremely high water. Control poorly defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.00 feet at 2 p. m. September 4 (discharge, 5,970 second-feet); minimum stage recorded, 0.55 foot at 12.30 p. m. November 23 (discharge, 218 second feet).

1914–1926: Maximum stage recorded, 6.95 feet at 8 a. m. March 26, 1920 (discharge, 7,610 second-feet); minimum stage, that of November 23, 1925.

REGULATION.—Long, Cedar, Birch, and Bear Lake Reservoirs[1] (total capacity, 1.425 billion cubic feet) regulate the flow in Red Cedar River. Owing to operation of these reservoirs the flow at the station is not natural.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by growth of grass in channel; also slightly affected by backwater from dam at Colfax. Rating curve well defined above 500 second-feet and poorly defined below. Operation of water-stage recorder satisfactory during open-water period. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Shifting-control method used October 1–31 and June 16 to September 30 on account of growth of grass in channel. Open-water records fair; winter records subject to considerable error.

The following discharge measurements were made:

December 31, 1925: Gage height, 2.55 feet; discharge, 462 second-feet (stage-discharge relation affected by ice).

February 12, 1926: Gage height, 3.12 feet; discharge, 542 second-feet (stage-discharge relation affected by ice).

July 11, 1926: Gage height, 1.50 feet; discharge, 500 second-feet (stage-discharge relation affected by growth of grass in channel).

Daily discharge, in second-feet, of Red Cedar River near Colfax, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	622	458	740	410	495	550	610	505	325	505	556	710
2	505	345	655	360	495	550	610	642	388	561	495	752
3	470	479	525	360	495	550	610	745	388	717	592	2,020
4	470	532	560	360	495	550	860	622	388	592	675	5,470
5	470	561	470	380	495	550	675	648	343	404	745	4,170
6	360	484	550	360	520	550	1,030	710	367	430	717	3,120
7	404	479	610	360	520	550	985	622	290	484	642	2,420
8	505	1,070	755	360	520	550	1,070	628	367	454	682	1,760
9	404	1,980	780	360	550	550	1,160	580	349	936	470	1,760
10	384	2,200	745	360	550	550	1,040	610	320	1,160	527	1,200
11	364	837	710	380	550	550	1,080	515	263	760	622	1,070
12	484	454	710	380	550	550	909	412	263	495	622	1,550
13	430	454	610	380	550	550	1,200	408	307	561	522	1,350
14	430	484	580	380	550	550	1,250	522	479	532	522	1,200
15	458	430	550	380	550	550	1,160	454	484	510	495	1,160
16	404	357	520	400	550	550	1,070	475	479	484	580	1,070
17	454	479	520	400	550	550	985	360	422	525	642	1,160
18	404	404	610	400	550	550	790	439	430	458	550	2,020
19	426	454	575	400	550	580	561	408	430	426	752	2,880
20	479	484	540	400	550	610	995	430	422	500	1,250	3,000

[1] See Water-Supply Paper 585 for locations and individual capacities of these reservoirs

Daily discharge, in second-feet, of Red Cedar River near Colfax, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	458	505	505	420	550	610	648	484	767	470	1,310	2,640
22	430	408	470	420	550	675	532	538	1,040	642	1,090	1,980
23	458	265	435	420	550	805	561	479	985	470	745	1,760
24	435	572	400	420	550	1,130	682	342	682	608	860	1,650
25	484	538	365	445	550	1,500	752	391	592	745	1,130	1,450
26	449	265	330	445	550	2,120	495	454	586	675	1,200	1,210
27	484	645	365	445	550	2,530	782	454	561	522	1,200	820
28	439	590	365	470	550	1,980	782	408	479	717	1,000	942
29	443	645	530	470	-------	1,450	505	408	566	828	828	860
30	382	445	560	470	-------	900	479	430	510	710	642	782
31	443	-------	455	470	-------	820	-------	384	-------	622	717	-------

NOTE.—Stage-discharge relation affected by ice Nov. 26 to Mar. 26; discharge based on gage heights corrected for ice effect by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of Red Cedar River near Colfax, Wis., for the year ending September 30, 1926

[Drainage area, 1,100 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	622	360	446	0.405	0.47
November	2,200	265	610	.555	.62
December	780	330	551	.501	.58
January	470	360	402	.365	.42
February	550	495	537	.488	.51
March	2,530	550	826	.751	.87
April	1,250	479	829	.754	.84
May	745	342	500	.455	.52
June	1,040	263	476	.433	.48
July	1,160	404	597	.543	.63
August	1,310	470	754	.685	.79
September	5,470	710	1,800	1.64	1.83
The year	5,470	263	693	.632	8.56

RED CEDAR RIVER AT MENOMONIE, WIS.

LOCATION.—In sec. 26, T. 28 N., R. 13 W., 900 feet below power house of Northern States Power Co., Menominee, Dunn County, and 13 miles above mouth of river. Wilson Creek discharges into service reservoir just above station.

DRAINAGE AREA.—1,810 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—June 16, 1907, to September 3, 1908; May 9, 1913, to September 30, 1923; March 8, 1925 to September 30, 1926.

GAGE.—Gurley water-stage recorder on right bank; inspected by Ed. Kausrud. Zero of gage is 780.00 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from highway bridge 1 mile below gage.

CHANNEL AND CONTROL.—Bed at gage composed of heavy gravel. Left bank high and not subject to overflow; right bank of medium height and will be overflowed at flood stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.25 feet at midnight March 25 (discharge, 11,000 second-feet); minimum stage, 0.93 foot May 9 (discharge, 88 second-feet).

1907–8, 1913–1923, 1925–1926: Maximum discharge, 14,000 second-feet March 26, 1920; minimum stage, that of May 9, 1926. Minimum discharge is due to regulation and does not represent the natural flow.

REGULATION.—Considerable diurnal fluctuation at gage is caused by operation of power plants of Northern States Power Co. at Menomonie and Cedar Falls. (See also "Regulation" in station description for Red Cedar River at Colfax, Wis.)

ICE.—Stage-discharge relation not affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 900 and 8,000 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good.

The following discharge measurement was made:

August 26, 1926: Gage height, 2.14 feet; discharge, 1,210 second-feet.

Daily discharge, in second-feet, of Red Cedar River at Menomonie, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,040	302	722	610	676	858	1,900	1,300	616	790	506	1,030
2	928	729	850	661	767	970	2,070	733	699	850	767	910
3	1,240	744	661	486	699	910	1,590	1,040	676	643	767	1,440
4	759	511	858	798	722	910	1,300	1,440	665	196	687	4,020
5	672	733	751	910	722	910	1,300	1,440	610	733	767	10,100
6	850	1,160	434	790	687	910	1,900	1,300	226	744	722	6,620
7	850	1,100	751	744	531	910	1,980	790	610	767	970	4,600
8	722	496	699	767	706	722	1,590	722	744	665	577	2,980
9	767	457	676	798	790	1,030	1,370	146	744	687	654	2,600
10	790	733	1,030	448	706	1,300	1,590	376	621	722	699	2,240
11	323	733	919	775	798	1,300	850	790	687	632	710	2,160
12	638	733	1,030	850	790	1,300	1,100	910	699	970	699	1,310
13	722	733	729	850	850	1,300	1,230	790	240	779	699	1,940
14	790	790	1,110	676	632	717	1,900	744	572	722	699	2,420
15	756	562	775	722	654	1,230	1,660	699	744	687	328	1,980
16	722	649	798	767	779	1,300	1,590	228	910	756	610	1,900
17	722	850	699	466	790	1,370	1,590	521	910	767	621	1,110
18	546	850	699	588	748	1,300	222	665	676	312	610	1,680
19	632	850	722	850	798	1,300	1,050	654	676	654	910	1,980
20	733	790	676	790	767	1,300	1,440	654	247	676	1,230	4,600
21	850	767	850	665	1,030	1,300	1,300	654	632	756	1,100	4,550
22	850	511	910	699	1,030	1,920	1,300	676	1,170	850	970	3,830
23	767	610	767	790	756	3,650	1,440	394	2,070	767	1,370	2,980
24	790	654	850	526	722	6,920	1,440	643	2,090	676	1,160	2,600
25	710	744	566	621	970	10,400	970	687	910	632	910	2,240
26	566	687	790	798	1,100	8,430	1,300	1,160	767	654	970	1,450
27	850	556	368	654	970	4,800	1,300	850	394	767	1,370	1,980
28	970	722	980	775	566	2,850	1,230	733	744	767	1,370	1,980
29	694	344	722	699	-------	2,980	1,590	699	1,160	850	989	1,980
30	850	481	850	699	-------	2,240	1,590	412	850	790	541	1,900
31	850	-------	850	421	-------	1,900	-------	220	-------	910	1,030	-------

Monthly discharge of Red Cedar River at Menomonie, Wis., for the year ending September 30, 1926

[Drainage area, 1,810 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,240	323	773	0.427	0.47
November	1,160	302	686	.379	.42
December	1,110	368	777	.429	.49
January	910	421	700	.387	.45
February	1,100	531	777	.429	.45
March	10,400	717	2,250	1.24	1.43
April	2,070	222	1,420	.785	.88
May	1,440	146	744	.411	.47
June	2,070	240	779	.430	.48
July	970	196	715	.395	.46
August	1,370	328	839	.464	.53
September	10,100	910	2,770	1.53	1.71
The year	10,400	146	1,100	.608	8.27

BLACK RIVER AT NEILLSVILLE, WIS.

LOCATION.—In sec. 15, T. 24 N., R. 2 W., at lower highway bridge in Neillsville, Clark County. O'Neill Creek enters from left 1 mile above gage and Cunningham Creek, also from left, enters 1½ miles below.

DRAINAGE AREA.—774 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—April 6, 1905, to March 31, 1909; December 11, 1913, to September 30, 1926.

GAGE.—Chain gage on downstream side of bridge; read by A. Bissell.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and rock. Control at head at rapids, a few hundred feet below gage. Banks high and rocky; water will not overflow banks at gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1, 1925, to June 15, 1926, 12.0 feet at 7.30 a. m. April 11 (discharge, 10,400 second-feet); minimum discharge, estimated 30 second-feet January 14 (stage-discharge relation affected by ice).

1905–1909; 1913–1926: Maximum stage recorded, 19.8 feet June 6, 1905 (discharge, about 29,400 second-feet); minimum discharge estimated at 5 second-feet during month of February, 1918, when stage-discharge relation was affected by ice.

The flood of October 6, 1911, probably exceeded 29,000 second-feet, although data are not available regarding stage at gage section during this flood.

REGULATION.—Several dams on Black River and its tributaries upstream from Neillsville are used to create a head for developing power. Operation of these plants causes a slight diurnal fluctuation at gage, especially during winter when flow is at a minimum.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 28 and 14,700 second-feet. Gage read to quarter-tenths twice daily. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Open-water records good except for estimated period June 16 to September 30, for which they are poor. Winter records poor.

The following discharge measurements were made:

January 1, 1926: Gage height, 3.48 feet; discharge, 42 second-feet (stage-discharge relation affected by ice).

February 8, 1926: Gage height, 4.22 feet; discharge, 57 second-feet (stage-discharge relation affected by ice).

Daily discharge, in second-feet, of Black River at Neillsville, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1,500	138	140	40	50	45	1,500	710	440
2	1,640	138	138	45	50	45	1,220	838	420
3	1,150	114	132	31	60	55	1,290	2,070	380
4	940	460	178	31	60	55	1,800	1,890	295
5	800	2,660	280	35	60	55	2,160	1,720	235
6	710	3,060	320	40	70	50	1,980	1,430	190
7	560	2,070	345	40	60	55	1,640	1,010	154
8	420	1,290	320	50	55	55	2,070	770	126
9	380	870	310	45	50	55	4,030	580	142
10	310	560	265	50	50	60	6,140	480	130

Daily discharge, in second-feet, of Black River at Neillsville, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
11	280	480	220	45	45	60	9,600	400	126
12	280	400	190	35	50	60	9,400	345	122
13	220	380	165	40	50	55	7,190	295	190
14	190	320	140	30	50	55	6,140	265	520
15	165	310	130	40	50	60	4,700	235	500
16	142	280	115	35	50	60	3,460	220	-------
17	142	250	115	40	40	70	2,560	190	-------
18	132	220	80	40	45	75	2,160	165	-------
19	132	250	80	40	40	80	1,720	142	-------
20	132	220	70	35	45	120	1,360	142	-------
21	126	190	80	35	45	360	1,080	165	-------
22	126	190	90	35	45	540	940	142	-------
23	132	205	80	35	50	1,890	870	142	-------
24	130	178	100	35	40	7,730	1,570	165	-------
25	142	165	80	35	60	3,570	3,060	165	-------
26	165	165	60	45	55	3,360	2,660	380	-------
27	190	165	70	40	60	3,060	1,800	362	-------
28	205	155	55	40	50	2,760	1,360	560	-------
29	190	155	45	40	-------	2,960	1,080	480	-------
30	142	140	35	55	-------	2,260	838	420	-------
31	165	-------	31	40	-------	1,980	-------	460	-------

NOTE.—Stage-discharge relation affected by ice Nov. 28 to Dec. 1 and Dec. 11 to Mar. 22; discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records. No gage readings available June 16 to Sept. 30; mean monthly discharge estimated from a study of discharge of Eau Claire River near Augusta.

Monthly discharge of Black River at Neillsville, Wis., for the year ending September 30, 1926

[Drainage area, 774 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,640	126	384	0.496	0.57
November	3,060	114	539	.696	.78
December	345	31	144	.186	.21
January	55	30	39.4	.051	.06
February	70	45	51.2	.066	07
March	7,730	45	1,020	1.32	1.52
April	9,600	838	2,910	3.76	4.20
May	2,070	142	559	.722	.83
June	-------	-------	*332	.429	.48
July	-------	-------	*40	.052	.06
August	-------	-------	*820	1.06	1.22
September	-------	-------	*2,000	2.58	2.88
The year	-------	-------	735	.950	12.88

* Estimated.

LA CROSSE RIVER NEAR WEST SALEM, WIS.

LOCATION.—In sec. 32, T. 17 N., R. 6 W., at highway bridge 2 miles west of West Salem, La Crosse County, and 10 miles above mouth of river. Dutch Creek enters from right 6 miles above station.

DRAINAGE AREA.—412 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—December 22, 1913, to September 30, 1926.

GAGE.—Chain gage attached to concrete guardrail on upstream side of bridge; read by J. R. Carlson.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and rock; free from vegetation. Right bank high and not subject to overflow; left bank above the gage low and subject to overflow at flood stages. Control for low stages is a rock riffle with a fall of 6 inches, which is apparently drowned out at a stage of about 2.2 feet as shown by a reversal in the rating curve. Control is filled in with silt which leaks through dam above, causing a shifting control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.85 feet at 7 a. m. August 22 (discharge, 1,840 second-feet); minimum discharge, estimated 110 second-feet December 20 and January 24 (stage-discharge relation affected by ice).

1913–1926: Maximum stage recorded, 8.45 feet March 16, 1919 (discharge, about 3,620 second-feet). Minimum discharge, estimated 90 second-feet January 6, 1924 (stage-discharge relation affected by ice).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Diurnal fluctuation at gage, amounting at low stages to from 0.10 to 0.40 foot, is caused by the operation of power plants, especially at Neshonoc Dam, a few miles above station.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice. Rating curve fairly well defined above 180 second-feet. Gage read to hundredths twice daily. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Open-water records fair; winter records poor.

The following discharge measurements were made:

January 2, 1926: Gage height, 2.46 feet; discharge, 197 second-feet (stage-discharge relation affected by ice).

July 9, 1926: Gage height, 1.40 feet; discharge, 198 second-feet.

Daily discharge, in second-feet, of La Crosse River near West Salem, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	835	250	195	215	250	395	351	351	269	231	250	250
2	835	289	375	230	270	350	440	309	330	250	373	231
3	635	289	330	135	310	375	440	373	289	269	309	250
4	395	351	330	250	290	330	440	395	269	250	231	231
5	465	490	350	310	250	375	490	395	250	231	231	250
6	395	565	215	270	310	350	540	330	213	231	196	269
7	373	490	330	270	195	310	490	309	231	213	196	330
8	351	351	310	230	310	330	440	289	231	196	164	351
9	351	373	290	270	310	375	465	269	231	196	196	418
10	373	351	440	165	270	420	418	289	231	180	180	351
11	309	330	270	250	290	490	440	289	231	180	196	351
12	289	330	215	270	310	490	465	269	250	180	196	330
13	309	289	310	230	310	490	395	269	250	180	196	440
14	309	309	395	230	270	395	418	289	231	196	196	309
15	289	289	330	230	310	490	373	309	289	164	150	309
16	309	330	310	270	230	490	351	269	309	164	231	373
17	309	289	310	230	270	490	351	289	269	196	231	395
18	289	330	310	290	310	490	330	289	250	150	213	309
19	309	309	310	290	330	515	309	289	231	196	196	289
20	395	330	110	270	330	540	309	330	289	250	231	309
21	351	309	270	270	230	675	309	351	269	289	440	309
22	309	250	250	230	290	860	289	330	269	231	1,740	309
23	289	269	165	165	330	1,230	289	309	231	196	1,200	289
24	351	289	215	110	310	1,030	373	309	180	164	860	309
25	351	289	165	230	490	975	635	289	213	135	540	418
26	373	250	215	230	395	885	810	289	213	213	373	351
27	373	269	150	250	395	750	675	309	135	196	309	351
28	373	351	195	230	395	515	540	289	231	196	289	289
29	330	150	122	230	-------	540	395	250	180	180	231	269
30	351	196	230	215	-------	465	351	269	180	196	269	231
31	373	-------	215	180	-------	395	-------	289	-------	213	250	-------

NOTE.—Stage-discharge relation affected by ice Dec. 1 to Mar. 22; daily discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of La Crosse River near West Salem, Wis., for the year ending September 30, 1926

[Drainage area, 412 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	835	289	385	0.934	1.08
November	565	150	319	.774	.86
December	440	110	265	.643	.74
January	310	110	234	.568	.65
February	490	195	306	.743	.77
March	1,230	310	542	1.32	1.52
April	810	289	431	1.05	1.17
May	395	250	306	.743	.86
June	330	135	241	.585	.65
July	289	135	204	.495	.57
August	1,740	150	350	.850	.98
September	440	231	316	.767	.86
The year	1,740	110	325	.789	10.71

UPPER IOWA RIVER NEAR DECORAH, IOWA

LOCATION.—In sec. 13, T. 98 N., R. 8 W., 500 feet above highway bridge in Freeport, 3 miles below Decorah, Winneshiek County, and 4 miles above upper power plant of Interstate Power Co. Trout Run enters 1 mile above station.

DRAINAGE AREA.—560 square miles (measured on United States Geological Survey map).

RECORDS AVAILABLE.—August 27, 1913, to November 21, 1914; May 12, 1919, to September 30, 1926.

GAGE.—Gurley water-stage recorder on left bank; inspected by Mrs. W. D. Gross.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Control formed by a rock ledge; subject to slight changes.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.93 feet at 9 p. m. March 18 (discharge, 4,320 second-feet); minimum discharge occurred during winter.

1913–14; 1919–1926: Maximum discharge recorded, 14,700 second-feet February 22, 1922; minimum discharge, estimated 21 second-feet February 15, 1923.

ICE.—Stage-discharge relation affected by ice for short periods during extremely cold weather.

REGULATION.—Several mills in Decorah may cause slight diurnal fluctuation.

ACCURACY.—Stage-discharge relation changed, probably during high water on March 18. Rating curves well defined above 70 second-feet. Operation of water-stage recorder fairly satisfactory. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good except for periods when discharge was estimated, for which they are poor.

The following discharge measurements were made:

April 30, 1926: Gage height, 2.11 feet; discharge, 262 second-feet.

September 1, 1926: Gage height, 1.43 feet; discharge, 74 second-feet.

September 2, 1926: Gage height, 1.43 feet; discharge, 71 second-feet.

Daily discharge, in second-feet, of Upper Iowa River near Decorah, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	238				288	265	138	112	112	73
2	181	80			284	251	144	120	94	69
3	178				277	247	138	117	81	59
4	187	152			261	209	130	115	81	64
5	184	175			261	219	133	110	91	73
6	130	197			240	216	130	98	89	73
7	135	210	60	100	240	212	122	89	79	79
8	128	152			236	203	112	85	79	130
9	118	163			236	193	110	89	77	117
10	113	135			229	187	115	79	77	85
11	106	144			222	175	107		77	85
12	102	138			219	175	112		79	91
13	102	120			206	172	277		83	85
14	99	116			196	222	216	80	83	79
15	104	111			199	184	273		77	83
16	95	108		252	196	169	209		81	103
17	97	93		399	199	160	187		81	83
18	88	97		1,730	212	158	169	81	75	83
19	91	104		2,480	219	163	152	83	77	105
20	93	95		2,380	216	181	135	81	196	103
21	84	97		1,730	233	178	135	79	265	94
22	84	91	50	1,190	247	175	209	81	120	83
23	84	72		982	247	160	166	81	100	105
24	84	88		850	269	155	190	83	91	107
25	80	86		723	346	149	172	83	79	96
26	95	88		572	490	152	141	83	73	85
27	102	78		490	464	169	130	79	71	83
28	86	68		415	391	149	117	83	71	81
29	76	62		368	338	141	105	81	75	75
30	75	65		325	296	138	100	77	81	77
31	75	-------		325	-------	141	-------	81	73	-------

NOTE.—Stage-discharge relation affected by ice Oct. 30 to Nov. 3 and Nov. 30 to Mar. 15; discharge estimated from study of gage height and weather records and observer's notes. Gage-height record missing July 11–17 and July 24; discharge estimated. Braced figures give mean discharge for periods indicated.

Monthly discharge of Upper Iowa River near Decorah, Iowa, for the year ending September 30, 1926

[Drainage area, 560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	238	75	113	0.202	0.23
November	210	62	112	.200	.22
December	----------	----------	53.9	.096	.11
January	----------	----------	50	.089	.10
February	----------	----------	50	.089	.09
March	2,480	----------	539	.962	1.11
April	490	196	265	.473	.53
May	265	138	183	.327	.38
June	277	100	152	.271	.30
July	120	77	87.4	.156	.18
August	265	71	92.5	.165	.19
September	130	59	86.9	.155	.17
The year	2,480	----------	149	.266	3.61

WISCONSIN RIVER AT WHIRLPOOL RAPIDS, NEAR RHINELANDER, WIS.

LOCATION.—In sec. 4, T. 35 N., R. 8 E. at head of Whirlpool Rapids, 1 mile below outlet of Crescent Lake, 3 miles below dam and power plant of Wisconsin Valley Electric Co., and 10 miles southwest of Rhinelander, Oneida County.

DRAINAGE AREA.—1,160 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—September 15, 1915, to September 30, 1926, and December 1, 1905, to September 30, 1915, records were collected at a station 3 miles upstream.

GAGE.—Stevens continuous water-stage recorder on right bank; inspected by Clarence Jewell.

DISCHARGE MASUREMENTS.—Made from cable 150 feet above gage.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and rock. Banks medium high and not subject to overflow. Control is head of rapids, 100 feet below gage; well defined and permanent.

EXTREMES OF DISCHARGE.—Maximum discharge records during year, 4,490 second-feet April 25; minimum discharge, 368 second-feet October 31.

1905–1915: Maximum discharge recorded, 4,890 second-feet August 11, 1912; minimum discharge, no flow August 4 and September 15, 1907, and June 21 and July 5, 1908.

1915–1926: Maximum stage recorded, 5.61 feet at 10 p. m. April 22, 1916 (discharge, 5,250 second-feet); minimum stage, 0.65 foot at 8 p. m. July 7, 1918 (discharge, 165 second-feet).

REGULATION.—Flow is regulated by 14 reservoirs [2] and 3 power plants above the station. The aggregate capacity of reservoirs is 2.8 billion cubic feet during summer and 3.6 billion cubic feet during winter. Owing to operation of these storage reservoirs and power plants the flow at the station is not natural.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve fairly well defined. Operation of water-stage recorder satisfactory during only 47 per cent of the year. Daily discharge for open-water periods when gage-height records are available ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph; for remainder of year as explained in footnote to daily-discharge table. Records for periods when water-stage recorder was in operation are good; records for estimated periods are poor.

The following discharge measurement was made:

June 17, 1926: Gage height, 2.53 feet; discharge, 1,290 second-feet.

Daily discharge, in second-feet, of Wisconsin River at Whirlpool Rapids, near Rhinelander, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	720	500	667	602	635	448	960	3,810	1,360	860	673	1,160
2	726	486	697	530	580	530	755	1,730	758	785	877	1,070
3	900	793	697	530	695	820	755	2,420	793	697	820	1,240
4	777	1,520	727	530	820	960	695	2,180	793	643	877	1,430
5	786	1,370	1,100	665	602	890	505	2,250	820	479	1,290	1,720
6	649	1,170	734	635	602	580	665	2,060	869	734	1,430	2,030
7	632	1,170	836	665	695	960	555	2,250	1,160	1,420	1,470	1,920
8	859	995	828	635	580	435	530	2,060	1,600	828	1,070	1,720
9	765	909	877	580	635	755	530	2,060	1,360	995	1,120	1,520
10	765	909	909	580	602	960	725	820	918	947	1,000	1,410

[2] Information concerning these reservoirs, based on maps and data furnished by W. E. Brooks, manager of the Wisconsin Valley Improvement Co., and data collected by the engineering department of the Railroad Commission of Wisconsin, is contained in Water-Supply Paper 405, p. 127.

Daily discharge, in second-feet, of Wisconsin River at Whirlpool Rapids, near Rhinelander, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	506	1,070	872	580	960	820	890	1,890	938	636	939	1,200
12	673	1,040	636	635	580	695	635	2,060	1,330	711	970	1,380
13	643	1,040	585	635	635	960	820	1,130	909	1,470	972	1,430
14	734	1,110	758	635	820	820	1,130	960	758	750	995	1,620
15	518	697	662	602	480	602	1,340	960	1,250	860	708	1,700
16	684	765	522	580	480	890	1,230	1,130	660	697	933	1,420
17	595	758	883	635	755	820	2,060	725	828	727	685	1,720
18	637	758	905	448	890	635	2,250	960	909	636	758	1,900
19	620	727	626	788	1,040	580	1,340	755	860	785	814	1,800
20	542	697	511	755	725	580	2,250	960	750	820	1,280	2,230
21	638	720	616	695	555	960	1,890	995	1,220	860	2,560	2,340
22	603	734	697	695	435	530	1,460	900	1,390	900	2,340	2,120
23	564	758	644	580	635	665	2,060	793	995	985	2,990	2,230
24	420	697	476	448	530	820	2,940	1,250	869	1,070	3,170	2,460
25	627	727	505	480	960	820	4,490	1,340	1,210	1,470	2,910	1,720
26	544	636	453	695	1,460	755	2,460	1,300	1,510	1,430	3,000	1,920
27	540	828	412	960	480	820	2,690	697	918	1,290	2,120	2,230
28	511	1,000	505	890	635	820	2,690	909	877	869	1,600	1,600
29	430	673	667	665	-------	555	2,690	1,380	1,360	820	1,460	1,570
30	447	636	615	580	-------	890	2,690	869	720	869	1,330	1,900
31	368	-------	731	580	-------	1,040	-------	801	-------	872	1,240	------

NOTE.—Water-stage recorder not operating satisfactorily Oct. 1-8, 15-26, Oct. 29 to Nov. 8, Dec. 15-20, Jan. 12 to May 2, May 5-20, July 19-31, and Aug. 27 to Sept. 10. Stage-discharge relation affected by ice during the period Dec. 21 to Jan. 12. Discharge estimates based on flow of Wisconsin River at Merrill, Tomahawk River near Bradley, and on gage heights at Hat Rapids, 3 miles upstream.

Monthly discharge of Wisconsin River at Whirlpool Rapids, near Rhinelander, Wis., for the year ending September 30, 1926

[Drainage area, 1,160 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	900	368	626	0.540	0.62
November	1,520	486	863	.744	.83
December	1,100	412	688	.593	.68
January	960	448	629	.542	.62
February	1,460	435	696	.600	.62
March	1,040	435	755	.651	.75
April	4,490	505	1,560	1.34	1.50
May	3,810	697	1,430	1.23	1.42
June	1,600	660	1,020	.879	.98
July	1,470	479	900	.776	.90
August	3,170	673	1,430	1.23	1.42
September	2,460	1,070	1,720	1.48	1.65
The year	4,490	368	1,030	0.888	11.99

WISCONSIN RIVER AT MERRILL, WIS.

LOCATION.—At highway bridge at east end of Merrill, Lincoln County, 1,000 feet below power house of Merrill plant of Wisconsin Valley Electric Co. and half a mile below mouth of Prairie River.

DRAINAGE AREA.—2,630 square miles (measured on Wisconsin Geological and Natural History Survey map, edition of 1911).

RECORDS AVAILABLE.—November 16, 1902, to September 30, 1926.

GAGE.—Gurley water-stage recorder on left bank; inspected by Otto F. Lueck.

DISCHARGE MEASUREMENTS.—Made from bridge just above gage.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and rock; nearly permanent. Riffles on both sides of small island below gage probably constitute control. Banks fairly high and are seldom overflowed.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.86 feet at 6 a. m. August 21 (discharge, 17,400 second-feet); minimum discharge, estimated 420 second-feet at 6 a. m. February 8 (stage-discharge relation affected by ice).

1902–1926: Maximum stage recorded, about 17.5 feet at 5 a. m. July 24, 1912 (discharge, 45,000 second-feet); minimum stage, 2.45 feet; September 26, 1908 (discharge, about 90 second-feet).

REGULATION.—Above the gaging station are 17 reservoirs,[3] which are operated by Wisconsin Valley Improvement Co. for the purpose of regulating flow in Wisconsin River. The aggregate capacity of these reservoirs is about 6.25 billion cubic feet. In addition to the above reservoirs, there are on Wisconsin and Tomahawk Rivers above the station eight dams operated for power.

ACCURACY.—Stage-discharge relation practically permanent except as affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained from recorder graph by inspection. Open-water records good; winter records fair.

The following discharge measurements were made:

January 22, 1926: Gage height, 4.34 feet; discharge, 1,040 second-feet (stage-discharge relation affected by ice).

February 11, 1926: Gage height, 4.38 feet; discharge, 1,230 second-feet (stage-discharge relation affected by ice).

June 16, 1926: Gage height, 4.65 feet; discharge, 1,530 second-feet.

Daily discharge, in second-feet, of Wisconsin River at Merrill, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,770	880	1,680	1,470	1,090	1,140	1,910	4,950	2,980	1,690	1,580	2,620
2	1,620	1,100	1,650	1,320	1,260	940	1,910	7,370	2,620	1,930	1,590	2,620
3	1,670	1,060	1,640	1,180	1,180	940	2,040	7,630	2,780	1,770	1,910	2,620
4	1,950	1,520	1,740	1,090	795	1,260	1,810	7,120	1,910	1,610	1,810	5,050
5	1,720	2,630	1,880	1,180	1,180	1,130	1,700	6,610	1,810	1,450	2,620	6,000
6	1,700	2,430	1,630	1,320	1,000	860	1,390	6,100	1,910	1,290	2,300	6,930
7	1,430	2,190	1,580	1,180	860	1,120	2,080	5,590	2,060	1,810	2,800	7,000
8	1,380	2,100	1,660	1,230	895	970	2,780	5,070	2,320	1,640	2,060	5,940
9	1,720	1,810	1,730	1,270	930	1,010	3,470	4,550	2,350	1,750	2,640	5,520
10	1,540	1,900	1,810	1,140	1,180	1,050	4,160	2,830	2,190	1,850	1,930	4,370
11	1,200	1,670	1,700	1,000	1,000	1,270	4,850	3,010	1,670	1,580	1,930	3,920
12	1,310	1,760	1,580	1,230	1,180	1,090	5,550	2,620	1,930	1,650	1,690	3,510
13	1,460	1,720	1,470	1,470	1,180	1,090	6,240	2,620	2,060	1,810	1,930	2,780
14	1,510	1,780	1,490	1,050	970	1,050	6,930	2,620	2,350	1,580	1,690	5,280
15	1,360	1,480	1,370	1,000	1,370	1,000	7,180	2,300	2,190	1,870	1,270	6,420
16	1,090	1,530	1,360	850	1,090	1,130	7,710	2,060	1,950	1,580	1,700	5,410
17	1,360	1,200	1,120	1,090	1,040	1,260	7,630	1,670	1,700	1,410	1,580	5,410
18	1,230	1,330	1,750	930	930	1,460	6,930	2,320	2,060	1,180	1,810	4,560
19	1,300	1,520	1,790	943	1,130	1,360	5,460	2,320	1,790	1,490	1,370	7,780
20	1,290	1,290	1,300	956	1,050	1,470	5,570	2,320	1,310	1,910	5,650	8,240
21	1,160	1,620	1,090	970	970	1,100	5,050	2,640	1,640	1,760	14,500	8,430
22	1,320	1,370	1,270	1,180	860	930	5,230	2,320	2,980	1,750	11,900	8,160
23	1,290	1,470	1,420	1,180	930	1,510	5,460	2,460	2,980	2,060	9,730	6,930
24	1,210	1,510	1,320	860	1,410	2,100	7,000	2,300	2,460	1,580	8,600	7,110
25	960	1,550	1,040	940	1,270	2,060	7,440	2,490	2,300	1,420	7,000	6,860
26	1,340	1,580	1,090	1,080	1,080	1,810	6,000	3,960	2,190	1,590	5,520	6,360
27	1,200	1,560	1,000	1,220	1,310	1,790	6,080	2,460	2,170	1,490	5,000	3,960
28	1,230	1,560	930	1,180	655	1,910	5,410	2,460	2,170	1,180	4,160	5,230
29	1,080	1,740	1,090	960	-------	1,670	5,000	2,190	1,790	1,490	4,870	4,120
30	955	1,740	1,370	1,040	-------	1,750	5,000	2,810	1,620	1,590	4,370	3,510
31	1,000	-------	1,270	1,090	-------	1,830	-------	3,290	-------	1,700	4,800	-------

NOTE.—Stage-discharge relation affected by ice Dec. 27 to Mar. 22. Discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records. Operation of water-stage recorder not satisfactory Oct. 13–14, Nov. 24–25, Dec. 8–9, 11–12, 21–22, Mar. 30–31, Apr. 7–12, May 4–8, 27, June 16–17, and July 3–5; discharge interpolated.

[3] Information concerning these reservoirs, based on maps and data furnished by the manager of Wisconsin Valley Improvement Co., and data collected by the engineering department of the Wisconsin Railroad Commission is contained in Water-Supply Paper 405, p. 127.

Monthly discharge of Wisconsin River at Merrill, Wis., for the year ending September 30, 1926

[Drainage area, 2,630 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,950	955	1,370	0.521	0.60
November	2,630	880	1,620	.616	.69
December	1,880	930	1,450	.551	.64
January	1,470	850	1,120	.426	.49
February	1,410	655	1,060	.403	.42
March	2,100	860	1,320	.502	.58
April	7,710	1,390	4,830	1.84	2.05
May	7,630	1,670	3,580	1.36	1.57
June	2,980	1,310	2,140	.814	.91
July	2,060	1,180	1,630	.620	.71
August	14,500	1,270	3,950	1.50	1.73
September	8,430	2,620	5,420	2.06	2.30
The year	14,500	655	2,460	.935	12.69

WISCONSIN RIVER AT KNOWLTON, WIS.

LOCATION.—In N. ½ sec. 29, T. 26 N., R. 7 E., 50 feet below left end of combination railroad-highway bridge of Chicago, Milwaukee & St. Paul Railway and on State trunk highway No. 73 at Knowlton, Marathon County, 1½ miles below mouth of Big Eau Pleine River.

DRAINAGE AREA.—4,360 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—July 13, 1921, to September 30, 1926. Gage heights May 1, 1915, to July 12, 1921, published by United States Weather Bureau.

GAGE.—Gurley water-stage recorder on left bank; inspected by W. T. Guenther.

DISCHARGE MEASUREMENTS.—Made from boat, by wading, or from bridge at very high stages.

CHANNEL AND CONTROL.—Bed composed of sand and light gravel. Control not well defined; there is, however, a decided contraction of the channel at an island 2,500 feet below gage. Right bank high and is seldom overflowed; left bank of medium height and is overflowed at extreme flood stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.6 feet at 7 p. m. August 22 (discharge, 46,600 second-feet); minimum stage, 1.8 feet at 2 p. m. November 1 (discharge, 1,080 second-feet).

1921–1926: Maximum stage recorded, 19.5 feet at 10 p. m. April 10, 1922 (discharge, 49,800 second-feet); minimum stage 1.0 foot at 2 a. m. August 15, 1921 (discharge, about 670 second-feet).

REGULATION.—No storage reservoirs discharge into Wisconsin River between Knowlton and Merrill. See "Regulation" in station description of Wisconsin River at Merrill (p. 69). Between Knowlton and Merrill are four dams operated for power.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined above 1,600 second-feet and extended below. Operation of water-stage recorder satisfactory during the year. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained from recorder graph by inspection. Open-water records good; winter records poor.

The following discharge measurement was made:

September 16, 1926: Gage height, 9.15 feet; discharge, 17,100 second-feet.

Daily discharge, in second-feet, of Wisconsin River at Knowlton, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,830	1,430	2,050	1,490	1,530	2,040	4,010	7,780	3,830	2,650	2,650	4,750
2	4,940	1,420	1,910	1,420	1,720	2,080	4,190	7,970	4,010	2,650	2,650	4,940
3	4,940	1,320	2,050	1,420	1,650	2,120	4,190	10,400	3,600	2,340	2,810	4,190
4	4,190	1,550	2,340	1,370	1,840	2,050	3,200	12,000	3,870	2,070	2,810	4,010
5	3,830	3,360	2,190	1,650	1,530	2,050	3,830	11,900	3,140	1,910	3,340	6,500
6	3,830	6,500	2,490	1,480	1,520	2,120	3,180	10,100	2,970	1,530	4,750	9,840
7	3,480	5,510	2,490	1,530	1,370	2,490	4,190	8,930	2,810	2,340	1,560	10,400
8	2,970	4,940	2,190	1,420	1,420	2,190	3,170	7,850	2,810	2,190	4,750	10,100
9	2,050	4,010	1,910	1,480	1,590	2,600	3,480	6,560	3,000	2,190	3,480	8,840
10	2,810	2,970	2,210	1,420	1,590	2,490	4,850	6,630	3,310	2,340	4,010	8,090
11	2,490	2,970	2,190	1,420	1,530	2,420	11,600	5,040	2,970	2,360	3,480	6,500
12	1,910	3,510	1,650	1,430	1,480	2,420	20,500	4,270	2,810	2,210	2,970	6,710
13	2,340	2,190	2,190	1,450	1,530	2,570	20,700	4,370	2,970	2,190	2,810	6,710
14	1,910	2,340	2,190	1,460	1,370	2,340	21,400	4,190	3,480	2,190	2,810	5,890
15	2,190	2,490	2,190	1,480	1,420	1,980	23,200	3,830	3,870	2,340	2,510	11,700
16	2,050	2,190	2,190	1,490	1,780	1,910	19,300	3,340	3,510	2,340	2,190	17,300
17	2,050	2,190	2,190	1,500	1,650	2,050	17,400	3,650	3,830	2,340	2,810	13,500
18	1,580	2,190	2,190	1,520	1,650	2,120	15,600	2,970	3,480	2,070	2,650	11,100
19	2,210	1,780	1,910	1,530	1,650	2,650	12,700	2,650	3,310	1,530	2,970	11,300
20	2,190	1,650	2,000	1,590	1,720	3,140	11,000	2,490	3,310	2,050	5,280	14,800
21	1,910	1,780	1,910	1,530	1,530	2,050	9,690	2,840	3,340	2,340	21,600	15,100
22	1,910	1,780	1,910	1,590	1,780	1,910	8,420	3,480	4,230	2,340	44,500	16,000
23	1,910	1,450	1,840	1,590	1,820	2,050	8,680	3,480	4,610	2,650	38,800	16,300
24	1,910	1,780	2,050	1,480	1,860	2,120	10,300	3,480	5,430	2,810	24,000	13,900
25	1,800	1,780	1,650	1,540	1,890	3,830	14,800	4,050	3,830	2,810	15,800	13,000
26	1,650	1,910	1,910	1,590	1,930	4,560	14,900	4,410	4,010	1,800	11,300	11,700
27	1,650	1,910	1,840	1,650	1,970	4,940	11,800	5,760	3,650	2,340	8,840	9,840
28	1,530	1,910	1,720	1,590	2,010	4,750	10,600	4,750	3,000	2,490	7,380	6,500
29	1,530	1,800	1,720	1,780	-------	4,190	9,350	4,370	3,480	2,490	7,150	8,090
30	1,530	1,450	1,530	1,780	-------	4,190	8,280	4,560	2,970	2,490	6,090	6,090
31	1,530	-------	1,590	1,530	-------	4,190	-------	4,410	-------	2,650	4,940	-------

NOTE.—Stage-discharge relation affected by ice Dec. 7 to Apr. 8; discharge based on gage heights corrected for ice effect by a study of discharge of Wisconsin River at Merrill and at Nekoosa.

Monthly discharge of Wisconsin River at Knowlton, Wis., for the year ending September 30, 1926

[Drainage area, 4,360 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,940	1,530	2,470	0.567	0.65
November	6,500	1,320	2,470	.567	.63
December	2,490	1,530	2,010	.461	.53
January	1,780	1,370	1,530	.351	.40
February	2,010	1,370	1,660	.381	.40
March	4,940	1,910	2,730	.626	.72
April	23,200	3,170	10,600	2.43	2.71
May	12,000	2,490	5,560	1.28	1.48
June	5,430	2,810	3,520	.807	.90
July	2,810	1,530	2,290	.525	.61
August	44,500	2,190	8,280	1.90	2.19
September	17,300	4,010	9,790	2.25	2.51
The year	44,500	1,320	4,410	1.01	13.73

WISCONSIN RIVER NEAR NEKOOSA, WIS.

LOCATION.—In sec. 15, T. 21 N., R. 5 E., 1½ miles below Nekoosa, Wood County. Tenmile Creek enters 4 miles below station.

DRAINAGE AREA.—5,500 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—May 21, 1914, to September 30, 1926.

GAGE.—Gurley water-stage recorder on right bank; inspected by Henry Mans.

DISCHARGE MEASUREMENTS.—Made from cable just above gage.

CHANNEL AND CONTROL.—Bed composed of gravel; clean, nearly permanent. Banks high and are rarely overflowed.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.08 feet at noon August 23 (discharge, 52,700 second-feet); minimum discharge, estimated 665 second-feet February 14 (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded, 16.1 feet at 1 a. m. April 12, 1922 (discharge, 61,000 second-feet); minimum discharge, estimated 400 second-feet at 6 p. m. January 13, 1924 (stage-discharge relation affected by ice). Minimum flow is due to regulation.

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—No storage reservoirs discharge into Wisconsin River between Nekoosa and Merrill. See "Regulation" in station description of Wisconsin River at Merrill (p. 69). Between Nekoosa and Merrill are 12 dams operated for power.

ACCURACY.—Stage-discharge relation nearly permanent except as affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory during the year. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Open-water records good; winter records fair.

The following discharge measurements were made:

January 19, 1926: Gage height, 1.85 feet; discharge, 1,580 second-feet (stage-discharge relation affected by ice).

February 9, 1926: Gage height, 2.16 feet; discharge, 1,790 second-feet (stage-discharge relation affected by ice).

July 26, 1926: Gage height, 1.29 feet; discharge, 2,030 second-feet.

Daily discharge, in second-feet, of Wisconsin River near Nekoosa, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,400	1,890	2,060	1,580	1,340	1,780	8,150	8,300	5,350	3,130	2,510	5,100
2	4,730	1,960	2,450	1,580	1,840	1,720	5,890	8,870	4,280	3,050	2,840	5,100
3	5,520	2,060	2,460	1,210	1,720	1,720	5,300	9,850	4,380	3,500	2,490	5,300
4	5,220	1,850	2,900	1,520	1,580	1,580	4,790	11,500	4,580	2,700	3,000	4,190
5	3,950	2,080	3,100	1,840	1,580	1,650	4,480	12,800	4,280	1,030	3,130	4,320
6	3,940	5,000	2,170	1,580	1,580	1,800	4,790	11,800	3,200	2,260	3,950	8,150
7	4,470	7,220	2,660	1,720	1,330	1,230	5,300	10,500	3,200	2,140	4,790	9,750
8	3,900	5,920	3,130	1,650	1,650	2,440	6,270	9,260	3,380	2,920	3,680	10,500
9	3,560	4,140	3,130	1,580	1,720	1,780	6,050	8,150	3,050	2,490	4,950	9,600
10	2,810	4,100	2,730	1,090	1,580	1,520	7,450	7,920	3,640	2,420	3,470	8,540
11	2,360	4,870	2,340	1,390	1,580	1,650	10,600	6,050	3,820	2,140	3,160	8,150
12	3,040	4,220	2,730	1,980	1,460	1,460	19,800	4,840	3,560	2,680	3,130	8,150
13	2,020	3,700	2,340	1,910	1,720	1,600	24,600	4,320	2,730	2,260	2,510	8,300
14	2,800	2,950	2,120	1,910	665	1,650	23,900	4,900	5,350	2,260	3,130	7,610
15	2,120	2,820	1,980	1,650	1,670	1,720	24,100	4,480	4,790	2,420	2,210	8,960
16	2,790	3,380	2,260	1,650	1,720	1,720	24,100	4,000	4,380	2,570	2,680	15,700
17	2,300	2,680	2,340	875	1,580	1,520	20,300	4,280	4,280	2,340	2,210	17,200
18	2,050	2,640	2,240	1,220	1,580	1,540	19,900	3,730	4,580	2,650	2,730	14,900
19	2,080	2,960	2,130	1,520	1,520	1,330	15,900	3,200	4,000	2,260	3,160	12,400
20	2,390	2,220	2,030	1,390	1,650	1,460	12,400	3,130	3,560	2,050	5,300	14,300

Daily discharge, in second-feet, of Wisconsin River near Nekoosa, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	2,630	2,260	1,930	1,390	985	1,930	10,500	3,050	4,190	2,120	14,500	16,300
22	2,320	2,120	1,840	1,780	1,800	2,070	10,200	3,910	3,910	2,340	32,800	16,900
23	2,050	2,260	2,070	1,840	1,580	3,130	9,260	4,000	4,480	2,340	50,500	18,400
24	2,220	2,030	2,510	1,460	1,650	3,730	11,000	4,190	4,620	2,810	40,000	18,400
25	2,230	2,200	1,330	1,780	1,650	4,520	14,200	4,000	5,350	3,000	24,500	16,600
26	2,100	2,350	1,910	1,840	1,520	7,000	17,800	5,250	4,190	2,340	16,300	15,700
27	2,330	2,440	2,120	1,720	1,520	8,540	15,900	6,330	3,820	2,050	11,700	13,700
28	2,020	2,000	1,720	1,720	1,460	9,020	12,800	6,780	3,820	2,360	8,870	10,500
29	2,030	1,970	1,780	1,780	-------	8,380	11,200	6,050	3,130	2,680	7,920	9,260
30	2,040	2,050	1,710	1,840	-------	7,610	9,500	5,100	3,200	2,280	7,220	8,790
31	2,170	-------	1,650	1,220	-------	7,610	---------	6,330	-------	2,890	5,830	-------

NOTE.—Stage-discharge relation affected by ice Dec. 21 to Mar. 22. Discharge based on gage heights corrected for ice effect by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of Wisconsin River near Nekoosa, Wis., for the year ending September 30, 1926

[Drainage area, 5,500 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5,520	2,020	2,890	0.525	0.61
November	7,220	1,850	3,010	.547	.61
December	3,130	1,330	2,250	.409	.47
January	1,980	875	1,590	.289	.33
February	1,840	665	1,540	.280	.29
March	9,020	1,230	3,110	.565	.65
April	24,600	4,480	12,500	2.27	2.53
May	12,800	3,050	6,350	1.15	1.33
June	5,350	2,730	4,040	.735	.82
July	3,500	1,030	2,470	.449	.52
August	50,500	2,210	9,200	1.67	1.92
September	18,400	4,190	11,000	2.00	2.23
The year	50,500	665	5,000	.909	12.31

WISCONSIN RIVER AT MUSCODA, WIS.

LOCATION.—In sec. 1, T. 8 N., R. 1 W., at highway bridge 1 mile north of Muscoda, Grant County. Eagle Mill Creek enters from right half a mile below station and Underwood Creek from left 4½ miles above.

DRAINAGE AREA.—10,300 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—December 21, 1902, to December 31, 1903; December 4, 1913, to September 30, 1926. Gage heights November 1, 1908, to December 31, 1912, published in United States Weather Bureau bulletin, "Daily river stages," Parts 9, 10, and 11.

GAGE.—Chain gage fastened to handrail on upstream side of bridge; read by Bud Rice. Zero of gage is approximately 666.2 feet above sea level.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.28 feet at 7 a. m. August 29 (discharge, 43,800 second-feet); minimum discharge, estimated 3,130 second-feet March 8 (stage-discharge relation affected by ice).

1903; 1914–1926: Maximum stage recorded, 10.60 feet at 7 a. m. April 16, 1922 (discharge, 72,100 second-feet); minimum discharge estimated 1,600 second-feet December 20, 1921 (stage-discharge relation affected by ice). According to records of United States Weather Bureau [4] on June 11, 1881, the river reached a stage of 11.1 feet and during August, 1868, zero on gage; discharge not computed owing to changes in channel and datum of gage.

[4] Daily river stages, Pt. 10, p. 98, U. S. Dept. Agr.

REGULATION.—Considerable diurnal fluctuation has been observed at gage owing to operation of power plant at Prairie du Sac, 40 miles upstream. Owing to regulation by storage in the headwaters the flow at this station is not natural.

ACCURACY.—Stage-discharge relation not permanent; affected by shifting control and by ice. Rating curve fairly well defined above 8,000 second-feet and poorly defined below. Gage read to hundredths twice daily. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Records poor.

The following discharge measurements were made:

January 14, 1926: Gage height, 2.38 feet; discharge, 4,090 second-feet (stage-discharge relation affected by ice).

May 21, 1926: Gage height, 2.86 feet; discharge, 9,540 second-feet.

July 7, 1926: Gage height, 1.92 feet; discharge, 7,610 second-feet.

Daily discharge, in second-feet, of Wisconsin River at Muscoda, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,730	5,480	5,990	3,910	4,770	4,770	10,500	22,500	11,300	8,690	5,730	17,600
2	5,990	5,000	5,480	4,120	4,770	4,550	10,900	20,000	8,020	8,020	4,770	12,200
3	5,730	5,480	5,000	4,120	4,770	3,510	10,500	21,200	8,690	7,700	5,240	13,500
4	5,990	5,480	4,770	4,550	4,550	4,120	10,100	13,500	13,100	7,390	5,240	12,600
5	6,250	5,730	5,730	4,770	4,330	4,120	9,400	15,500	10,500	6,250	5,000	11,700
6	9,040	5,240	5,480	4,550	4,120	3,910	10,900	15,000	9,040	5,990	5,240	9,400
7	9,770	5,240	5,240	4,550	4,120	3,910	12,600	15,500	6,800	6,250	5,480	9,400
8	10,100	5,730	5,730	4,120	4,120	3,130	13,500	16,000	8,690	6,250	5,480	9,040
9	8,020	5,480	6,260	4,120	4,120	4,120	11,300	17,600	9,040	5,480	5,000	10,100
10	6,250	7,390	5,240	4,120	3,910	4,120	12,200	16,500	8,350	5,240	5,990	13,500
11	6,250	9,040	5,240	3,710	3,910	4,550	13,100	14,000	8,020	5,240	6,520	14,000
12	6,250	9,770	5,730	3,910	3,710	4,120	11,700	11,700	7,390	5,240	6,520	14,000
13	6,800	9,040	5,730	3,910	4,120	3,710	13,100	14,500	7,390	5,240	6,520	12,600
14	5,240	8,690	5,480	4,120	4,330	4,120	14,000	12,200	6,250	5,240	6,520	14,000
15	6,800	8,020	6,250	4,120	4,120	4,120	18,800	11,300	9,040	5,000	6,250	13,100
16	5,730	6,520	5,730	4,330	3,710	4,120	22,500	10,500	9,040	5,000	5,480	12,200
17	4,770	6,520	4,770	4,120	3,910	4,120	25,200	8,690	8,690	4,770	6,250	12,200
18	5,730	6,800	4,120	3,910	4,770	4,770	30,900	10,100	8,350	5,000	6,250	14,000
19	5,480	6,520	7,700	4,120	4,330	5,480	30,900	10,100	8,690	4,550	5,730	15,500
20	5,730	6,250	8,020	4,550	4,120	5,240	33,100	9,400	8,690	5,000	5,730	14,500
21	5,730	5,990	6,520	4,330	4,330	5,480	30,100	9,400	6,520	4,770	6,250	21,200
22	5,990	5,730	5,240	3,910	4,120	5,990	26,600	8,690	8,350	4,770	6,250	21,800
23	5,000	5,480	5,240	4,120	4,120	8,020	24,500	7,700	8,690	5,240	6,250	19,400
24	5,240	5,990	5,000	3,910	3,910	9,400	18,200	6,520	8,690	4,770	7,700	25,900
25	5,480	5,990	4,330	3,710	4,120	10,500	20,000	7,390	8,690	4,770	10,500	28,000
26	5,000	5,730	4,550	4,550	4,120	10,500	21,200	6,800	8,690	4,550	20,600	25,900
27	5,240	5,240	5,000	4,770	4,770	10,100	18,800	7,700	8,350	4,770	24,500	25,200
28	7,090	5,240	3,910	4,550	4,330	9,770	18,200	8,350	6,520	4,770	33,100	26,600
29	5,780	5,730	3,510	3,910	-------	8,020	20,600	8,690	8,350	4,770	43,000	25,200
30	5,730	5,480	4,330	4,330	-------	10,100	21,800	9,040	8,350	5,000	36,100	21,200
31	5,480	-------	4,120	4,550	-------	11,300	-------	11,700	-------	5,000	24,500	-------

NOTE.—Stage-discharge relation affected by ice Dec. 14 to Mar. 23. Discharge based on gage heights corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Wisconsin River at Muscoda, Wis., for the year ending September 30, 1926

[Drainage area, 10,300 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	10,100	4,770	6,240	0.606	0.70
November	9,770	5,000	6,330	.615	.69
December	8,020	3,510	5,340	.518	.60
January	4,770	3,710	4,210	.409	.47
February	4,770	3,710	4,230	.411	.43
March	11,300	3,130	5,930	.576	.66
April	33,100	9,400	18,200	1.77	1.98
May	22,500	6,520	12,200	1.18	1.36
June	13,100	6,250	8,540	.829	.92
July	8,690	4,550	5,510	.535	.62
August	43,000	4,770	10,800	1.05	1.21
September	28,000	9,040	16,500	1.60	1.78
The year	43,000	3,130	8,660	.841	11.42

TOMAHAWK RIVER NEAR BRADLEY, WIS.

LOCATION.—In sec. 16, T. 36 N., R. 6 E., 2 miles west of Cassion, 4 miles north of Bradley, Oneida County, 4 miles downstream from mouth of Bearskin Creek, and 8 miles above mouth of river.

DRAINAGE AREA.—422 square miles.

RECORDS AVAILABLE.—September 18, 1914, to September 30, 1926.

GAGE.—A Stevens continuous water-stage recorder was installed October 6, 1925, on right bank 8 feet downstream from slope gage which it replaces.

DISCHARGE MEASUREMENTS.—Made from cable half a mile below gage.

CHANNEL AND CONTROL.—Bed at gage and a short distance below, sandy and likely to shift. Control is formed by rapids 2,000 feet below gage. Bed at cable section heavy gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.82 feet April 18 (discharge, 1,120 second-feet); minimum stage, 1.45 feet November 23 (discharge, 192 second-feet).

1914–1926: Maximum stage recorded, 6.9 feet April 24, 1916 (discharge, 2,200 second-feet); minimum stage recorded, 1.09 feet August 28, 1925 (discharge, 148 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Squirrel and Minocqua Reservoirs,[5] having a summer capacity of 443 million cubic feet and a winter capacity of 803 million cubic feet, are maintained above station for the purpose of regulating the flow of Wisconsin River.

ACCURACY.—Stage-discharge relation probably permanent except as affected by ice. Rating curve fairly well defined above 220 second-feet and extended below. Operation of water-stage recorder satisfactory October 7–20 and October 24 to July 27. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Open-water records fair, except for estimated period July 28 to September 30, for which they are poor. Winter records poor.

The following discharge measurements were made:

October 9, 1925: Gage height, 1.95 feet; discharge, 252 second-feet.

January 23, 1926: Gage height, 2.46 feet; discharge, 215 second-feet (stage-discharge relation affected by ice).

July 23, 1926: Gage height, 1.80 feet; discharge, 236 second-feet.

[5] For more complete information concerning these reservoirs see U. S. Geol. Survey Water-Supply Paper 585, p. 86.

Daily discharge, in second-feet, of Tomahawk River near Bradley, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	278	255	220	220	250	460	697	488	263	250	
2	347	289	250	220	220	250	490	730	460	252		
3	343	302	250	220	220	250	475	815	434	237		376
4	326	328	265	220	220	250	460	798	421	226		
5	322	421	255	220	220	250	460	798	372	233	276	
6	306	488	250	220	220	250	490	763	384	248		
7	289	434	240	220	220	250	515	730	396	243		
8	271	435	235	220	220	250	530	666	421	218		
9	263	435	240	220	220	250	544	619	421	255		424
10	263	420	250	210	220	255	544	574	372	349		
11	248	420	250	210	220	255	544	530	341	396	433	
12	240	410	250	220	220	270	544	474	328	396		
13	234	408	250	220	220	290	544	447	334	372		
14	230	384	240	220	220	300	666	421	341	343		
15	227	365	225	220	220	330	763	396	354	308		
16	222	345	225	220	210	350	886	372	341	282		356
17	219	278	225	220	210	385	1,000	354	328	266		
18	222	332	225	220	220	395	1,120	338	341	248		
19	236	365	220	220	220	410	1,040	324	354	234	1,180	
20	226	360	210	220	220	410	961	312	354	229		
21	225	328	210	220	220	420	961	372	356	237		
22	225	308	220	210	220	435	923	447	488	240		
23	224	192	210	210	225	445	923	460	530	237		1,310
24	223	312	220	210	225	490	923	447	516	255		
25	223	310	220	220	235	475	923	434	502	276		
26	229	310	220	220	240	475	923	421	447	275	674	
27	226	310	220	220	250	475	886	447	396	252		
28	215	314	220	220	250	475	886	434	343			
29	202	304	220	220	------	460	815	434	308	250		651
30	230	280	210	220	------	460	763	421	289		376	
31	266	------	210	220	------	460	------	488	------			

NOTE.—Stage-discharge relation affected by ice Nov. 8–12, 25–27, and Nov. 30 to Apr. 6. Discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records. Gage-height record missing Oct. 21–23 and July 28 to Sept. 30; discharge interpolated Oct. 21–23; weekly mean discharge July 28 to Sept. 30 estimated from precipitation records and reservoir reports.

Monthly discharge of Tomahawk River near Bradley, Wis., for the year ending September 30, 1926

[Drainage area, 422 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	347	202	253	0.597	0.69
November	488	192	349	.827	.92
December	265	210	232	.550	.63
January	220	210	218	.517	.60
February	250	210	223	.528	.55
March	490	250	354	.839	.97
April	1,120	460	732	1.73	1.93
May	815	312	515	1.22	1.41
June	530	289	392	.929	1.04
July	396	218	270	.640	.79
August	----------	----------	611	1.45	1.66
September	----------	----------	637	1.51	1.68
The year	1,120	192	399	.946	12.87

PRAIRIE RIVER NEAR MERRILL, WIS.

LOCATION.—On line between secs. 20 and 29, T. 32 N., R. 7 E., at highway bridge 4½ miles northeast of Merrill, Lincoln County, and 5½ miles above mouth of river. Haymeadow Creek enters 5 miles above station.

DRAINAGE AREA.—164 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—January 17, 1914, to September 30, 1926.

GAGE.—Chain gage attached to upstream side of bridge; read by Mrs. Meta Krause.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; clean and free from vegetation. Right bank high and not subject to overflow; left bank may be overflowed at extreme flood stages; both banks wooded. Control not well defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.40 feet at 4 p. m. August 21 (discharge, 3,580 second-feet); minimum discharge, estimated 70 second-feet several times in January, February, and March (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded that of August 21, 1926; minimum discharge, estimated 55 second-feet January 21, 1925 (stage-discharge relation affected by ice).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined below and extended above 2,200 second-feet. Gage read to hundredths once daily. Daily discharge for open-water periods obtained by applying daily gage height to rating table except as indicated in footnote to daily-discharge table. Open-water records good; winter records fair.

Discharge measurements of Prairie River near Merrill, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan 22	[a] 1.70	69	June 16	202	156
Feb 11	[a] 1.69	70	Sept. 14	311	436

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Prairie River near Merrill, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	102	100	75	80	70	92	325	207	108	148	137
2	182	102	100	80	80	70	85	359	207	108	137	110
3	159	94	100	70	80	70	87	359	207	102	137	110
4	159	99	100	75	80	70	102	469	182	89	148	122
5	159	293	100	80	75	70	112	431	170	89	194	122
6	148	293	90	80	75	75	92	376	137	85	248	137
7	133	278	85	80	75	70	92	325	182	82	207	359
8	118	263	85	75	80	70	85	278	182	82	159	359
9	126	234	85	75	80	70	112	263	194	92	159	325
10	118	207	85	70	80	70	159	207	159	89	137	293

Daily discharge, in second-feet, of Prairie River near Merrill, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	118	207	80	70	75	70	469	182	159	85	137	293
12	118	148	80	70	75	70	509	182	137	87	118	325
13	105	137	80	75	75	70	679	159	137	94	112	325
14	102	128	80	75	75	70	816	159	159	89	112	431
15	99	122	75	75	70	70	911	159	170	87	92	592
16	97	118	75	75	70	70	911	148	159	87	102	550
17	97	115	75	75	70	70	911	137	170	99	99	550
18	97	115	75	75	75	70	863	129	234	97	105	550
19	99	112	80	75	75	70	816	129	207	99	126	431
20	99	108	75	75	80	75	679	133	207	97	182	550
21	99	102	75	70	75	85	635	137	207	112	3,580	592
22	97	105	80	70	70	90	635	234	207	115	3,180	592
23	94	105	80	70	70	108	679	234	234	129	2,020	469
24	94	102	80	75	70	115	724	234	194	133	1,350	469
25	99	105	80	75	70	122	724	220	170	115	770	469
26	102	105	80	80	70	118	679	207	159	112	431	394
27	102	110	75	80	70	118	635	207	137	102	359	234
28	97	100	75	80	70	118	509	207	129	97	234	234
29	92	100	80	75	-------	115	431	207	118	97	194	220
30	102	100	80	75	-------	112	359	207	108	102	182	207
31	105	-------	80	75	-------	112	-------	220	-------	159	170	-------

NOTE.—Stage-discharge relation affected by ice Nov. 28 to Mar. 22; discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records. Gage read 1.00 foot too low Sept. 14–18; discharge obtained from corrected gage heights.

Monthly discharge of Prairie River near Merrill, Wis., for the year ending September 30, 1926

[Drainage area, 164 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	182	92	115	0.701	0.81
November	293	94	144	.878	.98
December	100	75	82.9	.506	.58
January	80	70	75	.457	.53
February	80	70	74.6	.455	.47
March	122	70	84.6	.516	.59
April	911	85	486	2.96	3.30
May	469	129	233	1.42	1.64
June	234	105	174	1.06	1.18
July	159	82	101	.616	.71
August	3,580	92	494	3.01	3.47
September	592	110	352	2.14	2.39
The year	3,580	70	201	1.23	16.65

RIB RIVER AT RIB FALLS, WIS.

LOCATION.—In NW. ¼ sec. 27, T. 29 N., R. 5 E., at highway bridge in Rib Falls, Marathon County, 6 miles below mouth of Black Creek, and 15 miles above mouth of river.

DRAINAGE AREA.—309 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—May 19, 1925, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by G. H. Baesemann.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy gravel; probably permanent. Right bank high and will not be overflowed; left bank of medium height and will be overflowed at flood stages. Control at rapids 700 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.10 feet at 8 a. m. August 21 (discharge from extension of rating curve, 12,500 second-feet); minimum discharge recorded, 10 second-feet February 25–27 (stage-discharge relation affected by ice).

1925–1926: Both maximum and minimum stages are those given for 1926.

REGULATION.—A dam just above gage is used to furnish power for a feed and grist mill, but the amount of water used by this mill and the pondage is so small that it causes very little, if any, fluctuation.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined below 4,500 second-feet and extended above. Gage read to hundredths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Open-water records good; winter records fair.

Discharge measurements of Rib River at Rib Falls, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 20	[a] 1.92	23	Aug. 25	3.17	495
Feb. 10	[a] 2.04	21	Sept. 15	5.53	2,210
June 15	2.17	116			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Rib River at Rib Falls, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,120	62	57	35	20	15	271	774	232	55	251	146
2	720	55	60	25	15	15	291	942	196	55	213	178
3	492	81	60	35	20	15	271	942	162	49	146	251
4	422	540	111	35	20	15	271	829	132	49	108	774
5	422	1,680	138	35	20	20	271	885	106	49	422	2,190
6	312	1,060	126	40	15	20	312	720	116	55	516	2,190
7	251	942	101	40	15	20	377	516	106	49	333	1,120
8	206	377	168	15	15	15	445	400	106	43	213	885
9	192	312	126	50	15	15	540	333	84	49	159	885
10	178	213	132	40	20	15	1,420	271	84	46	146	565
11	146	213	101	40	15	15	3,240	232	75	46	146	445
12	135	199	92	40	15	15	3,400	196	64	43	108	615
13	118	178	84	40	15	15	3,570	182	64	55	94	516
14	129	232	75	35	15	15	3,910	156	84	46	90	400
15	108	178	68	35	20	15	3,570	149	106	49	86	2,420
16	99	152	64	40	20	20	3,240	132	94	43	90	1,500
17	94	73	50	25	15	15	2,800	106	118	40	86	829
18	94	108	50	35	15	15	2,420	106	146	35	94	1,000
19	94	178	50	25	15	15	1,880	96	135	35	400	1,980
20	108	81	50	25	15	15	942	84	129	40	3,240	1,880
21	94	94	50	25	15	15	774	106	118	55	12,500	1,190
22	94	108	50	20	15	20	720	162	213	135	3,570	1,120
23	94	113	50	20	15	35	720	138	312	118	1,340	885
24	94	104	50	20	15	468	829	116	251	94	720	1,190
25	94	94	50	25	10	829	942	126	178	94	468	1,000
26	118	94	35	25	10	885	1,120	182	118	135	377	667
27	129	73	25	25	10	829	1,190	312	94	129	232	516
28	108	66	25	25	15	720	1,120	251	73	94	192	422
29	94	55	35	35	------	667	942	196	73	73	146	355
30	90	59	35	25	------	333	885	232	55	73	135	291
31	86	------	35	25	------	199	------	271	------	140	140	------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Mar. 23. Discharge based on gage heights corrected for ice effect by means of two discharge measurements, observer's notes, and weather records

Monthly discharge of Rib River at Rib Falls, Wis., for the year ending September 30, 1926

[Drainage area, 309 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,120	86	211	0.683	0.79
November	1,680	55	259	.838	.94
December	168	25	71.1	.230	.27
January	50	15	31	.100	.12
February	20	10	15.7	.051	.05
March	885	15	172	.557	.64
April	3,910	271	1,420	4.60	5.13
May	942	84	327	1.06	1.22
June	312	55	127	.411	.46
July	140	*35	66.8	.216	.25
August	12,500	86	863	2.79	3.22
September	2,420	146	947	3.06	3.41
The year	12,500	10	376	1.22	16.50

EAU CLAIRE RIVER AT KELLY, WIS.

LOCATION.—In sec. 13, T. 28 N., R. 8 E., at highway bridge three-fourths mile northeast of Kelly, Marathon County, 1 mile above mouth of Big Sandy Creek, which enters from right, and 4½ miles above mouth of river.

DRAINAGE AREA.—326 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—January 1, 1914, to November 30, 1926, when station was discontinued.

GAGE.—Chain gage attached to downstream side of highway bridge; read by August Krueger.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy gravel and rock. Gage is in the rapids which form control. Banks medium high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1, 1925, to November 30, 1926, 7.85 feet at 8.30 a. m. August 21 (discharge, 7,340 second-feet); minimum discharge, estimated, 25 second-feet several days during January (stage-discharge relation affected by ice).

1914–1926: Maximum and minimum discharge recorded, that of 1926, as given above.

ACCURACY.—Stage-discharge relation practically permanent during the period. Rating curve well defined between 70 and 3,200 second-feet. Gage read to hundredths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Open-water records good; winter records fair.

The following discharge measurements were made:

January 21, 1926: Gage height, 1.86 feet; discharge, 30 second-feet (stage-discharge relation affected by ice).

February 12, 1926: Gage height, 2.14 feet; discharge, 44 second-feet (stage-discharge relation affected by ice).

July 24, 1926: Gage height, 0.86 foot; discharge, 102 second-feet.

Daily discharge, in second-feet, of Eau Claire River at Kelly, Wis., for the period October 1, 1925, to November 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1925–26												
1	243	93	70	35	45	40	95	405	204	113	243	162
2	261	85	60	30	40	40	85	360	210	104	243	157
3	204	85	60	30	45	45	70	531	191	96	179	151
4	185	104	60	35	55	55	105	586	173	89	151	151
5	198	185	55	30	55	45	115	615	151	78	168	226
6	198	261	60	25	55	60	165	504	141	82	318	279
7	168	226	60	30	60	65	225	405	162	78	279	279
8	157	113	60	30	55	70	280	339	168	75	226	279
9	141	146	60	40	55	70	455	298	157	75	185	318
10	136	204	55	25	60	55	1,140	261	151	93	162	261
11	126	168	55	25	40	60	1,300	226	131	100	151	226
12	117	146	45	25	45	55	1,470	204	117	89	131	261
13	108	122	55	25	55	60	1,650	185	126	93	126	243
14	108	136	40	25	55	75	2,270	185	243	85	117	279
15	104	117	45	25	55	75	2,050	185	298	78	104	1,000
16	96	104	40	30	55	75	1,850	162	243	71	100	1,070
17	93	122	40	25	60	75	1,380	157	279	68	89	865
18	93	117	45	25	60	85	1,070	141	405	78	93	675
19	96	117	40	30	60	85	865	136	318	70	453	930
20	100	93	40	30	60	105	705	126	243	75	832	865
21	100	78	40	30	60	105	675	141	405	93	7,180	800
22	96	85	45	35	60	75	705	162	558	122	5,460	832
23	96	95	55	35	60	95	675	185	478	108	3,460	865
24	96	70	45	35	60	70	735	173	360	100	1,380	800
25	100	95	45	35	60	85	1,140	168	339	96	800	735
26	104	75	45	35	60	195	1,070	226	279	96	558	531
27	104	60	40	35	60	210	800	453	210	82	360	405
28	93	75	40	40	55	180	675	360	168	75	298	360
29	85	60	30	40	------	125	586	279	146	75	243	318
30	96	45	30	40	------	125	478	243	122	78	204	279
31	95	------	35	40	------	85	------	210	------	96	179	------

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1926			1926			1926		
1	298	226	11	531	131	21	453	320
2	705	226	12	504	226	22	531	320
3	645	210	13	558	226	23	531	300
4	645	210	14	558	226	24	453	280
5	675	191	15	453	558	25	405	260
6	558	204	16	405	705	26	318	260
7	453	210	17	382	645	27	318	260
8	382	226	18	405	478	28	298	245
9	318	226	19	429	382	29	279	245
10	405	151	20	429	339	30	279	245
						31	243	------

NOTE.—Stage-discharge relation affected by ice Nov. 23, 1925, to Apr. 9, 1926, Apr. 11–12, and Nov. 21–30 1926; discharge based on gage heights corrected for effect of ice by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of Eau Claire River at Kelly, Wis., for the period October 1, 1925, to November 30, 1926

[Drainage area, 326 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1925–26					
October	261	85	129	0.396	0.46
November	261	45	116	.356	.40
December	70	30	48.2	.148	.17
January	40	25	31.5	.096	.11
February	60	40	55.2	.169	.18
March	210	40	85.3	.262	.30
April	2,270	70	829	2.54	2.83
May	615	126	278	.853	.98
June	558	117	239	.733	.82
July	122	68	87.5	.268	.31
August	7,180	89	789	2.42	2.79
September	1,070	151	487	1.49	1.66
The year	7,180	25	265	.813	11.01
1926					
October	705	243	447	1.37	1.58
November	705	131	292	.896	1.00

KICKAPOO RIVER AT GAYS MILLS, WIS.

LOCATION.—In sec. 28, T. 10 N., R. 4 W., at highway bridge immediately below dam and power plant of Interstate Power Co., in Gays Mills, Crawford County, 2 miles below mouth of Tainter Creek, and 25 miles above mouth of river.

DRAINAGE AREA.—629 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—December 25, 1913, to September 30, 1926.

GAGE.—Chain gage fastened to downstream side of bridge; read by George Atwood, Wylanta Haggerty, and J. M. Haggerty.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Channel composed of rock covered by a deposit of sand and silt. Banks fairly high and not subject to overflow at ordinary high stages. No definite control.

EXTREMES OF DISCHARGES.—Maximum stage recorded during year, 8.9 feet at 6 a. m. August 24 (discharge, 2,100 second-feet); minimum discharge, estimated 195 second-feet several times during January and February (stage-discharge relation affected by ice).

1914–1926: Maximum stage recorded, 15.05 feet March 24, 1917 (discharge, about 6,300 second-feet); minimum discharge about 100 second-feet during the later part of January, 1915 (stage-discharge relation affected by ice).

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Mills at Gays Mills immediately above the station, at Soldiers Grove, 7 miles upstream, and at several points above Soldiers Grove use comparatively little storage, so that recorded flow past station represents nearly natural flow. During low stages a small diurnal fluctuation is observed at gage.

ACCURACY.—Stage-discharge relation not permanent; affected by shifting control and by ice. Standard rating curve poorly defined. Gage read to hundredths once daily. Daily discharge ascertained by shifting-control method October 1 to July 8, except during ice-affected periods. Rating applied directly July 9–31. For remainder of year discharge was obtained as explained in footnote to daily-discharge table. Records poor.

The following discharge measurements were made:

January 15, 1926: Gage height, 2.86 feet; discharge, 244 second-feet (stage-discharge relation affected by ice).

May 21, 1926: Gage height, 2.36 feet; discharge, 308 second-feet.

July 8, 1926: Gage height, 1.85 feet; discharge, 256 second-feet.

Daily discharge, in second-feet, of Kickapoo River at Gays Mills, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	810	321	321	270	305	377	377	417	321	256	390	273
2	502	321	287	270	320	226	417	417	339	256	427	273
3	377	304	304	270	285	304	459	480	321	357	338	273
4	524	304	304	270	255	321	480	438	287	321	304	273
5	620	438	397	285	240	287	524	417	271	287	244	288
6	397	459	271	285	255	287	502	377	271	271	230	288
7	357	339	304	255	255	226	459	339	271	256	244	288
8	339	321	357	240	270	241	417	339	271	256	230	288
9	321	321	417	225	255	304	480	304	271	256	218	408
10	357	304	339	195	225	287	480	304	271	287	218	390
11	357	304	357	255	195	287	438	321	287	304	244	288
12	339	304	321	210	225	271	438	304	287	256	244	321
13	339	321	287	225	225	226	438	321	339	287	244	321
14	321	304	287	225	210	256	417	339	397	287	244	304
15	321	304	271	225	240	256	397	357	524	271	244	304
16	321	287	271	255	256	241	397	304	321	271	230	304
17	321	287	271	225	271	256	357	287	321	271	230	304
18	304	287	256	255	287	502	339	304	287	271	244	304
19	304	287	255	255	321	1,050	339	321	304	256	244	304
20	304	287	255	255	287	1,480	339	339	287	241	321	321
21	304	271	255	255	271	1,620	357	321	287	287	1,090	304
22	271	271	255	195	256	1,590	321	339	271	287	1,230	304
23	304	256	255	195	271	1,340	321	321	271	271	1,650	842
24	287	256	256	195	287	1,240	480	287	271	287	1,650	995
25	287	271	256	210	256	1,280	1,140	304	271	256	527	867
26	321	256	255	195	287	960	1,280	304	256	256	408	445
27	397	271	255	240	256	570	645	304	256	256	338	390
28	357	211	255	225	304	502	547	321	256	256	304	372
29	321	241	255	195	-------	459	480	287	256	256	288	355
30	287	256	255	210	-------	480	438	287	256	256	273	355
31	256	-------	255	255	-------	397	-------	321	-------	459	273	------

NOTE.—Stage-discharge relation affected by ice Dec. 19–23 and Dec. 26 to Feb. 15. Daily discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records. During August and September the channel was obstructed by piling and forms in connection with the construction of a new bridge immediately below the gage, and an estimated correction of 15 per cent has been applied to the discharge as taken from the rating table.

Monthly discharge of Kickapoo River at Gays Mills, Wis., for the year ending September 30, 1926

[Drainage area, 629 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	810	256	362	* 0.576	0.66
November	459	211	299	.475	.53
December	417	255	288	.458	.53
January	285	195	236	.375	.43
February	321	195	263	.418	.44
March	1,620	226	585	.930	1.07
April	1,280	321	483	.768	.86
May	480	287	336	.534	.62
June	524	256	297	.472	.53
July	459	241	279	.444	.51
August	1,650	218	431	.685	.79
September	995	273	378	.601	.67
The year	1,650	195	354	.563	7.64

TURKEY RIVER AT GARBER, IOWA

LOCATION.—In sec. 36, T. 92 N., R. 4 W., at single-span highway bridge at Garber, Clayton County, 2,000 feet below mouth of Elk Creek.

DRAINAGE AREA.—1,530 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—August 29, 1913, to November 30, 1916; May 14, 1919, to September 30, 1926.

GAGE.—Chain gage attached to downstream handrail of bridge; read by E. J. Prolow.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and mud; shifting. Right bank high and not subject to overflow; left bank is overflowed at stages above 13 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.55 feet at 8 a. m. August 20 (discharge, 7,130 second-feet); minimum discharge, 150 second-feet July 25.

1913–1916; 1919–1926: Maximum stage recorded, 28.06 feet at 4.25 a. m. February 23, 1922 (discharge, about 26,600 second-feet); minimum discharge recorded, 88 second-feet September 5–7, 1922.

ICE.—Stage-discharge relation affected by ice; observations discontinued during winter.

REGULATION.—An electric light plant and gristmill at Elkader may cause a slight diurnal fluctuation.

ACCURACY.—Stage-discharge relation changed July 30 and August 20. Rating curves fairly well defined between 200 and 11,000 second-feet. No record December 9 to February 21 and September 14–30. Gage read to hundredths twice daily during remainder of year. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

The following discharge measurements were made:

May 1, 1926: Gage height, 4.38 feet; discharge, 640 second-feet.

August 31, 1926: Gage height, 3.73 feet; discharge, 236 second-feet.

Daily discharge, in second-feet, of Turkey River at Garber, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	815	322	288	------	2,150	690	570	430	305	615	190
2	570	305	322	------	1,590	660	690	405	690	450	165
3	600	270	305	------	1,270	630	600	380	540	450	190
4	600	198	305	------	1,130	750	600	360	430	400	248
5	570	288	340	------	990	690	455	288	322	310	319
6	540	360	340	------	920	815	455	322	270	270	300
7	540	540	288	------	660	815	430	305	225	255	281
8	405	510	288	------	600	720	430	270	225	228	2,260
9	360	455	------	------	920	690	380	255	210	190	434
10	322	430	------	------	1,590	630	340	255	210	202	248
11	340	360	------	------	1,200	750	340	430	210	180	233
12	380	480	------	------	920	690	380	1,750	270	240	190
13	360	430	------	------	1,060	660	360	1,060	322	215	190
14	322	380	------	------	990	690	340	885	240	180	------
15	288	405	------	------	920	630	305	630	240	190	------
16	288	380	------	------	815	480	288	600	210	170	------
17	340	380	------	------	850	480	288	455	198	180	------
18	340	322	------	------	1,270	720	340	430	198	270	------
19	305	430	------	------	2,470	750	322	405	185	202	------
20	270	455	------	------	3,370	720	322	380	185	6,250	------
21	255	405	------	------	2,230	690	305	380	185	4,800	------
22	340	305	------	850	2,390	660	305	340	288	3,700	------
23	270	322	------	720	1,830	660	322	305	255	2,430	------
24	360	322	------	780	1,510	1,200	340	270	185	1,220	------
25	322	380	------	850	1,430	1,350	455	255	160	815	------
26	322	405	------	990	1,270	1,130	455	255	225	361	------
27	340	360	------	720	920	1,060	455	255	270	218	------
28	340	430	------	1,060	850	815	660	240	198	178	------
29	305	405	------	------	780	660	540	240	1,200	178	------
30	288	405	------	------	720	630	360	255	2,140	190	------
31	305	------	------	------	660	------	360	------	1,580	190	------

Monthly discharge of Turkey River at Garber, Iowa, for the year ending September 30, 1926

[Drainage area, 1,530 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	815	255	387	0.253	0.29
November	540	198	381	.249	.28
December 1-8	340	288	310	.203	.06
February 22-28	1,060	720	853	.558	.15
March	3,370	600	1,300	.850	.98
April	1,350	480	750	.490	.55
May	690	288	413	.270	.31
June	1,750	240	436	.285	.32
July	2,140	160	399	.261	.30
August	6,250	170	830	.542	.62
September 1-13	2,260	165	404	.264	.13

ROCK RIVER AT AFTON, WIS.

LOCATION.—On line between secs. 22 and 27, T. 2 N., R. 12 E., at highway bridge in Afton, Rock County, 9 miles above Illinois State line. Bass Creek enters from right three-fourths mile below station.

DRAINAGE AREA.—3,190 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—February 5, 1914, to September 30, 1926.

GAGE.—Chain gage fastened to downstream side of bridge; read by George Robb.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Banks medium high and will not be overflowed to any extent at flood stages; channel gravel and clean silt, practically permanent. Control not well defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.39 feet at 6.40 a. m. March 31 (discharge, 5,180 second-feet); minimum stage, 0.39 foot at 6.40 a. m. August 20 (discharge, 350 second-feet).

1914–1926: Maximum stage recorded, 10.51 feet at noon March 26, 1918 (discharge, 12,700 second-feet); minimum stage recorded, 0.08 foot at 6.40 a. m. December 9, 1922 (discharge, 274 second-feet; revised).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Operation of power plants at Janesville and above causes slight fluctuation at gage during low stages.

ACCURACY.—Stage-discharge relation practically permanent during year. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Open-water records good; winter records fair.

Discharge measurements of Rock River at Afton, Wis., during the year ending September 30, 1926

	Gage height	Discharge		Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 20	[a] 2.04	761	Aug. 13	1.36	739
May 1	4.14	2,650	Sept. 11	1.19	625

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Rock River at Afton, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	597	683	728	640	1,420	2,020	4,540	2,710	1,490	1,280	728	639
2	597	683	728	730	1,040	1,420	4,180	2,440	1,700	1,350	557	557
3	597	775	683	730	1,160	2,100	3,830	2,710	1,780	1,490	597	597
4	639	824	775	730	930	1,780	3,720	2,710	1,780	1,280	728	597
5	557	728	1,160	930	930	1,560	3,720	2,350	1,630	1,160	639	597
6	557	728	928	1,040	730	1,350	3,720	2,350	1,420	1,160	597	597
7	639	928	728	1,040	730	1,100	3,830	2,440	1,280	1,160	557	557
8	639	875	1,040	985	730	1,630	3,940	2,350	1,490	1,160	557	639
9	597	683	983	825	730	1,700	3,610	2,260	1,350	875	597	728
10	557	983	928	720	685	1,560	4,420	2,440	928	775	557	728
11	446	875	928	985	730	1,420	4,540	2,100	683	775	557	639
12	518	875	928	825	640	1,350	4,540	1,560	1,280	597	683	639
13	518	928	983	930	728	1,040	4,540	1,490	983	824	639	683
14	518	928	1,040	930	875	1,040	4,540	1,350	983	639	597	775
15	597	1,040	928	985	928	1,160	4,300	1,280	1,780	597	639	775
16	557	824	930	825	1,040	1,040	3,940	1,560	1,700	639	683	728
17	683	928	985	825	824	1,100	3,940	1,420	1,860	518	597	639
18	557	728	985	875	824	1,700	3,830	1,490	1,860	518	597	639
19	557	875	985	1,040	928	2,020	3,720	1,560	1,940	557	481	597
20	413	1,040	775	775	775	2,350	3,290	1,420	1,860	518	398	639
21	481	824	730	825	728	2,620	2,890	983	1,780	481	518	775
22	597	728	775	825	824	2,990	2,890	928	1,780	481	557	639
23	597	683	730	730	728	3,190	2,890	1,220	1,860	518	557	824
24	597	875	730	730	775	3,610	2,530	1,280	1,860	481	639	1,280
25	639	639	595	685	1,420	4,060	2,710	1,280	1,780	557	683	1,160
26	639	597	730	730	1,040	4,420	2,710	1,100	1,700	557	639	983
27	775	683	730	640	1,160	4,670	2,800	1,100	1,700	639	557	1,040
28	683	557	775	640	928	4,800	2,800	1,160	1,560	597	557	1,220
29	683	775	825	730	-------	4,930	2,710	1,280	1,490	557	481	1,220
30	728	728	825	520	-------	5,060	2,710	1,280	1,350	639	481	1,420
31	775	-------	825	1,040	-------	5,060	-------	1,420	-------	557	597	-------

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Feb. 12. Discharge based on gage heights corrected for effect of ice by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Rock River at Afton, Wis., for the year ending September 30, 1926

[Drainage area, 3,190 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	775	413	598	0.187	0.22
November	1,040	557	801	.251	.28
December	1,160	595	852	.267	.31
January	1,040	520	821	.257	.30
February	1,420	640	892	.280	.29
March	5,060	1,040	2,450	.768	.89
April	4,540	2,530	3,610	1.13	1.26
May	2,710	928	1,710	.536	.62
June	1,940	683	1,550	.486	.54
July	1,490	481	772	.242	.28
August	728	398	589	.185	.21
September	1,420	557	785	.246	.27
The year	5,060	398	1,280	.401	5.47

ROCK RIVER AT LYNDON, ILL.

LOCATION.—In sec. 21, T. 20 N., R. 5 E., at highway bridge in Lyndon, Whiteside County, 10 miles above Rock Creek.

DRAINAGE AREA.—9,010 square miles.

RECORDS AVAILABLE.—November 24, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by George Cady.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; practically permanent. Banks wooded.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.9 feet at 7.30 a. m. February 27 (discharge, 26,600 second-feet); minimum stage, 4.41 feet at 5 p. m. October 7 (discharge, 1,100 second-feet).

1915–1926: Maximum stage recorded, 19.6 feet February 16, 1918 (discharge not determined because of backwater from ice). Maximum open-water stage recorded, 17.0 feet March 28, 1916 (discharge, 39,500 second-feet); minimum stage, 3.72 feet September 27, 1918 (discharge, 655 second-feet; revised).

DIVERSIONS.—Water diverted at Sterling Dam to feed Illinois & Mississippi Canal probably averages about 100 second-feet.

REGULATION.—Flow past gage is regulated by power plants at Sterling and above. Mean of two daily readings of gage during low stage is probably somewhat less than true mean daily gage height due to such regulation.

ACCURACY.—Stage-discharge relation practically permanent except as affected by ice. Rating curve well defined. Gage read to hundredths twice daily. Diurnal fluctuation at gage rather large during low stages. Discharge ascertained by applying mean daily gage height to rating table. Records good during open-water periods; poor for period of ice effect.

The following discharge measurement was made:

June 9, 1926: Gage height, 5.20 feet; discharge, 2,180 second-feet.

Daily discharge, in second-feet, of Rock River at Lyndon, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,430	2,420	3,260			15,400	7,950	6,150	2,110	4,030	4,430	1,970
2	1,500	2,260	3,450			20,400	8,460	5,990	2,420	4,030	5,990	2,110
3	1,760	2,420	2,260			12,200	7,450	5,750	2,740	4,030	6,470	2,110
4	1,620	2,740	2,260			9,240	7,200	5,520	2,740	4,430	5,750	2,420
5	1,370	2,110	2,420			6,230	5,990	5,070	2,260	5,750	4,850	3,080
6	1,760	2,110	2,580			8,460	5,750	4,430	2,420	6,230	4,230	2,910
7	1,430	2,420	2,420			7,700	5,750	4,640	1,970	5,070	3,080	3,640
8	1,560	2,260	4,230	5,300		5,990	10,000	4,430	2,110	3,900	2,740	4,430
9	1,500	2,110	3,640			5,990	13,900	4,430	1,760	2,740	3,000	4,230
10	1,310	2,910	3,640		6,500	5,070	23,800	4,640	2,110	2,740	3,260	4,430
11	1,500	2,580	3,640			5,520	23,800	4,230	2,580	2,580	3,260	4,230
12	1,760	2,740	3,640			5,750	21,800	4,230	9,240	3,260	2,920	4,430
13	1,620	2,910	2,740			5,520	19,700	4,230	8,460	2,910	2,580	4,430
14	1,690	2,910	2,910			4,640	17,800	4,230	11,100	2,580	2,500	4,430
15	1,690	3,080	3,080			4,640	16,900	4,430	12,800	2,910	2,420	5,990
16	1,760	3,080	2,420			4,640	10,300	3,640	9,500	2,580	2,110	7,450
17	1,830	3,640	2,420			4,030	9,240	3,640	13,600	2,420	1,970	6,950
18	2,110	3,640	2,740			4,030	7,950	3,450	14,200	2,260	2,040	6,950
19	2,110	3,640	2,740			4,430	8,200	3,450	12,500	2,260	2,110	5,520
20	2,260	3,080	3,640		6,950	5,990	7,950	2,910	14,200	2,110	1,970	5,840
21	2,420	2,740			6,230	6,710	7,950	3,080	13,300	2,110	1,970	6,150
22	1,830	2,740			5,750	9,770	7,700	2,580	11,700	2,420	2,480	6,470
23	1,970	2,740			4,230	10,000	5,290	2,580	8,720	3,260	3,000	8,460
24	1,970	2,910		3,000	5,070	10,800	6,710	2,260	6,710	2,420	3,520	9,040
25	1,970	2,740			6,950	11,100	6,470	2,740	2,910	2,420	4,030	9,630
26	2,110	2,580	3,800		25,800	10,800	5,070	2,420	4,430	2,580	3,600	10,200
27	2,110	2,580			19,400	8,720	6,230	2,580	3,640	2,420	3,170	10,800
28	2,740	2,740			13,600	7,200	6,470	2,260	4,430	2,580	2,740	9,770
29	2,580	3,080			-------	7,700	6,470	2,740	4,030	2,910	2,420	8,200
30	2,740	2,910			-------	7,700	6,310	2,580	4,030	2,910	1,970	7,450
31	2,580	-------			-------	6,950	-------	2,580	-------	2,910	1,620	-------

NOTE.—Stage-discharge relation affected by ice Dec. 21 to Feb. 19; discharge estimated from gage heights, weather records, and observer's notes. Gage not read; discharge interpolated Apr. 30, May 1, July 7, 8, Aug. 9, 12, 14, 18, 22–24, 26, 27, Sept. 20, 21, and 24–26. Braced figures show mean discharge for periods indicated.

Monthly discharge of Rock River at Lyndon, Ill., for the year ending September 30, 1926

[Drainage area, 9,010 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,740	1,310	1,890	0.210	0.24
November	3,640	2,110	2,760	.306	.34
December	-------	2,260	3,290	.365	.42
January	-------	-------	4,110	.456	.53
February	25,800	-------	7,770	.862	.90
March	20,400	4,030	7,850	.871	1.00
April	23,800	5,070	10,200	1.13	1.26
May	6,150	2,260	3,800	.422	.49
June	14,200	1,760	6,490	.720	.80
July	6,230	2,110	3,150	.350	.40
August	6,470	1,620	3,170	.352	.40
September	10,800	1,970	5,790	.643	.72
The year	25,800	1,310	4,980	.553	7.50

WHITEWATER CREEK NEAR WHITEWATER, WIS.

LOCATION.—In NW. ¼ sec. 26, T. 4 N., R. 15 E., at highway culvert 3,000 feet below Whitewater Lake, 4 miles south of Whitewater, Walworth County.

DRAINAGE AREA.—5.8 square miles (measured on topographic map).

RECORDS AVAILABLE.—March 17, 1926, to September 30, 1926.

GAGE.—Staff gage near right bank 15 feet above culvert; read by Jennie Nelson.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed at gage composed of sand and silt. The culvert, 4.2 feet wide, just below gage forms the principal control. Growth of grass in channel below gage affects stage-discharge relation during summer.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period March 17 to September 30, 1926, 1.45 feet April 9 (discharge, 12.8 second-feet); minimum stage, 0.80 foot July 20 and 21 (discharge, 2.4 second-feet).

ICE.—Stage-discharge relation not seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent except as affected by growth of grass in channel. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table except from June 1 to September 30 when shifting-control method was used on account of growth of grass in channel. Records fair.

Discharge measurements of Whitewater Creek near Whitewater, Wis., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Mar. 17	0.94	4.86	May 19	1.01	5.52	Aug. 24	[a] 0.94	4.13
Do	.97	5.41	May 26	.99	5.07	Sept. 8	[a] 1.04	4.30

[a] Stage-discharge relation affected by growth of grass in channel.

Daily discharge, in second-feet, of Whitewater Creek near Whitewater, Wis., for the year ending September 30, 1926

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1		4.2	5.2	3.7	3.2	5.2	2.8
2		5.5	5.5	3.4	6.1	5.5	2.8
3		6.5	5.2	3.2	7.2	5.5	2.8
4		6.6	5.2	3.1	6.9	5.5	2.9
5		5.8	4.5	3.0	6.1	5.2	3.7
6		5.5	4.2	3.0	5.0	4.7	4.3
7		6.9	4.1	2.8	5.0	4.2	4.0
8		11.9	4.0	3.0	4.5	4.0	3.6
9		12.8	4.0	2.8	4.2	3.7	4.2
10		12.8	3.4	2.7	3.7	3.7	3.7
11		11.0	3.4	6.3	3.5	3.7	3.5
12		9.2	3.2	6.1	3.0	4.0	3.0
13		8.2	4.0	6.1	3.0	4.0	3.0
14		6.8	4.5	5.9	3.0	3.7	3.1
15		6.8	4.2	5.9	2.8	3.7	3.7
16		5.9	4.0	5.8	2.6	3.5	3.6
17	4.2	5.5	3.8	6.3	2.6	3.2	3.5
18	9.4	5.2	3.8	6.1	2.6	3.2	3.5
19	11.0	5.1	5.2	5.2	2.6	3.2	3.5
20	10.1	5.0	5.0	4.5	2.4	4.5	3.5
21	11.9	4.8	5.0	4.5	2.4	4.2	3.2
22	10.1	4.7	4.2	3.7	2.6	4.0	3.2
23	10.1	4.3	4.1	3.5	2.6	4.0	4.0
24	10.1	5.8	4.0	3.5	2.6	3.7	11.0
25	9.2	8.7	5.5	2.8	4.0	3.5	10.1
26	7.5	8.1	5.2	2.8	3.7	3.2	9.4
27	6.6	7.5	5.0	2.7	3.7	3.0	8.7
28	6.1	6.6	4.2	2.7	3.5	2.8	8.1
29	5.5	6.2	4.2	3.0	3.5	2.8	7.5
30	5.0	5.5	4.7	3.0	3.5	2.8	6.9
31	4.2		4.5		5.0	2.7	

Monthly discharge of Whitewater Creek near Whitewater, Wis., for the year ending September 30, 1926

[Drainage area, 5.8 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
March 17-31	11.9	4.2	8.07	1.39	0.78
April	12.8	4.2	6.98	1.20	1.34
May	5.5	3.2	4.42	.762	.88
June	6.3	2.7	4.04	.697	.78
July	7.2	2.4	3.78	.652	.75
August	5.5	2.7	3.89	.671	.77
September	11.0	2.8	4.69	.809	.90
The period	12.8	2.4	4.88	.841	6.20

WHITEWATER CREEK AT WHITEWATER, WIS.

LOCATION.—In SW. ¼ sec. 10, T. 4 N., R. 15 E., at highway bridge 1 mile southeast of Whitewater, Walworth County, and 1.7 miles south of line between Jefferson and Walworth Counties.

DRAINAGE AREA.—16.8 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 29 to September 30, 1926.

GAGE.—Staff gage 10 feet above bridge.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Channel composed of earth and sand; probably permanent. Banks are seldom overflowed.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period June 29 to September 30, 1926, 1.86 feet September 25 (discharge, 52 second-feet); minimum stage, 0.98 foot June 29 and several times during July and August (discharge, 12 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurements were made:

August 24, 1926: Gage height, 1.01 feet; discharge, 14.2 second-feet.

September 8, 1926: Gage height, 1.14 feet; discharge, 16.5 second-feet.

Daily discharge, in second-feet, of Whitewater Creek at Whitewater, Wis., for the year ending September 30, 1926

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		14	17	13	16		12	13	15
2		22	17	13	17		12	13	14
3		38	16	13	18		12	13	14
4		38	15	13	19		12	12	14
5		26	15	13	20		12	12	14
6		25	14	19	21		12	16	14
7		20	14	15	22		14	14	14
8		17	14	16	23		13	14	14
9		15	14	16	24		12	14	36
10		15	14	14	25		14	14	52
11		14	14	14	26		14	14	33
12		13	13	14	27		14	14	26
13		13	13	14	28		13	13	24
14		13	13	14	29	12	14	13	22
15		12	12	15	30	14	14	13	19
					31		14	13	

Monthly discharge of Whitewater Creek at Whitewater, Wis., for the year ending September 30, 1926

[Drainage area, 16.8 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
July	38	12	16.2	0.964	1.11
August	17	12	13.9	.827	.95
September	52	13	18.0	1.07	1.19
The period	52	12	16.0	.952	3.25

PECATONICA RIVER AT FREEPORT, ILL.

LOCATION.—In sec. 32, T. 27 N., R. 8 E., at highway bridge on Hancock Avenue, Freeport, Stephenson County, 2 miles above mouth of Yellow Creek.

DRAINAGE AREA.—1,330 square miles.

RECORDS AVAILABLE.—September 11, 1914, to September 30, 1926.

GAGE.—Chain gage attached to upstream side of bridge; read by W. C. Krueger. Zero of gage is 739.52 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand and silt; somewhat shifting. Left bank of only medium height and at stages above about 17 feet part of flow passes over left bank and through East Freeport.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.09 feet at 5 p. m. June 14 (discharge, 4,040 second-feet); minimum stage, 3.73 feet at 5 p. m. October 17 (discharge, 305 second-feet).

1914–1926: Maximum stage recorded, 19.4 feet March 28, 1916 (discharge 17,000 second-feet); minimum discharge, 200 second-feet December 14, 1917.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—A dam and power plant three-fourths mile upstream regulates flow past gage. Only slight diurnal fluctuation is noticeable.

ACCURACY.—Stage-discharge relation for high stages changed materially during May. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating tables. Records good during open-water periods except for highest stages, for which they are fair; poor for period of ice effect.

The following discharge measurements were made:

June 8, 1926: Gage height, 4.17 feet; discharge, 381 second-feet.

June 15, 1926: Gage height, 14.86 feet; discharge, 3,830 second-feet.

Daily discharge, in second-feet, of Pecatonica River at Freeport, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	576	456	351			2,910	515	773	683	576	1,660	456
2	515	456	351			3,150	535	727	597	727	1,220	495
3	576	475	401			2,850	555	618	535	1,690	990	515
4	555	495	419			2,520	705	597	456	1,990	799	495
5	495	495	940			1,700	843	576	419	1,300	661	661
6	475	495	843	800		1,280	1,020	555	401	1,090	495	893
7	437	515	683		1,150	1,090	1,200	515	384	1,040	456	845
8	401	535	618			990	2,360	515	384	822	515	869
9	384	535	618			1,090	3,910	495	351	576	535	941
10	384	515	796			1,310	4,000	475	351	555	515	1,170
11	384	456	661			1,490	2,650	456	1,690	576	495	941
12	384	576	535			1,400	1,490	437	3,740	555	495	705
13	456	576	555		555	1,220	1,060	437	3,810	535	495	661
14	419	495	419		618	1,060	940	495	4,040	495	475	661
15	419	495	437		915	750	796	515	3,810	495	495	869
16	335	475	475		1,020	597	683	535	2,920	495	475	845
17	305	456	475		819	597	705	495	3,010	495	456	750
18	367	419	456		796	1,280	750	475	2,830	495	456	727
19	419	437	456		750	1,850	683	495	1,720	437	456	727
20	384	456	456		618	2,800	661	495	1,090	437	437	822
21	367	419	456	440	597	3,150	639	456	917	437	456	893
22	401	419	437		515	3,150	597	456	822	639	727	869
23	419	419	437		535	1,880	597	456	750	705	750	941
24	401	384	419		535	1,250	639	456	705	535	683	1,120
25	384	367	401		618	891	705	475	683	515	618	1,380
26	401	401	419		867	819	750	419	683	475	495	1,300
27	437	419			940	750	1,090	419	683	437	456	1,120
28	535	515			940	683	1,040	401	618	437	437	893
29	535	351	365		------	661	915	893	576	419	437	822
30	495	419			------	597	867	893	535	1,300	419	773
31	437	------			------	535	------	799	------	1,960	401	------

NOTE.—Stage-discharge relation affected by ice Dec. 7 and Dec. 27 to Feb. 12; discharge estimated from gage-height record, observer's notes, and climatic record. Braced figures show mean discharge for periods indicated.

Monthly discharge of Pecatonica River at Freeport, Ill., for the year ending September 30, 1926

[Drainage area, 1,330 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	576	305	435	0.327	0.38
November	576	351	464	.349	.39
December	941	------	495	.372	.43
January	------	------	556	.418	.48
February	------	515	908	.683	.71
March	3,150	535	1,490	1.12	1.29
April	4,000	515	1,130	.850	.95
May	893	401	542	.408	.47
June	4,040	351	1,340	1.01	1.13
July	1,990	419	750	.564	.65
August	1,660	401	595	.447	.52
September	1,380	456	839	.631	.70
The year	4,040	305	793	.596	8.10

SUGAR RIVER NEAR BRODHEAD, WIS.

LOCATION.—In sec. 26, T. 2 N., R. 9 E., at highway bridge 2 miles southwest of Brodhead, Green County, 2 miles above Jordan Creek, 4 miles below Little Jordan Creek, and 12 miles above Illinois State line.

DRAINAGE AREA.—529 square miles (measured on map issued by Wisconsin Geological and Natural History Survey, edition of 1911).

RECORDS AVAILABLE.—February 7, 1914, to September 30, 1926.

GAGE.—Chain gage attached to upstream side of bridge; read by Arthur Christenson.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; not permanent. Control poorly defined. Right bank of medium height and is seldom overflowed; left bank at gage overflowed at stage of 6.8 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.3 feet at 6 p. m. March 20 (discharge, 2,140 second-feet); minimum stage, 0.62 foot at 6 p. m. August 27 (discharge, 65 second-feet).

1914–1926: Maximum stage recorded, 11.4 feet September 13, 1915 (discharge, about 13,000 second-feet); minimum discharge, about 47 second-feet August 26, 1923.

REGULATION.—A power plant at Brodhead 2 miles above station causes slight fluctuation of stage during low water, but the pondage is small and it is believed that the monthly discharge represents the natural flow quite accurately. The difference between morning and evening gage readings is seldom more than 0.2 foot. There are two power plants farther upstream but they probably have no effect on the discharge at the gage.

ACCURACY.—Stage-discharge relation practically permanent during year. Rating curve well defined. Gage read to quarter-tenths twice daily. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Records fair.

The following discharge measurements were made:

January 19, 1926: Gage height, 2.07 feet; discharge, 198 second-feet (stage-discharge relation affected by ice).

May 8, 1926: Gage height, 1.63 feet; discharge, 270 second-feet.

September 11, 1926: Gage height, 1.41 feet; discharge, 226 second-feet.

Daily discharge, in second-feet, of Sugar River near Brodhead, Wis., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	154	176	165	165	550	682	235	262	248	198	187	165
2	235	187	176	155	680	637	277	262	222	187	198	135
3	358	210	187	210	730	593	277	292	176	324	176	95
4	125	187	235	210	730	637	262	277	198	470	165	165
5	176	187	308	275	550	470	341	292	248	394	165	176
6	277	198	358	375	375	308	412	292	139	292	165	248
7	262	262	360	490	235	222	431	235	176	198	135	198
8	210	187	358	510	220	292	637	262	135	222	113	235
9	165	210	324	360	277	262	1,020	165	187	262	143	235
10	187	210	292	375	277	376	970	277	165	198	139	235
11	143	235	248	210	262	510	775	277	210	143	187	222
12	165	262	235	210	248	450	510	262	530	154	139	139
13	176	248	154	185	262	324	412	222	551	176	154	154
14	210	210	210	260	260	248	376	235	728	165	143	154
15	210	187	176	210	260	292	358	235	775	154	102	176
16	210	210	176	185	260	262	358	210	637	143	139	210
17	187	210	187	235	260	222	324	210	510	154	143	176
18	154	198	210	210	262	593	277	235	394	143	139	165
19	222	198	198	200	235	1,220	277	222	358	165	154	133
20	210	198	165	143	198	2,000	248	235	324	154	176	198

Daily discharge, in second-feet, of Sugar River near Brodhead, Wis., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	135	187	210	135	198	1,870	262	262	235	123	131	165
22	187	143	210	235	277	1,170	248	277	210	154	81	187
23	165	165	210	260	248	775	235	133	187	139	187	210
24	187	125	210	185	235	728	292	262	210	143	165	292
25	125	125	135	185	235	510	324	187	210	114	187	376
26	222	109	260	165	248	412	450	198	187	176	187	431
27	235	187	235	135	277	341	358	198	143	210	133	376
28	262	176	250	175	248	324	324	187	165	154	114	235
29	235	125	220	175	-------	324	324	210	165	143	82	187
30	222	176	175	155	-------	292	277	262	154	187	198	198
31	176	-------	175	235	-------	292	-------	262	-------	165	143	-------

NOTE.—Stage-discharge relation affected by ice Dec. 22 to Feb. 8 and Feb. 14–17; discharge based on gage heights corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Sugar River near Brodhead, Wis., for the year ending September 30, 1926

[Drainage area, 529 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	358	125	200	0.378	0.44
November	262	109	190	.359	.40
December	360	135	226	.427	.49
January	510	135	233	.440	.51
February	730	198	325	.614	.64
March	2,000	222	569	1.08	1.24
April	1,020	235	396	.749	.84
May	292	133	239	.452	.52
June	775	135	293	.554	.62
July	470	114	194	.367	.42
August	198	81	151	.285	.33
September	431	95	209	.395	.44
The year	2,000	81	268	.507	6.89

SOUTH BRANCH OF KISHWAUKEE RIVER AT DE KALB, ILL.

LOCATION.—In sec. 22, T. 40 N., R. 4 E., at Lincoln Highway bridge in De Kalb, De Kalb County.

DRAINAGE AREA.—70 square miles (measured on base map of Illinois).

RECORDS AVAILABLE.—July 17, 1925, to September 30, 1926.

GAGE.—Chain gage on downstream handrail of bridge; read by Robert Russel to December 31, thereafter by Charles Corey.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of earth and gravel; fairly permanent. Banks wooded. Low-water control fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.30 feet at 5 p. m. February 25 (discharge, estimated owing to backwater from ice, 676 second-feet); minimum stage, 0.50 foot October 5 (discharge, 0.1 second-foot).

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined. Gage read to hundredths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Records good, except for ice periods, for which they are poor.

The following discharge measurements were made:
March 18, 1926: Gage height, 1.57 feet; discharge, 34.5 second-feet.
April 12, 1926: Gage height, 3.94 feet; discharge, 226 second-feet.
June 9, 1926: Gage height, 0.78 foot; discharge, 1.73 second-feet.

Daily discharge, in second-feet, of South Branch of Kishwaukee River at De Kalb, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.4	1.7	0.2	54	464	7.9	27	7.2	15	30	9.1
2	.6	.3	1.7	.2	26	255	7.2	25	6.0	17	30	8.3
3	.1	.4	2.0	1.3	19	210	9.5	28	4.8	45	28	14
4	.1	1.4	7.9	6.6	20	116	18	22	2.6	79	23	14
5	.1	.4	10	72	19	93	34	21	2.6	54	14	16
6	.2	.3	13	33	13	82	69	19	2.6	38	12	19
7	.3	.7	17	29	11	72	190	18	2.6	26	9.9	19
8	.2	.9	13	15	9.5	54	279	17	2.0	24	8.3	17
9	.2	1.2	12	7.9	7.5	25	408	15	1.7	20	6.9	20
10	.2	2.3	8.7	5.4	6.6	33	380	14	1.4	17	6.9	17
11	.1	3.0	9.5	3.8	4.5	26	291	13	354	15	6.3	13
12	.1	4.3	8.7	4.3	3.4	32	210	9.5	538	13	7.5	13
13	.1	8.7	7.5	2.1	2.6	21	170	13	408	11	6.9	11
14	.1	19	5.4	2.0	2.5	16	142	9.5	267	9.1	5.7	14
15	.1	15	4.8	1.8	2.1	11	116	8.7	190	8.3	4.5	151
16	.1	14	3.8	2.3	2.0	11	100	10	142	6.9	4.0	170
17	.2	11	3.2	14	4.3	13	79	7.9	341	6.3	3.6	124
18	.2	9.5	2.6	25	422	41	69	8.7	210	5.7	2.8	86
19	.1	7.2	2.3	48	255	60	66	11	151	5.1	2.8	66
20	.1	5.4	1.3	27	170	51	66	10	108	4.0	108	54
21	.2	3.8	.9	24	116	40	60	9.5	90	3.2	142	45
22	.2	3.0	.8	16	76	38	48	9.5	79	6.3	69	82
23	.2	2.0	.7	9.5	72	38	54	8.7	60	6.3	48	160
24	.3	2.5	.6	5.7	93	42	54	7.2	48	5.7	38	380
25	.5	3.4	.4	5.1	613	36	60	7.2	38	5.1	29	380
26	.6	2.6	.3	4.5	394	33	48	7.2	32	4.5	29	279
27	.2	2.5	.3	3.8	267	26	48	7.2	29	3.6	26	221
28	.2	2.0	.2	2.8	354	20	54	6.0	23	3.2	16	180
29	.2	1.8	.2	1.7	-------	28	30	5.4	21	3.2	9.9	151
30	.6	1.7	.2	15	-------	14	29	7.9	18	6.3	9.1	142
31	.4	-------	.2	86	-------	3.8	-------	7.2	-------	15	8.3	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Jan. 19, Jan. 22 to 31, and Feb. 9 to Mar. 10, discharge estimated from gage heights, weather records, and observer's notes.

Monthly discharge of South Branch of Kishwaukee River at De Kalb, Ill., for the year ending September 30, 1926

[Drainage area, 70 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	0.6	0.1	0.229	0.003	0.00
November	19	.3	4.36	.062	.07
December	17	.2	4.55	.065	.07
January	86	.2	15.3	.219	.25
February	613	2.0	109	1.56	1.62
March	464	3.8	64.7	.924	1.07
April	408	7.2	107	1.53	1.71
May	28	5.4	12.6	.180	.21
June	538	1.4	106	1.51	1.68
July	79	3.2	15.5	.221	.25
August	142	2.8	24.0	.343	.40
September	380	8.3	95.8	1.37	1.53
The year	613	.1	45.7	.653	8.86

IOWA RIVER AT MARSHALLTOWN, IOWA

LOCATION.—In sec. 23, T. 84 N., R. 18 W., at Third Avenue Bridge, 1 mile north of Marshalltown, Marshall County. Asher Creek, 1 mile above station, and Burnett Creek, 1 mile below, enter from left.

DRAINAGE AREA.—1,380 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—May 21, 1915, to September 30, 1926. February 23, 1903, to August 8, 1903, at old dam site 1 mile above present station.

GAGE.—Chain gage attached to downstream handrail of bridge, 60 feet from right pier; read by B. S. Beehrle.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Gravel bar forms control at extremely low water. Bottom composed of mud and sand, subject to change. Banks subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.4 feet at 11.30 p. m. September 19 (discharge, 8,500 second-feet); minimum stage, 1.12 feet at 6.10 p. m. July 31 (discharge, 44 second-feet).

1915–1926: Maximum stage recorded, 17.74 feet, June 4, 1918 (discharge, 42,000 second-feet); minimum discharge, about 2 second-feet, November 24, 1917.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Operation of a power plant at Eldora causes slight diurnal fluctuation during low water.

ACCURACY.—Stage-discharge relation changed several times during year. Rating curves fairly well defined throughout. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Iowa River at Marshalltown, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 5	2.05	193	Sept. 3	2.56	253
May 25	1.80	131	Sept. 27	5.08	1,240
July 24	1.09	40.4			

Daily discharge, in second-feet, of Iowa River at Marshalltown, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,860	255	145		1,480	145	200	1,120	97	71	1,140
2	2,280	230	218		1,530	135	177	1,170	103	77	840
3	2,590	218	255		1,530	166	166	1,210	510	72	270
4	3,840	205	255		1,480	238	155	1,170	439	66	255
5	3,240	218	242		1,440	266	177	1,170	422	61	228
6	3,360	218	242		1,440	295	166	1,040	252	55	215
7	2,280	155	255		1,440	326	145	1,040	155	50	202
8	2,280	145	242		1,480	341	166	994	131	46	2,340
9	2,180	205	230		1,480	356	155	951	117	45	2,080
10	1,370	300	205		1,530	388	145	951	104	48	2,040
11	1,240	330	218		1,800	295	135	703	97	51	1,980
12	1,190	345	242		1,750	295	130	474	91	55	1,980
13	1,100	362	264		1,710	266	122	585	86	61	1,940
14	1,010	330	285	341	1,620	252	114	703	80	59	1,500
15	800	345		356	1,570	238	103	867	75	53	1,450

Daily discharge, in second-feet, of Iowa River at Marshalltown, Iowa, for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	680	362		388	1,570	225	109	951	70	168	1,180
17	640	398		405	1,440	166	122	825	67	255	825
18	600	380		422	1,260	177	135	238	61	285	665
19	560	362		439	1,210	200	145	177	60	315	5,970
20	432	345		474	1,120	225	155	166	63	315	5,470
21	380	315		663	1,080	238	177	177	67	315	2,480
22	380	285		703	1,040	238	212	200	72	285	2,180
23	362	255		743	994	238	166	155	68	255	2,140
24	345	242		783	951	252	135	188	63	242	2,080
25	345	230		867	909	252	135	212	60	230	2,140
26	362	218		1,120	585	252	177	166	55	218	2,080
27	362	135		1,440	585	252	510	155	53	192	1,740
28	330	109		1,390	547	252	703	133	47	145	1,450
29	330	119			474	225	994	117	53	135	1,360
30	300	135			439	225	1,080	104	55	123	1,220
31	270				155		1,120		47	125	

NOTE.—No record Dec. 15 to Feb. 13.

Monthly discharge of Iowa River at Marshalltown, Iowa, for the year ending September 30, 1926

[Drainage area, 1,380 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,840	270	1,200	0.870	1.00
November	398	109	258	.187	.21
December 1-14	285	145	236	.171	.09
February 14-28	1,440	341	702	.509	.28
March	1,800	155	1,210	.877	1.01
April	388	135	247	.179	.20
May	1,120	103	269	.195	.22
June	1,210	104	604	.438	.49
July	510	47	120	.087	.10
August	315	45	144	.104	.12
September	5,970	202	1,710	1.24	1.38

IOWA RIVER AT IOWA CITY, IOWA

LOCATION.—In sec. 15, T. 79 N., R. 6 W., 200 feet below highway bridge in Iowa City, Johnson County, and 100 feet below Iowa State University hydraulic laboratory.

DRAINAGE AREA.—3,140 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—November 19, 1921, to September 30, 1926, at present site; from October 30, 1913, to November 18, 1921, at highway bridge 500 feet below Chicago, Rock Island & Pacific Railroad; June 1, 1903, to July 21, 1906, at highway bridge 200 feet upstream from present site.

GAGE.—Gurley 7-day water-stage recorder; inspected by Floyd A. Nagler.

DISCHARGE MEASUREMENTS.—Made from cable 75 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand. Control at Chicago, Rock Island & Pacific Railroad bridge is fairly well defined. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.05 feet at 4 p. m. September 23 (discharge, 17,800 second-feet); minimum stage, 0.18 foot at 8 p. m. July 27 (discharge, 45 second-feet).

1903–1906; 1913–1926; Maximum stage recorded, 19.45 feet June 7, 1918 (discharge, 36,200 second-feet); minimum discharge, practically no flow at 5 p. m. September 3, 1925, owing to operation of power plant.

REGULATION.—Considerable diurnal fluctuation occurs at low stages, owing to operation of power plant above station.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation changed slightly during high-water in September. Rating curves used before and after the change well defined. Operation of water-stage recorder satisfactory. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records excellent.

Discharge measurements of Iowa River at Iowa City, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
July 28	0.63	200	Sept. 25	13.82	14,600	Sept. 29	7.98	5,540
Sept. 20	7.71	5,380	Sept. 27	10.48	8,730	Sept. 30	6.71	4,070
Sept. 23	15.03	17,900	Sept. 28	9.18	6,980			

NOTE.—Except for July 28 measurements made by students of hydraulics of the University of Iowa under supervision of Prof. F. A. Nagler.

Daily discharge, in second-feet, of Iowa River at Iowa City, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	474	592	394	374	1,060	2,490	1,020	706	575	362	1,200	1,490
2	766	555	426	281	1,580	2,330	915	574	805	350	1,300	502
3	2,030	648	486	419	2,350	1,750	840	632	813	629	790	758
4	2,410	620	598	836	2,290	1,360	915	518	789	322	620	1,580
5	3,160	661	388	1,490	2,140	1,270	1,140	642	692	447	470	1,750
6	3,060	672	333	929	1,860	1,160	1,540	494	598	815	390	2,260
7	2,860	665	225	798	1,530	1,190	1,680	562	544	715	322	2,100
8	2,860	665	322	841	1,360	998	1,640	477	534	522	302	2,490
9	2,860	665	458	924	1,390	740	1,680	502	502	486	430	2,490
10	2,670	690	526	884	1,380	942	1,580	522	482	664	450	3,260
11	2,260	790	526	802	1,290	1,110	1,420	454	481	350	334	3,800
12	1,890	733	557	788	1,190	1,720	1,270	482	1,430	310	1,710	4,020
13	1,640	765	498	765	1,180	2,100	1,160	418	1,050	322	1,880	3,690
14	1,450	794	526	683	1,130	2,030	1,080	418	1,420	290	890	2,670
15	1,330	722	575	572	1,140	1,640	970	422	1,360	274	598	2,580
16	1,240	694	530	542	1,120	1,680	970	434	1,510	242	526	2,260
17	1,160	676	514	555	1,130	1,820	890	414	1,360	246	486	2,410
18	1,080	642	487	538	1,650	2,030	815	382	1,020	226	438	2,180
19	970	620	491	568	1,470	1,640	790	426	840	196	422	4,490
20	890	598	478	590	1,200	1,420	774	410	715	210	530	5,310
21	865	633	470	651	1,540	1,390	730	386	642	203	470	5,080
22	815	516	534	678	1,610	1,330	720	386	620	203	466	10,900
23	765	526	508	665	1,540	1,330	726	398	530	173	913	17,400
24	740	552	436	616	1,450	1,360	890	370	514	172	724	16,800
25	715	518	453	534	1,610	1,390	890	418	522	163	570	14,400
26	740	510	470	478	2,180	1,360	815	430	454	175	518	11,500
27	713	460	534	478	2,260	1,270	840	338	406	111	430	9,120
28	632	339	440	482	2,260	1,190	746	322	390	213	346	7,290
29	591	326	407	428	-------	1,140	684	366	402	379	338	5,670
30	572	294	374	419	-------	1,110	717	370	410	670	302	4,220
31	553	-------	390	924	-------	942	-------	382	-------	921	286	------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 20; discharge obtained from records at University of Iowa dam, 300 feet above station.

Monthly discharge of Iowa River at Iowa City, Iowa, for the year ending September 30, 1926

[Drainage area, 3,140 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,160	474	1,490	0.474	0.55
November	794	294	605	.192	.21
December	598	225	463	.147	.17
January	1,490	281	662	.211	.24
February	2,350	1,060	1,570	.500	.52
March	2,490	740	1,460	.464	.53
April	1,680	684	1,030	.327	.36
May	706	322	453	.144	.17
June	1,510	390	747	.238	.27
July	921	111	366	.117	.13
August	1,880	286	627	.199	.23
September	17,400	502	5,150	1.64	1.83
The year	17,400	111	1,210	.385	5.21

IOWA RIVER AT WAPELLO, IOWA

LOCATION.—In sec. 27, T. 74 N., R. 3 W., at highway bridge half a mile from railroad station at Wapello, Louisa County, and 20 miles above mouth of river. No important tributaries enter near station.

DRAINAGE AREA.—12,480 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—February 26, 1915, to September 30, 1926.

GAGE.—Chain gage attached near center of first span from right abutment; read by C. W. Warren.

DISCHARGE MEASUREMENTS.—Made from bridge at which gage is attached.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; subject to shift. Right bank high and will not be overflowed; levee along left bank, which broke during the flood of June, 1918.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.8 feet at noon September 25 (discharge, 43,500 second-feet); minimum stage recorded, —0.20 foot July 25–28 (discharge, 1,090 second-feet).

1915–1926: Maximum stage recorded, 14.94 feet at 6 p. m. June 8, 1918 (discharge, 63,100 second-feet); minimum discharge, about 400 second-feet December 15–17, 1916.

The flood of June, 1892, was probably much higher than the flood of 1918.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation probably fairly permanent during the year. Rating curve fairly well defined. Gage read to half-tenths once daily. Daily discharge for open-water periods obtained by applying daily gage height to rating table. Records poor.

The following discharge measurement was made:

August 28, 1926: Gage height, 1.31 feet; discharge, 2,980 second-feet.

Daily discharge, in second-feet, of Iowa River at Wapello, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,240	2,230	1,800	2,200	4,220	8,270	4,780	3,510	2,680	2,080	4,590	5,820
2	2,530	2,080	1,800	2,200	6,740	8,000	4,590	3,340	2,530	1,940	6,740	13,900
3	2,680	2,680	1,800	2,600	8,270	6,980	4,400	3,000	2,380	1,940	6,500	9,100
4	5,600	2,680	2,680	3,800	9,980	6,740	4,400	3,000	2,380	3,170	4,400	7,480
5	6,500	2,530	2,840	6,270	9,390	6,500	4,590	2,840	2,230	2,380	3,510	8,270
6	8,000	3,000	3,340	9,980	8,540	5,600	5,820	2,840	2,080	2,380	2,840	9,980
7	8,270	3,170	3,000	11,500	8,000	5,180	6,980	2,680	1,800	2,680	2,530	10,300
8	8,000	3,340	2,840	8,270	7,740	4,980	7,480	2,680	1,800	2,840	2,080	10,300
9	8,000	3,510	2,680	6,040	6,980	5,600	8,540	2,530	1,800	2,530	2,080	13,600
10	7,480	3,340	2,680	5,200	6,740	7,480	8,270	2,680	1,670	2,080	2,680	13,600
11	6,980	3,340	2,380	4,400	6,980	5,600	8,000	2,680	1,600	2,840	2,380	12,500
12	6,740	3,170	2,680	3,800	6,500	4,400	6,740	2,230	6,270	2,230	2,080	10,900
13	5,600	3,680	2,600	3,300	6,040	5,180	5,820	2,230	9,390	2,080	5,390	9,680
14	5,180	3,680	2,600	3,000	5,180	5,820	5,390	2,080	9,980	1,800	6,500	10,300
15	4,780	3,510	2,600	2,800	4,590	6,040	5,180	2,080	9,100	1,600	6,040	17,600
16	4,400	3,510	2,600		4,780	5,600	4,980	2,080	6,980	1,480	6,040	14,200
17	4,400	3,340	2,400		4,980	5,600	4,590	2,080	12,900	1,420	4,780	10,900
18	4,220	2,840	2,380		4,980	6,040	4,400	2,080	8,000	1,360	4,040	9,100
19	4,040	2,840	2,380		9,100	6,270	4,040	2,080	6,040	1,360	3,340	9,680
20	4,040	2,680		2,400	6,980	6,040	4,040	2,080	4,590	1,300	5,600	18,500
21	4,040	2,680	2,400		6,040	6,040	3,680	2,230	4,400	1,190	7,740	22,400
22	3,510	2,380			7,230	5,600	3,510	2,080	3,510	1,190	4,780	24,200
23	3,000	2,380			6,500	5,600	3,510	2,080	3,340	1,240	3,680	26,900
24	3,000	2,380			6,040	5,600	3,510	2,080	2,840	1,240	4,400	35,200
25	3,000	2,380			5,820	6,980	3,510	2,080	2,680	1,090	4,590	43,500
26	2,840	2,230			7,740	7,480	4,040	2,080	2,530	1,090	3,860	38,500
27	2,840	2,230	2,200	2,200	8,820	7,480	4,040	3,510	2,380	1,090	3,340	33,200
28	2,680	2,230			8,540	6,500	3,680	3,000	2,230	1,090	2,840	30,200
29	2,680	2,080			-------	6,040	3,680	2,680	2,080	1,140	2,680	21,000
30	2,680	1,940			-------	5,600	3,510	2,680	2,080	2,380	2,680	18,000
31	2,380	-------		2,600	-------	5,180	-------	2,840	-------	3,340	3,000	-------

NOTE.—Stage-discharge relation affected by ice Dec. 13 to Jan. 4 and Jan. 10–31; discharge estimated from a study of gage heights, weather records, observer's notes, and discharge at Cedar Rapids and Iowa City. Braced figures show mean discharge for periods indicated.

Monthly discharge of Iowa River at Wapello, Iowa, for the year ending September 30, 1926

[Drainage area, 12,480 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	8,270	1,240	4,560	0.365	0.42
November	3,680	1,940	2,800	.224	.25
December	3,340	----------	2,430	.195	.22
January	11,500	----------	3,640	.292	.34
February	9,980	4,220	6,910	.554	.58
March	8,270	4,400	6,130	.491	.57
April	8,540	3,510	4,990	.400	.45
May	3,510	2,080	2,520	.202	.23
June	12,900	1,600	4,140	.332	.37
July	3,340	1,090	1,850	.148	.17
August	7,740	2,080	4,120	.330	.38
September	43,500	5,820	17,300	1.39	1.55
The year	43,500	1,090	5,080	.407	5.53

CEDAR RIVER AT JANESVILLE, IOWA

LOCATION.—In sec. 35, T. 91 N., R. 14 W., at highway bridge in Janesville, Bremer County, and 3 miles above junction with Shellrock River.

DRAINAGE AREA.—1,660 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—April 26, 1905, to September 30, 1906; May 28, 1915, to September 30, 1926.

GAGE.—Chain gage attached to downstream handrail of middle span of highway bridge; read by Mrs. Emma Cameron until December 5, 1925, and by G. V. Erbes after that date.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. The remains of an old milldam forms control; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.5 feet at 7.30 a. m. March 22 (discharge, 4,400 second-feet); minimum stage, 1.30 feet at 7 p. m. July 19 (discharge, 47 second-feet.)

1905–1906; 1915–1926: Maximum discharge, about 27,000 second-feet May 29, 1921; minimum discharge, 28 second-feet October 21, 1922.

ICE.—Stage-discharge relation seriously affected by ice; observation discontinued during winter.

REGULATION.—There is slight diurnal fluctuation of stage during low-water periods, owing to operation of power plant at Waverly, 9 miles above station.

ACCURACY.—Stage-discharge relation practically permanent except probably during later part of September. Rating curve well defined between 100 and 5,000 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table; shifting-control method used September 22–30. Records fair.

The following discharge measurements were made:

April 29, 1926: Gage height, 2.08 feet; discharge, 403 second-feet.

July 6, 1926: Gage height, 1.58 feet; discharge, 144 second-feet.

July 30, 1926: Gage height, 1.90 feet; discharge, 306 second-feet.

Daily discharge, in second-feet, of Cedar River at Janesville, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	560	124	240	-------	525	384	270	240	360	200
2	390	88	190	-------	490	490	288	560	288	205
3	414	145	215	-------	490	336	190	560	258	186
4	354	168	270	-------	490	348	200	420	288	195
5	360	72	240	1,810	342	324	176	168	240	210
6	455	103	-------	1,590	420	312	220	137	220	195
7	360	124	-------	880	408	246	163	190	200	215
8	240	103	-------	1,210	396	252	163	176	158	360
9	215	124	-------	1,480	372	318	186	168	154	258
10	190	168	-------	1,480	348	200	230	195	163	205
11	168	168	-------	1,370	384	300	240	137	200	158
12	145	145	-------	970	288	264	2,400	137	288	195
13	124	124	-------	1,260	288	252	630	186	294	141
14	103	145	-------	1,480	324	330	312	181	186	168
15	100	190	-------	1,260	348	276	384	172	210	176
16	72	235	-------	1,110	264	252	324	168	163	190
17	88	190	-------	880	324	230	294	150	154	168
18	141	168	-------	750	348	288	230	128	158	181
19	145	145	-------	835	312	330	230	94	172	490
20	186	168	-------	1,370	330	215	195	120	276	414
21	145	215	-------	3,060	324	210	154	137	384	670
22	145	235	-------	4,240	354	181	220	128	408	1,260
23	168	240	-------	2,790	348	288	372	120	276	1,110
24	186	215	-------	1,590	408	215	240	145	158	1,110
25	190	190	-------	1,370	560	1,110	276	116	186	835
26	186	270	-------	1,060	348	490	264	137	154	670
27	145	240	-------	970	490	264	200	163	158	560
28	186	235	-------	925	490	252	120	163	150	342
29	190	240	-------	750	408	312	172	300	172	342
30	168	240	-------	595	384	360	264	360	141	360
31	215	-------	-------	670	-------	220	-------	372	168	-------

NOTE.—Discharge estimated Nov. 29 and 30. No record Dec. 6 to Mar. 4,

Monthly discharge of Cedar River at Janesville, Iowa, for the year ending September 30, 1926

[Drainage area, 1,660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	560	72	217	0.131	0.15
November	270	72	174	.105	.12
March 5-31	4,240	595	1,400	.843	.85
April	560	264	387	.233	.26
May	1,110	181	318	.192	.22
June	2,400	120	320	.193	.22
July	560	94	207	.125	.14
August	408	141	219	.132	.15
September	1,260	141	392	.236	.26

CEDAR RIVER AT CEDAR RAPIDS, IOWA

LOCATION.—In sec. 28, T. 83 N., R. 7 W., in central part of Cedar Rapids, Linn County, 1,000 feet above Eighth Avenue Bridge, and half a mile below dam.

DRAINAGE AREA.—6,640 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—February 14, 1903, to September 30, 1926.

GAGE.—Gurley water-stage recorder; inspected by R. S. Toogood. Elevation of zero of gage from Northwestern Railroad levels, 723.03 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from upstream side of Eighth Avenue Bridge.

CHANNEL AND CONTROL.—Bed composed of rock and gravel, free from vegetation, and practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.7 feet at 4.15 a. m. September 21 (discharge, 11,500 second-feet); minimum stage, 2.48 feet at 3 p. m. January 16 (discharge, 514 second-feet).

1903–1926: Maximum stage recorded, 17.2 feet April 1, 1912, and March 26, 1917 (discharge, 54,100 second-feet); minimum discharge, 190 second-feet September 9, 1921.

Greatest known flood probably occurred in June, 1851, when the maximum stage was about 20 feet (discharge about 65,000 second-feet).

ICE.—Stage-discharge relation affected by ice during extremely cold weather. The swift current and proximity to power plant keeps the river open at other times.

REGULATION.—Power plant half a mile above gage causes marked diurnal fluctuation during all periods of low water.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined above 800 second-feet. Operation of water-stage recorder fairly satisfactory. Daily discharge for open-water periods ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good, except at extremely low stages and for periods when stage-discharge relation was affected by ice, for which they are fair.

The following discharge measurements were made:

May 4, 1926: Gage height, 3.38 feet; discharge, 1,620 second-feet.

July 29, 1926: Gage height, 2.81 feet; discharge, 890 second-feet.

Daily discharge, in second-feet, of Cedar River at Cedar Rapids, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,340	1,370	1,000	800	3,370	3,870	2,420	1,810	1,500	914	3,870	963
2	1,560	1,420	1,100	1,100	3,040	4,020	2,370	1,850	1,470	914	2,130	938
2	2,830	1,370	1,200	1,680	2,960	3,590	2,370	1,810	1,220	1,320	1,700	1,080
4	4,160	1,480	1,300	1,680	3,230	2,390	2,530	1,790	1,250	1,360	1,530	1,050
5	4,450	1,500	1,100	2,060	3,040	2,810	2,600	1,770	1,300	1,700	1,370	1,370
6	4,450	1,580	926	1,870	2,510	3,310	2,580	1,740	1,120	1,790	1,260	1,430
7	4,600	1,620	670	1,900	2,370	2,990	2,440	1,630	1,110	1,530	1,180	1,340
8	3,870	1,560	620	1,600	2,350	2,350	2,240	1,770	1,080	1,260	1,110	2,720
9	3,280	1,510	842	1,550	2,350	2,080	2,300	1,620	1,030	1,260	1,090	2,990
10	2,810	1,500	950	1,500	2,250	2,240	2,240	1,550	1,020	1,250	1,070	2,210
11	2,560	1,470	1,050	1,400	2,150	2,910	2,280	1,510	1,090	1,220	1,040	1,940
12	2,300	1,470	1,100	1,300	2,100	3,370	2,150	1,500	1,080	1,160	1,360	2,040
13	2,040	1,510	1,000	1,200	2,000	4,020	2,080	1,420	1,140	1,090	1,530	2,080
14	2,040	1,530	950	1,150	1,950	3,870	2,000	1,310	2,420	950	1,620	1,880
15	1,900	1,450	900		1,900	3,530	1,850	1,500	3,420	950	1,390	1,940
16	1,880	1,400	900		1,800	3,650	1,870	1,180	2,420	914	1,260	2,190
17	1,620	1,400	900	1,100	1,770	3,650	1,720	1,400	2,000	914	1,080	2,040
18	1,630	1,500	1,000		2,080	3,590	1,770	1,180	1,680	914	1,250	1,880
19	1,650	1,550	950		1,620	4,300	1,830	1,180	1,530	902	1,160	5,450
20	1,560	1,600	1,100		1,810	3,260	1,720	1,180	1,240	797	1,040	8,470
21	1,500	1,500	1,000		1,920	3,420	1,720	1,180	1,280	902	950	9,450
22	1,400	1,370	900		2,460	4,020	1,700	1,120	1,210	842	1,630	7,990
23	1,430	1,190	950		2,600	4,900	1,770	1,140	1,080	710	2,280	6,740
24	1,430	1,260	1,000		2,350	5,500	2,080	1,140	1,000	830	2,080	5,700
25	1,400	1,220	950	900	2,350	5,350	1,960	2,420	1,190	690	1,790	5,960
26	1,400	1,140	900		3,040	5,600	1,920	1,880	1,370	680	1,420	5,200
27	1,550	1,120			3,730	4,160	1,920	1,870	1,250	786	1,210	4,600
28	1,480	808			3,310	3,670	1,870	1,900	1,040	753	1,220	4,160
29	1,080	800	800		-------	3,280	1,810	1,880	1,040	830	1,160	3,870
30	1,050	850		1,180	-------	3,010	1,850	1,720	1,000	1,260	1,030	3,510
31	1,120	-------		2,830	-------	2,780	-------	1,550	-------	3,060	963	------

NOTE.—No gage-height record Nov. 15–21, Nov. 29 to Dec. 5, and Sept. 17; discharge interpolated or estimated. Discharge estimated because of ice effect Dec. 10 to Jan. 2, Jan. 8–29, and Feb. 10–16, on basis of weather records and by comparison with discharge at adjacent stations. Braced figures show mean discharge for periods indicated.

Monthly discharge of Cedar River at Cedar Rapids, Iowa, for the year ending September 30, 1926

[Drainage area, 6,640 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,600	1,050	2,170	0.327	0.38
November	1,620	800	1,370	.206	.23
December	1,300	620	944	.142	.16
January	2,830	----------	1,270	.191	.22
February	3,730	1,620	2,440	.367	.38
March	5,500	2,080	3,560	.536	.62
April	2,600	1,700	2,070	.312	.35
May	2,420	1,120	1,560	.235	.27
June	3,420	1,000	1,390	.209	.23
July	3,060	680	1,110	.167	.19
August	3,870	950	1,440	.217	.25
September	9,450	938	3,440	.518	.58
The year	9,450	620	1,890	.285	3.86

SHELLROCK RIVER NEAR CLARKSVILLE, IOWA

LOCATION.—In T. 92 N., R. 16 W., at highway bridge 1¼ miles northwest of Clarksville, Butler County, and 25 miles above junction with Cedar River.

DRAINAGE AREA.—1,660 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—May 28, 1915, to September 30, 1926.

GAGE.—Chain gage attached to upstream side of bridge; read by Mrs. H. H. Sherburne.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of rock and sand; fairly permanent. Right bank high; left bank will probably be overflowed at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the year, 6.8 feet at 9 p. m. August 19 (discharge, 4,660 second-feet); minimum stage, 0.36 foot July 26 (discharge, 50 second-feet).

1915–1926: Maximum discharge recorded, 12,200 second-feet June 2, 1916; minimum discharge, 43 second-feet September 3, 1925.

In April, 1907, a stage of about 16.5 feet was reached (discharge, about 19,000 second-feet).

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Slight diurnal fluctuation may occur during low water, owing to operation of power plant at Greene, 10 miles upstream.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve well defined between 70 and 10,000 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

The following discharge measurements were made:

April 28, 1926: Gage height, 1.42 feet; discharge, 273 second-feet.

July 30, 1926: Gage height, 0.68 foot; discharge, 77 second-feet.

August 1, 1926: Gage height, 1.71 feet; discharge, 393 second-feet.

Daily discharge, in second-feet, of Shellrock River near Clarksville, Iowa, for the year ending September 30, 1926

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	341	228	260	100	405	228
2	------	301	189	240	645	301	208
3	------	301	205	218	520	282	133
4	------	321	208	219	208	215	143
5	------	301	225	220	95	212	150
6	------	282	218	221	86	198	192
7	------	282	246	118	76	143	186
8	------	282	228	120	78	60	228
9	------	263	195	123	77	172	246
10	------	282	218	153	90	130	405
11	------	263	------	95	106	138	427
12	------	263	------	405	114	202	228
13	------	246	------	300	66	215	228
14	------	246	------	166	62	172	282
15	------	246	------	77	54	180	301
16	------	246	------	106	212	175	92
17	------	228	------	122	106	150	246
18	------	246	------	140	50	130	282
19	------	228	------	120	57	1,690	341
20	------	263	------	99	64	2,430	427
21	------	263	------	101	58	725	671
22	------	246	------	725	53	520	594
23	874	246	------	496	52	405	645
24	1,110	246	------	341	51	263	619
25	1,010	263	------	246	92	301	594
26	842	321	------	130	50	263	582
27	645	321	------	112	52	263	569
28	544	301	------	97	80	246	544
29	450	263	------	82	63	215	473
30	427	246	------	66	128	172	427
31	405	------	------	------	166	198	------

NOTE.—Gage not read June 1, 2, 4, 5, 8, 13, 17, 19, 27–29, July 1, 6, 19, 23, and Sept. 26; discharge interpolated or estimated.

Monthly discharge of Shellrock River near Clarksville, Iowa, for the year ending September 30, 1926

[Drainage area, 1,660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
March 23-31	1,110	405	701	0.422	0.14
April	341	228	272	.164	.18
May 1-10	246	189	216	.130	.05
June	725	66	197	.119	.13
July	645	50	120	.072	.08
August	2,430	60	360	.217	.25
September	671	92	356	.214	.24

SKUNK RIVER NEAR AMES, IOWA

LOCATION.—In sec. 23, T. 84 N., R. 24 W., at site of old county bridge, 2½ miles north of Ames, Story County, 3½ miles below Keigley Branch and 5 miles above mouth of Squaw Creek.

DRAINAGE AREA.—320 square miles (measured on topographic and post-route maps).

RECORDS AVAILABLE.—July 28, 1920, to September 30, 1926.

GAGE.—Stevens continuous water-stage recorder; inspected by district engineer.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—A rock ledge forms control. Right bank is overflowed during extremely high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year from water-stage recorder, 8.26 feet at 9.30 a. m. September 19 (discharge, 3,120 second-feet); minimum stage, 1.54 feet July 20 (discharge, less than 1 second-foot).

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation changed probably during period of ice effect. Rating curves well defined above 10 second-feet and poorly defined below. Operation of water-stage recorder fairly satisfactory. Mean daily discharge for open-water periods ascertained by applying to rating tables mean daily gage height obtained by inspection of recorder graph except as explained in footnote to table of daily discharge. Records good for high and medium stages and fair for low stages. Records during estimated period and periods of ice effect are fair.

Discharge measurements of Skunk River near Ames, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 23	2.12	21.7	June 22	1.92	7.1	July 20	1.56	0.4
May 8	1.99	10.8	Do	1.91	6.9	Sept. 28	3.57	332

Daily discharge, in second-feet, of Skunk River near Ames, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	332	35	15		400	132	36	16	14	2	106	25
2	306	33	17		320	104	51	16	11	2	79	95
3	263	39	19	10	166	99	46	15	10	2	47	56
4	394	48	17		188	90	40	14	9	2	28	40
5	270	54	8		102	79	39	13	7.5	2.5	18	36
6	202	54	9		97	57	39	12	6	2.5	13	38
7	173	51	11		163	87	41	12	5.5	2	10	35
8	142	36	12		181	44	39	11	4	1.5	9	1,210
9	113		15		189	73	39	11	3.5	1.5	9.5	1,270
10	96	40		8	219	382	39	11	3	14	8.5	612
11	85		15		229	347	38	10	3	18	7.5	302
12	75	40			129	318	38	10	3	9.5	7	189
13	65	38			81	221	36	10	7.5	5.5	16	132
14	62	33			83	184	35	9.5	15	3	457	104
15	56	30			175	167	34	9	16	2.5	274	108
16	53	29	10		85	124	30	8.5	13	1.5	142	112
17		30			66	108	29	8.5	13	1.5	86	97
18	50	27		10	256	124	27	10	12	1	57	479
19		27			131	120	24	13	12	1	38	2,850
20		24			59	104	23	12	10	1	30	2,210
21		22			64	93	22	12	9.5	1.5	166	1,540
22		19			94	88	21	12	8.5	2	88	1,040
23	40	16			91	84	22	10	6	1.5	48	878
24					64	81	25	10	5.5	1	29	1,210
25		15		8	73	76	25	8.5	4.5	1	20	775
26			7		134	57	24	8	3.5	1	14	521
27		13			144	48	21	27	3	1	10	406
28	35	12			136	60	19	18	2.5	68	8.5	341
29		13			-------	53	18	15	2.5	135	6.5	306
30		15		150	-------	48	17	13	2	146	6	299
31		-------			-------	39	-------	11	-------	62	5	-------

NOTE.—Stage-discharge relation affected by ice Nov. 9–11, 24–26, and Dec. 10 to Feb. 2; discharge estimated from gage heights, observer's notes, and weather records. Gage not in operation; discharge estimated Oct. 17 to Nov. 1. Braced figures show mean discharge for periods indicated.

Monthly discharge of Skunk River near Ames, Iowa, for the year ending September 30, 1926

[Drainage area, 320 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	394	----------	106	0.331	0.38
November	54	12	30.1	.094	.10
December	----------	----------	10.6	.033	.04
January	----------	----------	22.4	.070	.08
February	400	59	147	.459	.48
March	382	39	119	.372	.43
April	51	17	31.2	.098	.11
May	27	8	12.1	.038	.04
June	16	2	7.52	.024	.03
July	146	1	16.0	.050	.06
August	457	5	59.5	.186	.21
September	2,850	25	577	1.80	2.01
The year	2,850	----------	93.8	.293	3.97

SKUNK RIVER AT COPPOCK, IOWA

LOCATION.—In sec. 1, T. 73 N., R. 8 W., at highway bridge one-eighth mile above Chicago, Burlington & Quincy Railroad bridge at Coppock, Henry County, and one-fourth mile above junction with Crooked Creek.

DRAINAGE AREA.—2,890 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—October 21, 1913, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by J. W. Ricks.

DISCHARGE MEASUREMENTS.—Made from bridge to which gage is attached or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand; channel shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 19.34 feet at 4.30 p. m. September 27 (discharge, 18,200 second-feet); minimum discharge, 146 second-feet October 1 and July 27.

1913–1926: Maximum stage recorded, 19.7 feet June 9, 1918 (discharge, 19,600 second-feet); minimum stage, 2.10 feet August 15, 18, and 25–27, 1914 (discharge, 33 second-feet).

A stage of about 22 feet occurred on or about May 31, 1903 (discharge, about 25,000 second-feet).

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation probably changed during high water in June owing to accumulation of driftwood on bridge pier. Standard rating curve fairly well defined. Gage read to hundredths once daily during low and medium stages and oftener during high stages. Daily discharge ascertained by shifting-control method based on discharge measurements made September 29, 1925, and August 28, 1926. Records fair.

The following discharge measurement was made:

August 28, 1926: Gage height, 4.21 feet; discharge, 551 second-feet.

Daily discharge, in second-feet, of Skunk River at Coppock, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	299	284	300	2,560	1,980	627	429	228	412	4,940	2,120
2	157	314	284	400	2,420	1,700	627	395	269	395	1,700	1,910
3	719	346	269	450	2,640	1,390	584	378	362	412	1,390	2,720
4	2,960	395	362	1,000	2,880	1,210	979	362	330	2,190	870	4,540
5	1,910	412	395	1,400	2,800	870	1,330	346	255	719	584	6,260
6	1,770	410	870	1,700	2,490	818	2,120	346	215	503	503	6,740
7	2,050	429	924	1,400	2,260	719	2,120	330	180	465	412	6,370
8	1,580	429	700	1,200	1,840	584	2,260	314	168	447	362	8,950
9	1,210	447	550	900	1,500	543	2,420	299	157	412	299	9,810
10	543	503		700	1,100	924	1,980	284	157	378	719	10,100
11	870	818		600		768	1,640	284	168	465	378	9,660
12	768	768				1,390	1,330	284	1,840	818	447	6,980
13	672	719				2,260	1,090	284	6,980	870	429	6,370
14	672	672			800	2,560	924	284	9,230	429	3,530	6,500
15	672	584	500			1,840	818	269	9,520	330	3,880	14,400
16	627	543		500		1,270	768	255	8,670	284	3,700	15,400
17	719	465			870	1,150	672	241	9,230	255	3,440	13,000
18	672	465			2,120	1,040	627	241	8,540	228	2,960	9,960
19	584	429			1,910	979	584	241	4,060	203	2,960	4,840
20	503	395			1,450	1,040	543	269	1,840	203	3,280	3,960
21	447	362			1,330	979	543	284	1,510	191	2,260	4,640
22	429	362			1,210	1,040	503	284	1,270	191	1,510	5,910
23	395	346			1,040	1,040	503	255	1,040	180	4,150	8,260
24	395	299			1,090	979	584	241	870	180	2,420	12,900
25	362	330	400	400	1,450	924	584	228	818	168	1,210	14,400
26	412	314			1,770	870	584	228	768	157	870	17,900
27	412	284			1,510	768	543	584	672	146	672	17,600
28	395	241			1,580	672	503	503	543	191	543	15,500
29	346	228			-------	672	465	465	503	1,700	503	13,200
30	269	299	300	700	-------	627	412	314	447	1,770	1,330	11,300
31	284	-------		1,700	-------	627	-------	228	-------	2,340	1,840	-------

NOTE.—Stage-discharge relation affected by ice Dec. 8 to Feb. 16; discharge based on a study of gage heights, weather records, observer's notes, and discharge at Augusta. Braced figures show mean discharge for periods indicated.

Monthly discharge of Skunk River at Coppock, Iowa, for the year ending September 30, 1926

[Drainage area, 2,890 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,960	146	773	0.267	0.31
November	818	228	430	.149	.17
December	924	----------	459	.159	.18
January	1,700	----------	660	.228	.26
February	2,880	----------	1,590	.550	.57
March	2,560	543	1,100	.381	.44
April	2,420	412	976	.338	.38
May	584	228	314	.109	.13
June	9,520	157	2,360	.817	.91
July	2,340	146	569	.197	.23
August	4,940	299	1,740	.602	.69
September	17,900	1,910	9,070	3.14	3.50
The year	17,900	146	1,660	.574	7.77

SKUNK RIVER AT AUGUSTA, IOWA

LOCATION.—In sec. 26, T. 69 N., R. 4 W., at highway bridge one-third mile from Augusta post office, Des Moines County, and 12.2 miles above mouth.

DRAINAGE AREA.—4,290 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—September 30 to November 15, 1913; May 27, 1915, to September 30, 1926.

GAGE.—Chain gage attached to downstream handrail of bridge 95 feet from left abutment; read by J. A. Schroder. Zero of gage is at elevation 528.55 feet, Memphis datum.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed of stream sandy and subject to change. Right bank high and will not be overflowed; left bank will be overflowed only at extremely high stages. Remains of old milldam 600 feet below gage forms control at low and medium stages; practically permanent. Riffle at dam causes a drop of about 3 feet at medium low stages. Backwater from Mississippi River probably will not occur oftener than once in 50 years.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 20.4 feet September 16 (discharge, 32,000 second-feet from discharge measurement); minimum stage, 1.7 feet at 7 a. m. June 10 (discharge, 137 second-feet).

1913; 1915–1926: Maximum stage recorded, that of September 16, as given above; minimum stage recorded, 1.29 feet September 8, 1919 (discharge, 26 second-feet by current-meter measurement).

A stage of about 21 feet (discharge, 45,000 second-feet) was reached on or about June 1, 1903.

REGULATION.—Natural discharge at extremely low stages is occasionally affected by operation of power plant at Oakland Mills, 26 miles upstream.

ACCURACY.—Stage-discharge relation probably permanent during the year; affected by ice. Rating curve well defined. Gage read to half-tenths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Records fair.

The following discharge measurements were made:

August 27, 1926: Gage height, 3.14 feet; discharge, 1,230 second-feet.

September 9, 1926: Gage height, 17.88 feet; discharge, 22,500 second-feet.

September 16, 1926: [6] Gage height, 20.42 feet; discharge, 32,000 second-feet.

[6] Made by engineers of the Mississippi River Power Co.

Daily discharge, in second-feet, of Skunk River at Augusta, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	582	762	406	600	1,760	2,570	713	668	378	668	5,920	2,300
2	713	811	324	600	2,910	2,840	863	668	378	623	7,600	2,440
3	3,400	811	506	1,400	3,400	2,300	915	623	378	582	2,840	3,960
4	5,920	811	506	2,800	3,120	1,900	1,310	542	349	582	2,300	14,300
5	5,360	1,250	1,760	3,800	3,120	1,560	1,760	582	406	1,760	1,430	10,500
6	3,680	1,190	1,430	4,000	3,120	1,310	3,820	506	378	2,030	1,080	13,400
7	3,960	1,250	1,190	3,800	2,570	1,430	4,800	506	324	1,020	762	11,800
8	3,400	1,310	1,000	3,500	2,160	1,560	5,640	470	231	713	582	15,800
9	2,440	1,430	900	3,100	1,900	1,250	6,760	438	231	623	470	22,700
10	2,030	2,030	850	1,800	1,560	1,020	5,780	438	137	582	406	22,500
11	1,560	2,980		1,400	1,200	1,370	4,240	438	275	542	1,190	18,000
12	1,430	2,840		1,150		1,760	3,260	408	1,760	470	863	15,600
13	1,250	2,440		1,000		2,160	2,300	378	14,000	623	970	10,900
14	1,560	2,030		900		2,300	1,760	351	18,800	1,140	2,030	8,740
15	2,030	1,620			1,050	2,300	1,560	324	15,200	623	5,080	20,200
16	1,760	1,370	800			2,030	1,370	324	12,800	406	4,380	30,100
17	1,760	1,190			1,080	1,760	1,250	349	16,400	378	4,380	27,600
18	2,030	1,080		800	2,160	1,500	1,190	324	17,200	324	4,520	25,100
19	1,760	970			3,680	1,560	970	324	12,400	298	3,400	24,100
20	1,430	863			3,540	1,760	863	349	5,080	275	2,030	16,300
21	1,190	863			5,360	1,760	863	349	3,820	252	4,380	8,160
22	1,020	762			2,570	1,760	863	378	3,120	713	2,840	7,740
23	915	713			2,030	1,760	811	349	2,300	470	3,960	8,740
24	863	668			1,760	1,620	863	349	1,900	275	6,480	10,800
25	970	623	700	650	1,760	1,430	1,080	298	1,760	275	3,260	14,900
26	1,080	623			3,960	1,370	970	378	1,370	252	2,030	15,200
27	1,020	623			3,400	1,190	915	811	1,190	210	1,310	18,500
28	970	506			2,570	970	811	713	1,080	275	970	21,500
29	915	349			-------	863	762	623	863	349	1,430	21,700
30	863	406	600	700	-------	811	811	668	762	713	1,900	20,200
31	762	-------		1,100	-------	762	-------	438	--------	3,120	2,300	------

NOTE.—Stage-discharge relation affected by ice Dec. 8 to Feb. 16; discharge estimated. Braced figures show mean discharge for periods indicated.

Monthly discharge of Skunk River at Augusta, Iowa, for the year ending September 30, 1926

[Drainage area, 4,290 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5,920	582	1,890	0.441	0.51
November	2,980	349	1,170	.273	.30
December	1,760	----------	786	.183	.21
January	4,000	----------	1,370	.319	.37
February	5,360	----------	2,360	.550	.57
March	2,840	762	1,630	.380	.44
April	6,760	713	2,000	.466	.52
May	811	298	463	.108	.12
June	18,800	137	4,510	1.05	1.17
July	3,120	210	683	.159	.18
August	7,600	406	2,680	.625	.72
September	30,100	2,300	15,500	3.61	4.03
The year	30,100	137	2,890	.674	9.14

SQUAW CREEK AT AMES, IOWA

LOCATION.—In sec. 3, T. 83 N., R. 24 W., on Lincoln Highway bridge in Ames, Story County, 2 miles above junction with Skunk River.

DRAINAGE AREA.—210 square miles (measured on topographic and post-route maps).

RECORDS AVAILABLE.—May 24, 1919, to September 30, 1926.

GAGE.—Chain gage attached to downstream girder on Lincoln Highway bridge. Prior to March 10, 1925, at former location 1,700 feet above Chicago & Northwestern Railway bridge in Ames. Read by J. A. Dale.

DISCHARGE MEASUREMENTS.—Made from footbridge or by wading. Extremely high water measured from Chicago & Northwestern Railway bridge.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. Left bank high; right bank subject to overflow at a stage above 11 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 9.5 feet at 6 p. m. September 19 (discharge, 2,440 second-feet); minimum stage, 0.82 foot at 7 a. m. July 5 (discharge, 0.2 second-foot).

1919–1926: Maximum stage recorded, 10.4 feet July 17, 1922 (discharge, 3,920 second-feet); minimum discharge, no flow August 26 to September 17, 1919.

Maximum stage in recent years, about 14.5 feet June 4, 1918 (discharge, about 6,900 second-feet).

ICE.—Stage-discharge relation affected by ice; observations discontinued during winter.

ACCURACY.—Stage-discharge relation changed during ice period. Rating curve fairly well defined. Gage read twice daily to hundredths and frequently during periods of high water. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

The following discharge measurements were made:

May 8, 1926: Gage height, 1.13 feet; discharge, 4.8 second-feet.

June 22, 1926: Gage height, 1.03 feet; discharge, 1.6 second-feet.

Daily discharge, in second-feet, of Squaw Creek at Ames, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	12			111	28	12	5		53	4
2	56	15			80	24	10	5		29	417
3	93	38	10		74	17	7	5	0.5	14	160
4	91	47			65	16	6	5		9	87
5	88	37			66	16	7	5	20	6	63
6	114	34			39	16	6	4	8	4	49
7	126	30			36	15	6	3		3	34
8	94	21			38	14	5	2		4	1,620
9	77	20			58	14	5	2	1	6	1,480
10	68	26			347	18	6	2		3	694
11	55	28			190	21	5	2		2	389
12	44	28			134	20	5	2		2	244
13	39	28			111	18	4	9		25	180
14	40	22			86	17	4	8		79	142
15	32	22			68	16	4	7		118	160
16	25	20			66	18	4	6	.5	67	170
17	20	19			53	16	4	4		36	134
18	19	21			61	15	7	3		20	320
19	17	19			62	14	9	3		12	2,350
20	17	18			53	14	7	3		11	1,700
21	17	17		63	52	16	7	2		8	1,060
22	15	15		65	52	12	5	2		12	627
23	14	12		65	54	13	5			10	627
24	14			79	54	23	5		1	7	992
25	13			76	47	23	5	1		5	597
26	13	8		190	41	14	5			4	417
27	11			118	34	13	5			3	320
28	12			111	35	11	5	.5	51	2	268
29	10				22	9	5		45	2	210
30	8				26	14	5		111	2	222
31	10				23		5		62	1	

NOTE.—Discharge Nov. 24 to Dec. 5 estimated because of ice. No record Dec. 6 to Feb. 20. Braced figures show mean discharge for periods indicated.

Monthly discharge of Squaw Creek at Ames, Iowa, for the year ending September 30, 1926

[Drainage area, 210 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	126	8	41.6	0.198	0.23
November	47		20.2	.096	.11
December 1–5			10.0	.048	.01
January					
February 21–28	190	63	95.9	.457	.14
March	347	22	72.2	.344	.40
April	28	9	16.5	.079	.09
May	12	4	5.81	.028	.03
June	9		3.17	.015	.02
July	111		10.2	.049	.06
August	118	1	18.0	.086	.10
September	2,350	4	525	2.50	2.79

DES MOINES RIVER AT KALO, IOWA

LOCATION.—In sec. 17, T. 88 N., R. 28 W., at Kalo, Webster County, 1½ miles east of Otho, on Minneapolis & St. Louis Railroad, and 1½ miles above mouth of Holiday Creek, which enters from left.

DRAINAGE AREA.—4,170 square miles (measured on base maps of Iowa and Minnesota).

RECORDS AVAILABLE.—October 18, 1913, to September 30, 1926.

GAGE.—Water-stage recorder on right bank, 300 feet below highway bridge; inspected by S. C. Fuller.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel of gravel; fairly permanent. No well-defined control. Point of zero flow estimated to be at gage height −0.40 foot.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.03 feet at 10 p. m. September 21 (discharge, 3,990 second-feet); minimum stage, 0.02 foot at 6 p. m. July 23 (discharge, 27 second-feet).

1913–1926: Maximum stage recorded, 14.0 feet May 30, 1915 (discharge, 18,500 second-feet); minimum discharge, 14 second-feet, October 15, 1922.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Operation of city power plant at Fort Dodge, 7 miles upstream causes diurnal fluctuation during periods of low water.

ACCURACY.—Stage-discharge relation changed during winter. Rating curves fairly well defined between 100 and 18,000 second-feet. Operation of water-stage recorder satisfactory. Mean daily gage height ascertained by inspection of recorder graph. Daily discharge obtained by applying mean daily gage height to rating table except as explained in footnote to table of daily discharge. Records fair.

Discharge measurements of Des Moines River at Kalo, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 28	0.50	118	May 28	0.24	53.4	July 21	0.08	40
Do	.25	53.9	June 4	.32	90	Sept. 30	2.75	1,280

Daily discharge, in second-feet, of Des Moines River at Kalo, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	200	260		479	186	108	110	212	85
2	300		197		468	209	158	117	180	50
3	390		172		422	217	126	124	201	71
4	1,270		119		411	167	134	138	152	88
5	1,310		143		422	163	113	98	110	128
6	1,270		123		358	159	148	68	110	74
7	840		215		358	152	109	127	77	210
8	770		176		343	149	102	83	74	494
9	595		220		343	163	89	76	72	624
10	560		228		304	163	58	92	65	852
11	530	200	212		318	138	93	102	80	1,010
12	390	260	209		343	134	74	74	95	742
13	365	268	194		272	145	145	37	176	511
14	340	220	188	1,950	255	159	215	73	618	446
15	340	220	100		268	145	96	58	542	358
16	256	220		1,570	295	132	33	78	380	255
17	274	166		1,300	272	119	140	32	318	238
18	304	204		1,300	233	132	76	32	276	323
19	228	188		1,300	255	145	72	63	371	806
20	200	196		1,480	197	132	90	31	248	2,550
21	148	188		1,390	221	145	98	36	119	3,600
22	116	200		1,300	221	132	86	51	182	3,710
23	196	204		1,390	209	147	417	29	107	3,600
24	200	78		1,300	225	102	421	70	201	3,250
25	256	174		1,090	250	114	335	60	193	2,920
26	204	171		1,050	246	159	299	30	205	2,920
27	189	222		815	201	150	378	29	73	2,560
28	180	391		742	197	150	86	40	115	2,220
29		150		637	182	104	144	54	178	1,930
30	260	172		479	193	156	171	160	59	1,660
31	244			539		139		158	58	

NOTE.—Gage-height record not satisfactory Nov. 1–10 and May 25 to June 3; discharge estimated by comparison with discharge of Des Moines River near Boone. Stage-discharge relation affected by ice Oct. 28, 29, Dec. 15, 16, and Mar. 12–15; discharge estimated by comparison with discharge of Des Moines River near Boone and at Des Moines. Discharge Oct. 16, 17, 27, 31, Nov. 17–19, 27, 28, 30, Dec. 1–5, 7, 8, 11–13, May 1, 11, 12, 22–24, June 4–15, June 17 to July 16, July 18, 19, 21, 22, 24, 25, 29–31, Aug. 1, 2, 4–21, 23, 27, 28, 30, 31, Sept. 1–9, 13, 14, 18–20, and 27 determined by averaging discharge for intervals of a day.

Monthly discharge of Des Moines River at Kalo, Iowa, for the year ending September 30, 1926

[Drainage area, 4,170 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,310	116	418	0.100	0.12
November	391	78	203	.049	.05
April	479	182	292	.070	.08
May	217	102	149	.036	.04
June	421	33	154	.037	.04
July	160	29	75.2	.018	.02
August	618	58	189	.045	.05
September	3,710	50	1,280	.307	.34

DES MOINES RIVER NEAR BOONE, IOWA

LOCATION.—In sec. 13, T. 84 N., R. 27 W., at highway bridge near Boone Waterworks, 2 miles northwest of Boone, Boone County, and 2 miles above Bluff Creek.

DRAINAGE AREA.—5,490 square miles at site used since October 9, 1924 (measured on base map of Iowa).

RECORDS AVAILABLE.—April 1, 1920, to September 30, 1926. Scattered records of stage have been obtained by the United States Weather Bureau from 1905 to 1917 at site of old gage 3½ miles downstream at the Chicago & Northwestern Railroad crossing.

GAGE.—Chain gage attached to upstream side of concrete bridge 200 feet from left end. Read by George A. Nelson.

DISCHARGE MEASUREMENTS.—Made from bridge to which gage is attached or by wading.

CHANNEL AND CONTROL.—Bed consists of gravel and sand and is fairly permanent. An island divides the stream below bridge at high stages. Control not well defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded 10.3 feet at 8.20 a. m. October 4 (discharge, 6,180 second-feet); minimum stage, 2.14 feet at 3.15 p. m. July 23 (discharge, 39 second-feet).

1920–1926: Maximum stage recorded, 13.39 feet at 6.30 a. m. July 11, 1920 (discharge, 16,900 second-feet); minimum discharge, that of July 23, 1926. Highest stage since 1907, 20.54 feet very probably occurred on June 6, 1918 (discharge, about 32,000 second-feet).

ICE.—Stage-discharge relation affected by ice.

REGULATION.—The city power plant at Fort Dodge causes some diurnal fluctuation during periods of extremely low water.

ACCURACY.—Stage-discharge relation changed during winter and again about September 19. Rating curves well defined below 11,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Des Moines River near Boone, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Mar. 6	[a] 4.81	1,010	July 21	2.44	81.5
May 27	4.49	853	Sept. 29	7.03	2,510

[a] Stage-discharge relation probably slightly affected by ice.

Daily discharge, in second-feet, of Des Moines River near Boone, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,950	380	325	------	850	225	310	133	255	760
2	3,360	380	330	------	670	290	225	116	180	330
3	4,590	475	400	------	730	255	225	129	255	195
4	6,080	425	365	1,460	670	255	225	133	188	155
5	4,370	580	425	1,320	700	240	210	124	170	155
6	3,270	580	------	1,040	700	210	240	120	137	158
7	2,660	550	------	760	490	210	170	92	101	116
8	2,050	500	------	642	440	210	165	98	113	2,050
9	1,900	475	------	670	415	210	120	110	98	3,180
10	1,530	700	------	1,110	415	195	104	86	92	1,900
11	1,320	670	------	1,900	440	178	113	73	106	1,750
12	1,040	670	------	2,120	392	180	108	97	116	1,750
13	915	640	------	2,200	440	175	139	77	190	1,390
14	850	670	------	2,350	370	175	225	72	565	1,040
15	760	640	------	2,120	370	162	225	61	1,680	850
16	730	610	------	1,680	370	225	290	77	1,110	670
17	700	580	------	1,900	370	141	225	64	760	590
18	640	525	------	1,900	392	190	210	88	590	565
19	790	550	------	1,980	310	210	225	53	415	4,050
20	700	525	------	2,120	330	290	133	47	415	2,640

Daily discharge, in second-feet, of Des Moines River near Boone, Iowa, for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	640	525	-------	2,200	350	190	113	61	370	3,350
22	670	370	-------	1,980	415	175	129	56	255	4,500
23	640	320	-------	1,900	415	170	110	41	158	4,620
24	580	305	-------	1,820	465	131	135	63	185	4,980
25	580	275	-------	1,600	440	168	370	54	150	4,270
26	580	255	-------	1,530	490	182	310	51	210	3,740
27	580	204	-------	1,390	415	790	272	61	330	3,350
28	234	186	-------	1,040	272	615	350	72	272	2,900
29	195	525	-------	980	240	540	192	65	330	2,560
30	325	550	-------	915	240	330	107	100	180	2,180
31	300	-------	-------	790	-------	350	-------	116	148	-------

NOTE.—No record Dec. 6 to Mar. 3.

Monthly discharge of Des Moines River near Boone, Iowa, for the year ending September 30, 1926

[Drainage area, 5,490 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	6,080	195	1,530	0.279	0.32
November	700	186	488	.089	.10
December 1-5	425	325	369	.067	.01
March 4-31	2,350	642	1,550	.282	.29
April	850	240	457	.083	.09
May	790	131	254	.046	.05
June	370	104	199	.036	.04
July	133	41	83.5	.015	.02
August	1,680	92	327	.060	.07
September	4,980	116	2,020	.368	.41

DES MOINES RIVER AT DES MOINES, IOWA

LOCATION.—In sec. 2, T. 78 N., R. 24 W., at Walnut Street Bridge in Des Moines, Polk County, one-fourth mile below dam of Des Moines Electric Co. and one-third mile above mouth of Raccoon River.

DRAINAGE AREA.—6,180 square miles (measured on base maps of Iowa and Minnesota).

RECORDS AVAILABLE.—October 1, 1902, to August 3, 1903; October 1, 1914, to September 30, 1926, at Walnut Street Bridge. May 27, 1905, to July 20, 1906, at Interurban Bridge near Highland Park 5 miles upstream. United States Weather Bureau has maintained a station at or near present site since July 1, 1897.

GAGE.—Friez water-stage recorder at second pier from east abutment of Walnut Street Bridge; installed January, 1912.

DISCHARGE MEASUREMENTS.—Made from one of several bridges near gage.

CHANNEL AND CONTROL.—A low timber dam constructed September, 1913, one-fourth mile below gage, was partly destroyed in 1915 but still forms control at medium stages. Back fill around piers of Court Street Bridge, one block downstream, forms control at extremely low stages. Both may be drowned out depending on stage in Raccoon River. A new mouth to this river, dredged farther downstream in 1914, has somewhat relieved backwater conditions at gage.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 12,000 second-feet, September 20; minimum stage, 0.25 foot at 8 a. m. July 27 (discharge, 65 second-feet).

1915–1926: Maximum discharge, about 41,500 second-feet, June 7, 1918; brief periods of zero flow have occurred since construction of dam above gage.

ICE.—Stage-discharge relation not affected by ice since construction of dam above gage. Numerous bridges below gage occasionally cause ice jams for short periods.

REGULATION.—Considerable diurnal fluctuations during low water is caused by operation of power plant above. Dam is practically drowned out at stage of 22 feet.

ACCURACY.—Stage-discharge relation practically permanent except for periods of ice effect or backwater from Raccoon River. Rating curve well defined between 100 and 20,000 second-feet. Operation of water-stage recorder satisfactory. Mean daily gage height obtained by inspection of recorder graph. Daily discharge obtained by applying mean daily gage height to rating table except as explained in footnote to table of daily discharge. Records good except for estimated periods, for which they are fair.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

The following discharge measurement was made:

April 22, 1926: Gage height, 1.65 feet; discharge, 446 second-feet.

Daily discharge, in second-feet, of Des Moines River at Des Moines, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	287	464	236	145	1,420	1,260	936	408	475	276	132	325
2	2,350	592	424		1,220	821	945	398	441	227	167	398
3	3,260	565	458	152	1,370	936	909	377	388	512	227	882
4	4,060	592	430	162	1,440	1,460	843	382	348	388	189	1,630
5	4,730	551	125	167	1,340	1,570	821	388	367	388	233	696
6	4,060	592	113	169	1,170	1,630	795	367	317	325	240	550
7	3,400	620	128	181	795	1,120	761	312	304	283	224	400
8	2,860	551	206		786	704	737	317	283	264	208	1,110
9	2,290	572	283	170	1,150	769	681	308	268	220	184	3,000
10	1,860	565	348		1,370	800	688	312	264	203	167	4,550
11	1,630	620	363		1,520	1,400	681	317	246	192	152	5,300
12	1,460	636	388	172	1,800	3,100	643	304	272	167	132	5,920
13	1,360	636	363	179	1,630	2,000	599	300	1,210	143	164	4,380
14	1,210	681	317	176	1,460	2,500	606	268	3,330	147	704	2,350
15	1,110	681	172	181	1,160	2,740	592	272	2,500	134	525	1,920
16	1,020	628	154	179	1,090	2,800	531	276	1,500	120	1,180	1,920
17	964	578	186	179	1,090	2,160	544	317	838	109	1,090	1,680
18	891	585	243	181	838	2,100	525	312	558	101	882	1,210
19	761	551	279	186	651	2,160	551	279	414	93	673	8,000
20	795	500	250	162	753	2,250	494	261	388	92	558	12,000
21	769	494		130	909	2,350	487	264	441		458	9,000
22	666	464	230		909	2,480	470	257	500	80	551	8,000
23	620	452		105	954	2,480	481	236	353		506	7,600
24	578	424			1,050	2,290	470	257	317		393	7,500
25	592	414	190		1,230	2,160	470	264	272	70	353	7,300
26	592	398		109	1,420	2,100	464	233	377	75	312	7,000
27	551	304		107	1,260	1,680	470	227	464		304	6,500
28	300	194	140	106	1,240	1,630	458	452	435	88	358	5,920
29	250	156		103	-------	1,360	452	769	382	158	435	4,730
30	350	200		139	-------	1,280	408	737	393	134	339	4,060
31	400	-------		720	-------	1,100	-------	599	-------	115	261	------

NOTE.—No record Oct. 28–31, July 21–24, 26, 27, and Aug. 7; discharge estimated by comparison with discharge of Des Moines River near Boone. Stage-discharge relation affected by ice Oct. 28–31, Dec. 20 to Jan. 2, Jan. 8–11, and 21–25; discharge estimated from record of stage, temperature and precipitation records at Des Moines. Discharge Mar. 9–20 and Sept. 6–7 based on daily gage readings. Stage-discharge relation affected by backwater from Raccoon River June 15, 16, and Sept. 19–27; discharge estimated by comparison with discharge of Des Moines River near Boone and discharge record at dam one-fourth mile upstream.

Monthly discharge of Des Moines River at Des Moines, Iowa, for the year ending September 30, 1926

[Drainage area, 6,180 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,730	250	1,490	0.241	0.28
November	681	156	509	.082	.09
December	458	----------	239	.039	.04
January	720	----------	169	.027	.03
February	1,800	651	1,180	.191	.20
March	3,100	704	1,780	.288	.33
April	945	408	618	.100	.11
May	769	227	347	.056	.06
June	3,330	246	622	.101	.11
July	512	70	175	.028	.03
August	1,180	132	397	.064	.07
September	12,000	325	4,190	.678	.76
The year	12,000	70	970	.157	2.11

DES MOINES RIVER NEAR TRACY, IOWA

LOCATION.—In sec. 19, T. 75 N., R. 17 W., at highway bridge in Bellefontaine, Mahaska County, near Tracy, Marion County, 3 miles above mouth of Cedar Creek and 6 miles below mouth of English Creek.

DRAINAGE AREA.—12,400 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—March 1, 1920, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge near right end of second span from right end of bridge; read by D. M. Coleman. Sea-level elevation of zero of gage is 671.78 feet.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Solid rock bottom overlain in places with sand and gravel. Right bank high; left bank subject to overflow at high stages. Low-water control well defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 16.3 feet at 7 a. m. September 24 (discharge, 37,500 second-feet); minimum stage, 2.3 feet July 26 and 27 (discharge, 390 second-feet).

1920–1926: Maximum stage recorded, that of September 24, 1926, as given above.

Maximum stage since 1851 about 25 feet May 31, 1903 (discharge, about 100,000 second-feet).

ICE.—Stage-discharge relation affected by ice during periods of extremely cold weather.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve well defined between 400 and 40,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

April 20, 1926: Gage height, 2.95 feet; discharge, 952 second-feet.

August 21, 1926: Gage height, 3.20 feet; discharge, 1,280 second-feet.

Daily discharge, in second-feet, of Des Moines River near Tracy, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	720	675	675	3,090	1,640	810	1,050	1,200	1,420	1,310
2	675	720	585	2,650	1,530	765	855	1,100	855	900
3	2,650	810	567	2,250	1,530	720	810	1,000	612	950
4	5,960	900	567	2,000	1,760	720	720	1,050	540	3,730
5	6,790	950	720	2,250	2,000	675	630	1,310	540	7,000
6	6,580	900	------	2,250	2,120	630	630	1,200	524	7,430
7	5,560	900	------	2,380	1,880	630	612	1,100	476	5,370
8	4,250	950	------	1,880	1,640	630	540	1,100	476	4,990
9	3,400	950	------	1,530	1,640	630	540	1,100	460	5,560
10	2,940	855	------	1,420	1,530	630	585	1,100	460	7,430
11	2,510	900	------	1,880	1,420	612	675	1,100	460	9,320
12	2,250	950	------	2,510	1,310	612	1,420	810	460	10,300
13	1,880	950	------	3,400	1,260	630	1,880	720	524	11,000
14	1,760	1,000	------	3,400	1,200	612	16,200	720	2,120	10,000
15	1,760	1,050	------	3,400	1,100	540	24,800	630	3,240	8,600
16	1,640	1,000	------	3,730	1,100	540	18,400	612	2,120	10,000
17	1,530	950	------	3,560	1,000	540	12,000	540	1,640	8,840
18	1,420	855	------	3,090	950	585	7,880	540	1,760	6,740
19	1,310	855	------	2,790	950	720	4,430	524	1,530	5,480
20	1,200	855	------	2,790	900	855	3,240	460	1,310	20,000
21	1,150	855	------	2,790	900	855	2,380	460	1,050	25,900
22	1,150	855	------	2,790	855	720	2,120	460	1,050	29,900
23	1,100	855	------	2,790	855	630	2,650	460	1,000	34,800
24	1,000	765	------	2,790	900	612	2,380	460	1,420	37,100
25	950	765	------	2,510	900	540	1,880	446	1,530	33,300
26	950	765	------	2,510	900	585	1,640	390	1,150	23,800
27	950	765	------	2,250	900	950	1,420	390	1,000	18,400
28	900	720	------	2,120	855	1,420	1,420	540	1,000	14,600
29	855	720	------	1,880	810	1,260	1,310	540	900	11,800
30	855	675	------	1,880	810	1,310	1,200	540	1,150	10,300
31	720	------	------	1,760	------	1,260	------	765	950	------

NOTE.—No record Dec. 6 to Feb. 28.

Monthly discharge of Des Moines River near Tracy, Iowa, for the year ending September 30, 1926

[Drainage area, 12,400 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	6,790	675	2,170	0.175	0.20
November	1,050	675	857	.069	.08
December 1–5	720	567	623	.050	.01
March	3,730	1,420	2,530	.204	.24
April	2,120	810	1,240	.100	.11
May	1,420	540	749	.060	.07
June	24,800	540	3,880	.312	.35
July	1,310	390	754	.061	.07
August	3,240	460	1,090	.088	.10
September	37,100	900	12,800	1.03	1.15

DES MOINES RIVER AT OTTUMWA, IOWA

LOCATION.—At Market Street Bridge, Ottumwa, Wapello County. No large tributary within several miles.

DRAINAGE AREA.—13,200 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—March 28, 1917, to September 30, 1926. Fragmentary high-water observations 1902–1916.

GAGE.—Chain gage attached to downstream handrail of bridge.

DISCHARGE MEASUREMENTS.—Made from Vine Street Bridge, 1,500 feet below gage.

CHANNEL AND CONTROL.—Channel fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 12.3 feet September 25 (discharge, 35,300 second-feet); minimum stage, 1.2 feet December 7 and July 21 (discharge, 405 second-feet).

1917–1926: Maximum stage recorded, 16.5 feet June 11, 1917 (discharge, 58,700 second-feet); minimum discharge estimated less than 350 second-feet several days during December, 1917.

Maximum discharge since 1850, and probably in the last century, occurred on May 31, 1903, and is estimated at 100,000 second-feet.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Power plant located short distance above gage probably causes some diurnal fluctuation at low stages.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Gage read to tenths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Open-water records good; winter records fair.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

The following discharge measurements were made:

April 20, 1926: Gage height, 1.87 feet; discharge, 1,200 second-feet.

August 23, 1926: Gage height, 1.94 feet; discharge, 1,330 second-feet.

Daily discharge, in second-feet, of Des Moines River at Ottumwa, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	585	1,060	585	500	1,670	3,910	2,000	930	1,670	1,360	805	1,520
2	930	930	805	500	3,210	3,910	1,830	805	1,210	1,360	1,830	1,830
3	2,370	930	805	585	5,710	3,670	1,830	805	1,060	1,670	1,210	3,210
4	6,810	930	805	1,830	8,550	3,210	2,180	805	930	1,670	585	4,920
5	7,680	1,060	690	4,660	5,710	2,180	4,400	805	585	1,060	585	9,130
6	7,680	1,060	690	4,660	3,210	2,560	4,150	805	585	1,060	585	12,200
7	7,390	1,060	405	4,150	6,250	2,770	3,670	930	585	1,360	585	8,840
8	5,980	1,060	490	4,150	4,400	2,180	3,210	1,060	585	1,210	585	7,100
9	4,920	1,060	600	2,370	3,210	2,000	3,210	585	585	1,060	490	10,000
10	4,150	1,210	650	2,000	4,150	2,000	2,980	585	490	1,360	490	8,550
11	3,210	1,360	700	1,360	3,210	2,180	2,370	585	1,060	1,210	490	9,130
12	2,770	1,360	750	1,200	2,980	6,530	2,560	690	1,210	1,210	490	10,000
13	2,370	1,360	750	1,100	3,910	3,910	1,830	805	1,670	1,830	490	10,300
14	2,000	1,360	750	1,000	3,670	4,150	1,670	805	11,600	1,210	1,060	11,600
15	2,000	1,210	700	900	4,920	4,150	1,670	805	26,500	1,670	3,910	22,200
16	1,830	1,210	650	805	4,150	4,400	1,670	805	28,000	930	3,670	12,200
17	1,830	930	600	805	2,770	4,660	1,360	805	19,900	585	2,560	16,600
18	1,830	1,210	600	805	3,910	4,660	1,210	690	13,200	585	1,830	9,730
19	1,670	1,060	600	805	4,400	3,910	1,210	930	8,550	585	1,830	7,390
20	1,520	1,060	600	800	3,910	3,670	1,210	930	5,180	585	2,370	7,390
21	1,520	1,060	600	800	3,210	3,440	930	1,060	4,660	405	2,000	21,400
22	1,360	930	600	750	3,210	3,440	930	1,060	3,210	690	1,360	24,200
23	1,360	805	550	750	3,440	3,440	930	1,060	2,770	585	1,360	31,200
24	1,360	930	550	750	3,440	3,440	1,210	690	3,440	490	1,060	33,200
25	1,360	930	550	750	3,670	3,440	1,060	690	2,770	490	1,360	35,300
26	1,360	930	550	700	6,250	3,210	1,060	690	1,830	490	1,670	33,600
27	1,210	930	550	700	3,670	2,770	1,060	805	1,670	490	1,360	23,000
28	930	690	550	700	4,150	2,560	930	1,830	1,670	585	1,210	17,700
29	1,210	585	550	700	-------	2,560	930	1,830	1,520	930	1,060	14,200
30	930	490	500	690	-------	2,370	930	1,520	1,520	1,210	2,180	12,200
31	805	-------	500	1,210	-------	2,180	-------	1,670	-------	930	1,520	-------

NOTE.—Stage-discharge relation affected by ice Dec. 9 to Jan. 2, Jan. 12–15, and 20–29; discharge based on gage height and weather records, observer's notes, and a comparison with discharge for Des Moines River at Keosauqua.

Monthly discharge of Des Moines River at Ottumwa, Iowa, for the year ending September 30, 1926

[Drainage area, 13,200 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	7,680	585	2,680	0.203	0.23
November	1,360	490	1,030	.078	.09
December	805	405	622	.047	.05
January	4,660	500	1,400	.106	.12
February	8,550	1,670	4,100	.311	.32
March	6.530	2,000	3,340	.253	.29
April	4,400	930	1,870	.142	.16
May	1,830	585	931	.071	.08
June	28,000	490	5,010	.380	.42
July	1,830	405	996	.075	.09
August	3,910	490	1,370	.104	.12
September	35,300	1,520	14,300	1.08	1.20
The year	35,300	405	3,110	.236	3.17

DES MOINES RIVER AT KEOSAUQUA, IOWA

LOCATION.—In sec. 36, T. 69 N., R. 10 W., at county bridge in Keosauqua, Van Buren County, one-fourth mile above old dam site and Government locks. No important tributary enters Des Moines River for several miles up or down stream.

DRAINAGE AREA.—13,900 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—May 29, 1903, to July 21, 1906; April 5 to December 31, 1910; August 3, 1911, to September 30, 1926.

GAGE.—Chain gage attached to upstream handrail of bridge; read by Frank Schreckengast.

DISCHARGE MEASUREMENTS.—Made from bridge to which gage is attached.

CHANNEL AND CONTROL.—Channel shifts considerably at flood stages. Control is a gravel riffle one-fourth mile below gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.55 feet at 7 a. m. September 15 (discharge, 34,800 second-feet); minimum stage, 0.10 foot several days in July and August (discharge, 570 second-feet).

1903–1906, 1910–1926: Maximum stage recorded, 27.85 feet June 1, 1903 (discharge, about 97,000 second-feet); minimum discharge, 160 second-feet August 28 to September 6, 1911.

Flood of June 1, 1851, reached a stage of about 24 feet (discharge, about 80,000 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation for low stage changed, probably when heavy ice went out in January. Rating curves fairly well defined above and extended below 1,000 second-feet. Gage read to half-tenths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Records fair, except at low stages, for which they are poor.

The following discharge measurements were made:

August 23, 1926: Gage height, 0.70 foot; discharge, 1,440 second-feet.

August 26, 1926: Gage height, 0.90 foot; discharge, 1,820 second-feet.

September 16, 1926: Gage height, 9.58 feet; discharge, 26,400 second-feet.

Daily discharge, in second-feet, of Des Moines River at Keosauqua, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,540	1,080	835	700	2,200	4,770	2,520	1,110	1,720	1,620	2,200	1,720
2	910	1,080	625	1,260	2,840	4,770	2,410	1,110	1,620	1,530	960	1,620
3	8,990	1,160	692	3,200	5,800	4,270	2,300	1,110	1,360	1,900	1,900	2,200
4	8,420	1,160	1,350	5,140	5,020	3,540	3,160	1,040	1,040	2,300	1,360	15,000
5	8,420	1,260	1,640	6,750	5,800	2,840	4,020	820	960	1,360	570	12,300
6	7,860	1,350	1,000	13,100	5,800	2,730	6,340	890	825	1,190	570	15,600
7	7,860	1,440	700	4,270	5,540	2,780	5,270	890	690	1,530	630	11,400
8	7,300	1,440	700	4,270	5,270	2,840	4,770	755	630	1,440	630	12,000
9	5,660	1,440	800	3,540	4,270	1,810	5,270	788	755	1,360	630	27,200
10	4,620	2,060	900	2,730	3,540	2,200	4,770	820	690	1,360	570	19,500
11	4,020	3,180	1,000	1,920	3,300	2,460	3,920	755	1,270	1,360	630	10,800
12	3,420	3,420	1,100	1,110	3,070	2,730	3,070	820	1,530	1,360	630	11,100
13	3,180	2,060	1,100	1,000	3,300	3,780	2,620	820	3,300	1,360	630	11,400
14	2,390	1,750	1,100	950	3,540	4,280	2,300	820	9,340	2,730	1,620	12,000
15	2,950	1,700	1,050	900	3,780	4,770	2,100	820	24,800	1,440	2,700	34,800
16	2,720	1,640	1,000	900	4,270	4,270	1,860	820	26,900	1,440	3,780	30,400
17	3,650	1,440	900	850	3,300	4,520	1,620	820	24,800	890	3,780	20,800
18	2,960	1,440	850	850	5,270	5,270	1,580	820	17,500	790	2,730	14,400
19	2,280	1,350	850	850	5,270	4,770	1,530	755	11,400	690	2,100	10,500
20	1,850	1,260	800	850	4,520	4,270	1,530	755	8,460	690	2,100	9,620
21	1,750	1,260	800	850	4,150	4,140	1,440	755	5,530	630	2,620	20,400
22	1,640	1,210	800	850	3,780	4,020	1,190	755	4,770	630	1,990	23,100
23	1,540	1,160	750	850	3,070	3,780	1,440	898	4,020	1,040	1,360	29,000
24	1,540	835	750	850	3,300	4,020	1,530	1,040	3,780	630	1,360	32,200
25	1,590	992	750	800	4,770	3,780	1,440	755	4,270	600	1,360	34,400
26	1,640	1,040	700	800	4,770	3,780	1,360	755	2,840	570	1,620	33,700
27	1,540	1,080	700	800	4,520	3,300	1,360	820	2,370	570	1,720	28,000
28	1,160	835	700	800	4,640	3,070	1,360	1,270	1,900	690	1,440	18,800
29	835	764	700	800	-------	2,840	1,270	1,720	1,720	1,620	1,360	16,200
30	1,350	692	700	800	-------	2,730	1,110	1,580	1,720	1,110	1,270	15,300
31	1,080	-------	700	1,300	-------	2,520	-------	1,440	-------	1,360	1,360	-------

NOTE.—Gage not read Sundays; discharge interpolated or estimated by comparison with discharge at Ottumwa. Stage-discharge relation affected by ice Dec. 6 to Jan. 1 and Jan. 13–31; discharge estimated from a study of gage heights, weather records, observer's notes, and discharge of Des Moines River at Ottumwa.

Monthly discharge of Des Moines River at Keosauqua, Iowa, for the year ending September 30, 1926

[Drainage area, 13,900 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	8,990	835	3,440	0.247	0.28
November	3,420	692	1,420	.102	.11
December	1,640	625	872	.063	.07
January	13,100	700	2,090	.150	.17
February	5,800	2,200	4,240	.305	.32
March	5,270	1,810	3,600	.259	.30
April	6,340	1,110	2,550	.183	.20
May	1,720	755	940	.068	.08
June	26,900	630	5,750	.414	.46
July	2,730	570	1,220	.088	.10
August	3,780	570	1,550	.112	.13
September	34,800	1,620	17,800	1.28	1.43
The year	34,800	570	3,760	.271	3.65

RACCOON RIVER AT VAN METER, IOWA

LOCATION.—In SW. ¼ sec. 22, T. 78 N., R. 27 W., at highway bridge one-third mile from railroad station, Van Meter, Dallas County, 1 mile below junction of North and South Raccoon Rivers, and 30 miles above junction of Raccoon and Des Moines Rivers.

DRAINAGE AREA.—3,410 square miles (measured on base map of Iowa).

RECORDS AVAILABLE.—April 25, 1915, to September 30, 1926.

GAGE.—Gurley 7-day water-stage recorder installed May 31, 1923; inspected by Cal Smith.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; subject to change. River divided into two channels at low and medium stages by an island. Right bank high; left bank subject to overflow at a stage of 13 feet. At extremely high stage this overflow extends for several hundred feet beyond left end of bridge.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.96 feet at 3 p. m. September 20 (discharge, 40,000 second-feet); minimum stage during open-water periods, 1.75 feet at 5 p. m. August 6 (discharge, 65 second-feet).

1915–1924: Maximum stage recorded, 17.5 feet June 7, 1917 (discharge, 31,800 second-feet); minimum stage, 1.56 feet, October 22, 1918 (discharge, estimated 28 second-feet).

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation changed during winter. Rating curves fairly well defined between limits of stage applied. Operation of water stage recorder not entirely satisfactory owing to silting of stilling well and instrumental troubles. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph or, for days having considerable fluctuation in stage, by averaging discharge for intervals of the day except for periods given in footnote to table of daily discharge. Records fair.

Discharge measurements of Raccoon River at Van Meter, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
April 21	2.29	191	June 15	9.37	6,300
June 14	10.98	8,690	Do	8.62	5,740

Daily discharge, in second-feet, of Raccoon River at Van Meter, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145			335	180	192	295	115	630
2	145			335	165	150	315	109	1,910
3	1,020	220		358	160	122	242	101	4,750
4	1,020			335	148	97	335	97	4,720
5	1,170			315	148	107	430	97	2,500
6	950	268		315	150	122	618	81	1,910
7	880	250		315	150	107	405	75	1,380
8	775	223		295	142	109	295	75	1,970
9	680	188		295	145	107	278	77	3,440
10	590	220		278	150	132	242	85	6,100
11	505	250		278	148	145	195	101	8,300
12	455	250		278	145	135	170	97	8,450
13	382	250		260	140	2,520	128	481	5,100
14	360	250		260	145	8,370	128	1,100	3,170
15	320	220		260	174	6,440	128	705	3,470
16	302	220		260	160	3,770	113	645	3,570
17	295	200		225	165	2,570	105	590	3,240
18	278	220		225	186	1,840	115	405	4,910
19	260	220		210	189	1,380	99	315	14,500
20	260	208		210	162	1,100	107	278	34,800

Daily discharge, in second-feet, of Raccoon River at Van Meter, Iowa, for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	242	208	705	195	174	1,990	93	327	28,500
22	242	208	705	195	150	1,990	122	1,020	17,700
23	225	195	645	225	145	1,380	105	1,040	11,900
24	225	182	562	242	231	835	95	590	8,860
25	210	208	480	225	522	618	99	480	7,850
26	210	220	430	210	210	508	105	590	7,430
27	195	190	380	195	174	455	109	430	5,250
28	} 150	-------	380	195	611	430	101	335	4,100
29		-------	358	195	430	358	116	260	3,470
30		-------	335	180	278	295	265	464	3,070
31	200	-------	335	-------	210	-------	160	315	-------

NOTE.—Gage-height record from recorder not satisfactory Oct. 1–3, 8–27, Nov. 1–5, Mar. 20 to Apr. 21, Apr. 24 to May 1, June 21, 22, June 24 to July 15, July 24, 25, and 26; discharge based on partial records, one daily gage reading, and comparison with records of discharge of Des Moines River at Des Moines. Discharge Oct. 28–30 estimated because of ice effect; estimated Oct. 31 to Nov. 5 because gage was not read. No record Nov. 28 to Mar. 19.

Monthly discharge of Raccoon River at Van Meter, Iowa, for the year ending September 30, 1926

[Drainage area, 3,410 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,170	145	419	0.123	0.14
November 1–27	-------	-------	220	.065	.07
March 20–31	738	335	504	.148	.07
April	358	180	257	.075	.08
May	611	140	203	.060	.07
June	8,370	97	1,280	.375	.42
July	618	93	197	.058	.07
August	1,100	75	370	.109	.13
September	34,800	630	7,230	2.12	2.36

SUGAR CREEK NEAR KEOKUK, IOWA

LOCATION.—In sec. 7, T. 65 N., R. 5 W., at single-span highway bridge 6 miles northwest of Keokuk, Lee County, on road to Argyle, and 3½ miles above mouth.

DRAINAGE AREA.—113 square miles (measured on county topographic map).

RECORDS AVAILABLE.—March 29, 1922, to September 30, 1926.

GAGE.—Gurley 7-day water-stage recorder attached to right abutment of bridge; installed June 25, 1923; read by Mrs. J. B. Williams.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand; shifting. Left bank is overflowed at high stages. A heavy timber and riprap construction 100 feet below gage acts as low-water control; permanent. Elevation of lowest part of control, 1.01 feet, referred to gage datum. There is slight leakage through control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.58 feet at 8.30 a. m. September 16 (discharge, 3,040 second-feet); minimum stage, 1.23 feet June 9 (discharge, 0.5 second-foot).

1922–1926: Maximum stage recorded, that of September 16, 1926; creek dry at various times.

Maximum known stage, about 20.6 feet June 9, 1905 (discharge, about 15,000 second-feet). This flood was caused by the same historic storm which passed over the adjoining drainage area of Devils Creek and caused the destructive flood in that stream.

ACCURACY.—Stage-discharge relation permanent except as affected by ice during winter. Rating curve well defined below 300 second-feet and fairly well defined above. Daily discharge October 1–17 and April 17 to September 30, when operation of water-stage recorder was satisfactory, ascertained by applying to rating table mean daily gage height determined from recorder graph or, for days of large fluctuation in stage, by averaging discharge for intervals of day; daily discharge November 6–30, February 20 to March 4, March 6, and April 15 determined from one daily reading of staff gage. Records good for periods when gage operated.

Discharge measurements of Sugar Creek near Keokuk, Iowa, during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 15	1.87	31.5	Sept. 4	8.87	1,900
June 17	3.82	413	Sept. 8	8.82	1,830
Aug. 25	1.42	2.9			

Daily discharge, in second-feet, of Sugar Creek near Keokuk, Iowa, for the year ending September 30, 1926

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119			61		13	56	7	390	68
2	352			60		11	13	5.5	396	21
3	850			59		11	8	9	51	598
4	1,100			40		10	4.5	8	30	1,670
5	183			30		8	3	5.5	15	2,130
6	88	52		22		8	2.5	14	9	487
7	166	105				8	1.5	12	7.5	140
8	78	101				8	1	5.5	5.5	1,040
9	43	49				7.5	.5	13	4.5	2,630
10	32	74				7	1	13	4	614
11	22	342				5.5	10	6.5	2.5	80
12	20	138				5	255	3.5	2.5	256
13	20	83				5	815	2	71	220
14	156	52				6	1,750	1.5	44	166
15	165	46			30	5.5	487	1.5	52	1,560
16	83	43			24	4.5	125	1.5	22	2,060
17	360	35			18	4.5	498	1	24	174
18		27			15	5	234	1	36	80
19		22			13	4.5	59	1	14	258
20		23	119		11	3.5	36	1	8.5	633
21		15	165		9	3	29	1	8	188
22		30	168		37	3.5	26	32	4.5	76
23		27	146		68	3.5	18	3.5	6.5	49
24		24	56		101	3.5	15	6.5	4	123
25		14	144		61	2	14	4	3	69
26		15	168		29	1.5	15	2	2	38
27		14	87		22	4.5	17	1.5	1	37
28		11	61		16	4	11	40	1.5	54
29		8			15	14	9	34	3.5	69
30		6			15	10	8	10	6.5	632
31						67		26	28	

NOTE.—Discharge estimated because of ice Nov. 28, 29, Mar. 2 and 5; interpolated Apr. 16. Discharge not determined during winter owing to lack of sufficient data.

Monthly discharge of Sugar Creek near Keokuk, Iowa, for the year ending September 30, 1926

[Drainage area, 113 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October 1–17	1,100	20	226	2.00	1.26
November 6–30	342	6	54.2	.480	.45
February 20–28	168	56	124	1.10	.37
April 15–30	101	9.0	30.2	.267	.16
May	67	1.5	8.3	.073	.08
June	1,750	.5	151	1.34	1.50
July	40	1.0	8.8	.078	.09
August	396	1.0	40.6	.359	.42
September	2,630	21	541	4.79	5.34

FOX RIVER NEAR WAYLAND, MO.

LOCATION.—In NE. ¼ sec. 25, T. 65 N., R. 7 W., at highway bridge 1 mile above Chicago, Burlington & Quincy Railroad bridge, 2½ miles northwest of Wayland, Clark County, and 3 miles below Brush Creek.

DRAINAGE AREA.—392 square miles (measured on base map of Iowa and on topographic maps).

RECORDS AVAILABLE.—February 22, 1922, to September 30, 1926.

GAGE.—Chain gage bolted to handrail on upstream side of bridge; read by Loren Smith and Ernest Walker.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.5 feet at 9.30 a. m. September 17 (discharge, 6,570 second-feet); minimum stage, 2.12 feet at 9 a. m. September 1 (discharge, 1 second-foot).

1922–1926: Maximum stage recorded, that of September 17, 1926; minimum stage, 1.98 feet at 7 a. m. November 7, 1923 (discharge, 0.6 second-foot).

ACCURACY.—Stage-discharge relation changed during high water in September; affected by ice during winter. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table; shifting-control method used September 18–30. Records good for medium and high stages and fair for low stages. Winter records poor.

Discharge measurements of Fox River near Wayland, Mo., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 6	4.02	252	May 6	2.55	30	Sept. 17	17.50	6,570
Feb. 28	4.26	321	July 9	2.57	30	Sept. 18	6.02	561
Do	4.24	305	Aug. 27	2.22	3.4			

Daily discharge, in second-feet, of Fox River near Wayland, Mo., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,020	114	67	55	210	263	65	51	82	19	210	3
2	1,360	152	80	67	440	190	55	50	34	20	114	46
3	1,030	121	77	940	415	121	92	43	13	20	45	540
4	2,540	200	99	2,300	230	106	136	39	6	340	23	2,780
5	1,300	241	540	2,920	180	99	540	36	5	136	13	2,620
6	440	340	390	2,080	136	121	1,120	32	2	47	10	1,120
7	365	540	340	640	128	99	1,390	27	4	41	8	390
8	318	1,180	390	590	121	106	1,770	26	2	45	2	2,540
9	190	760	760	490	42	114	2,050	26	2	30	5	3,190
10	128	1,300	1,180	365	37	121	1,660	22	2	25	4	3,780
11	121	1,630	1,120	252	53	252	760	23	2	22	3	640
12	114	1,330	760	170	73	365	390	27	20	20	4	700
13	114	465	640	152	71	296	252	23	241	17	2	1,240
14	440	318	490	136	92	161	180	24	3,620	11	17	590
15	760	230	340	136	82	128	136	21	1,800	8	48	3,960
16	760	230	161	136	74	136	114	18	440	6	37	5,740
17	1,490	190	161	152	121	144	92	15	1,420	4	390	6,100
18	1,180	152	180	152	880	152	82	15	1,740	2	86	700
19	318	144	210	170	1,000	252	73	15	415	2	46	515
20	210	136	161	170	790	390	63	15	190	2	25	1,030
21	136	121	161	152	880	296	60	14	121	2	15	910
22	190	121	210	136	415	220	83	12	92	53	8	365
23	114	106	190	121	390	190	200	12	80	20	8	128
24	114	92	170	106	820	170	365	9	69	13	8	78
25	180	88	136	79	1,520	128	340	7	51	4	6	121
26	465	106	106	79	1,210	99	152	4	42	2	4	40
27	263	91	79	67	440	66	99	9	34	2	3	27
28	161	65	67	67	296	61	79	69	28	4	2	48
29	114	77	55	79	------	59	67	51	24	69	3	136
30	88	65	55	92	------	60	60	27	19	52	2	1,030
31	114	------	55	106	------	72	------	20	------	33	2	------

NOTE.—Stage-discharge relation affected by ice Dec. 25 to Jan. 2 and Jan. 10–31; daily discharge estimated from gage heights, observer's notes, and weather records. Gage reading probably in error Oct. 24 and Feb. 10; discharge estimated.

Monthly discharge of Fox River near Wayland, Mo., for the year ending September 30, 1926

[Drainage area, 292 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,540	88	553	1.41	1.63
November	1,630	65	357	.911	1.02
December	1,180	55	304	.776	.89
January	2,920	55	424	1.08	1.24
February	1,520	37	398	1.02	1.06
March	390	59	162	.413	.48
April	2,050	55	418	1.07	1.19
May	69	4	25.2	.064	.07
June	3,620	2	353	.901	1.01
July	340	2	34.5	.088	.10
August	390	2	37.2	.095	.11
September	6,100	3	1,370	3.49	3.89
The year	6,100	2	367	.936	12.69

WYACONDA RIVER NEAR CANTON, MO.

LOCATION.—In SE. ¼ SW. ¼ sec. 33, T. 62 N., R. 6 W., at highway bridge three-fourths mile below Sugar Creek, 3 miles southwest of Canton, Lewis County, and 15 miles above mouth of river.

DRAINAGE AREA.—447 square miles (measured on base map of Iowa and on topographic maps).

RECORDS AVAILABLE.—February 20, 1922, to September 30, 1926.

GAGE.—Chain gage on upstream side of bridge; read by Fred Scroeder and George Jobe.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and mud; free from vegetation; somewhat shifting. No well-defined control. Banks wooded near edge and cultivated beyond; left bank subject to overflow at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.76 feet at 2.45 p. m. September 17 (discharge, 5,300 second-feet); minimum discharge, 3 second-feet June 11, July 20, 21, and August 13.

1922–1926: Maximum stage recorded, that of September 17, 1926; minimum discharge estimated because of ice effect, 0.5 second-foot January 8, 9, and 19–23, 1924.

ACCURACY.—Stage-discharge relation changed slightly during high water in June; affected by ice during winter. Rating curve well defined. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge for open-water periods ascertained by applying gage height to rating table except from June 16 to August 22 when shifting-control method was used. Records good except for periods of ice effect, for which they are fair.

Discharge measurements of Wyaconda River near Canton, Mo., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 6	2.64	227	July 8	1.36	22	Sept. 17	15.75	5,260
Feb. 27	4.36	648	Do	1.35	20			
May 6	1.30	31	Aug. 27	.93	4.5			

Daily discharge, in second-feet, of Wyaconda River near Canton, Mo., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,350	113	90	9	70	256	40	67	35	46	340	34
2	2,950	158	113	8	70	276	30	56	25	35	143	84
3	770	180	92	710	76	158	87	51	17	25	98	590
4	1,410	212	565	1,760	81	128	173	46	15	25	53	2,310
5	1,270	220	590	2,670	77	128	770	38	5	106	33	3,230
6	770	204	565	2,350	73	136	1,410	30	4	70	8	3,600
7	440	180	590	650	106	98	2,150	25	4	35	7	1,010
8	256	1,620	565	490	113	73	2,470	22	4	17	6	2,710
9	158	1,760	950	340	113	128	2,750	17	4	12	5	3,960
10	128	1,410	800	212	113	166	2,590	15	4	8	4	5,120
11	113	1,010	565	196	106	490	890	17	3	35	4	3,430
12	76	1,070	515	173	73	540	415	15	8	30	4	340
13	73	340	465	158	51	365	276	12	173	25	3	490
14	51	212	440	158	78	238	276	8	3,230	15	78	1,270
15	710	67	220	173	51	204	158	11	4,610	9	92	2,590
16	890	30	212	188	53	173	136	9	1,800	8	150	3,780
17	1,100	20	188	212	51	158	120	8	4,500	5	180	5,180
18	1,580	11	166	220	1,760	204	90	8	3,190	4	196	2,830
19	770	84	143	238	1,160	276	81	8	1,130	4	150	390
20	440	76	128	213	1,300	365	70	8	204	3	64	3,070
21	150	98	113	188	1,270	204	64	8	188	3	35	3,150
22	136	70	102	113	1,270	143	180	7	106	64	9	770
23	98	87	90	56	565	212	390	6	98	43	8	365
24	87	98	73	43	318	204	710	5	90	27	8	340
25	76	81	56	17	1,010	173	650	4	120	11	7	296
26	256	113	43	17	710	128	196	4	238	9	6	256
27	150	27	43	17	740	95	158	8	128	8	4	136
28	128	38	30	30	365	64	120	14	84	9	4	113
29	78	46	17	56	-------	46	87	22	56	8	4	296
30	83	64	9	70	-------	38	78	11	46	8	81	890
31	77	-------	9	70	-------	27	-------	8	-------	7	38	-------

NOTE.—Stage-discharge relation affected by ice Dec. 24 to Jan. 1, Jan. 12–16, and Jan. 22 to Feb. 4; discharge estimated from gage heights, observer's notes, and weather records. Gage not read; discharge interpolated Dec. 22, Jan. 20, and Feb. 5.

Monthly discharge of Wyaconda River near Canton, Mo., for the year ending September 30, 1926

[Drainage area, 447 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,950	51	569	1.27	1.46
November	1,760	11	323	.723	.81
December	950	9	276	.617	.71
January	2,670	8	381	.852	.98
February	1,760	51	422	.944	.98
March	540	27	190	.425	.49
April	2,750	30	587	1.31	1.46
May	67	4	18.3	.041	.05
June	4,610	3	671	1.50	1.67
July	106	3	23.0	.051	.06
August	340	3	58.7	.131	.15
September	5,180	34	1,750	3.91	4.36
The year	5,180	3	435	.973	13.18

NORTH FABIUS RIVER AT MONTICELLO, MO.

LOCATION.—In SE. ¼ sec. 6, T. 61 N., R. 7 W. at highway bridge 1 mile south of Monticello, Lewis County, and 22 miles above junction with Middle Fabius River.

DRAINAGE AREA.—452 square miles (measured on base map of Iowa and on topographic maps).

RECORDS AVAILABLE.—February 18, 1922, to September 30, 1926.

GAGE.—Chain gage fastened to downstream side of bridge; read by Floyd Nelson.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of rock, sand, and silt; clean and fairly permanent. Control is a coarse gravel bar 1½ miles below gage; somewhat shifting.

EXTREMES OF DISCHARGE.—Maximum stage during year determined by levels to floodmarks, 23.2 feet at about 8 p. m. September 16 (discharge, 6,580 second-feet); minimum discharge, 2 second-feet August 10 and 16.

1922–1926: Maximum stage, that of September 16, 1926; minimum discharge, 1 second-foot July 9, 1922.

ACCURACY.—Stage-discharge relation changed during high water in June and September; affected by ice during winter. Rating curve fairly well defined above 16 second-feet. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge for open-water periods ascertained by applying daily gage height to rating table except from June 18 to September 15 when shifting-control method was used. Records fair.

Discharge measurements of North Fabius River at Monticello, Mo., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 6	3.00	242	July 8	1.08	22	Sept. 17	8.70	[a] 1,290
Feb. 26	6.25	911	Do	1.10	21			
May 6	1.38	33	Aug. 26	.72	5.5			

[a] Made during rapidly falling stage; computed discharge for constant stage, 1,380 second-feet.

Daily discharge, in second-feet, of North Fabius River at Monticello, Mo., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,560	37	33	54	65	400	26	70	55	95	8	141
2	1,890	83	27	77	89	260	23	57	17	63	12	608
3	340	214	24	229	101	199	19	50	21	58	14	674
4	101	184	500	4,500	89	199	630	42	20	54	13	1,530
5	155	214	1,370	2,550	77	176	674	40	19	51	12	1,210
6	229	244	1,040	652	70	214	1,110	37	18	66	10	1,610
7	214	214	674	542	67	184	1,420	33	77	40	7	740
8	214	586	1,110	491	63	127	1,640	33	120	22	6	1,830
9	162	850	1,720	440	58	114	3,250	31	134	19	5	5,420
10	114	1,240	1,160	244	54	155	2,110	30	101	16	2	4,050
11	101	989	784	199	52	340	896	27	95	40	5	718
12	89	652	440	141	49	586	420	26	83	37	4	586
13	199	460	400	114	48	1,010	340	24	72	34	3	1,210
14	308	420	260	89	46	652	244	23	1,110	27	3	1,750
15	1,040	340	169	89	43	542	229	20	3,990	23	3	4,340
16	1,450	244	155	89	35	400	184	20	3,430	22	2	5,680
17	1,110	120	148	89	77	229	162	19	4,570	20	12	4,630
18	896	29	141	101	120	184	148	17	1,390	19	14	1,080
19	630	26	134	114	1,040	155	127	16	652	30	12	1,610
20	400	24	124	127	1,310	440	83	14	1,080	77	8	4,820
21	155	20	114	127	1,370	308	52	13	1,310	36	5	3,800
22	101	58	101	114	1,040	199	46	13	873	23	4	2,170
23	95	54	89	77	674	184	276	12	460	20	4	1,260
24	75	50	77	44	1,110	176	520	11	2,170	13	5	630
25	214	46	77	27	1,610	169	380	11	3,620	10	4	440
26	276	42	65	27	1,040	162	214	10	2,610	8	4	400
27	260	63	54	27	440	155	192	9	896	8	3	141
28	244	70	54	27	674	141	169	13	400	8	3	199
29	214	56	44	27	-------	134	127	10	141	10	14	400
30	108	44	35	35	-------	114	77	58	30	9	20	1,690
31	36	-------	44	44	-------	108	-------	83	-------	8	95	-------

NOTE.—Gage not read; discharge interpolated Nov. 5, Dec. 20, Jan. 8, and May 5. Discharge estimated July 7–10 on account of unreliable gage readings. Stage-discharge relation affected by ice Dec. 22–31 and Jan. 11 to Feb. 1; discharge estimated from gage heights, observer's notes, and weather records.

Monthly discharge of North Fabius River at Monticello, Mo., for the year ending September 30, 1926

[Drainage area, 452 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,560	36	483	1.07	1.23
November	1,240	20	256	.566	.63
December	1,720	24	360	.796	.92
January	4,500	27	371	.821	.95
February	1,610	35	411	.909	.95
March	1,010	108	271	.600	.69
April	3,250	19	526	1.16	1.29
May	83	9	28.1	.062	.07
June	4,570	17	985	2.18	2.43
July	95	8	31.2	.069	.08
August	95	2	10.2	.023	.03
September	5,680	141	1,830	4.05	4.52
The year	5,680	2	459	1.02	13.79

SALT RIVER NEAR NEW LONDON, MO.

LOCATION.—In NE. ¼ NW. ¼ sec. 36, T. 56 N., R. 5 W., at bridge on State highway No. 61, 1¼ miles below Turkey Creek and 2 miles north of New London, Ralls County.

DRAINAGE AREA.—2,480 square miles (measured on topographic and soil-survey maps).

RECORDS AVAILABLE.—February 16, 1922, to September 30, 1926.

GAGE.—Chain gage bolted to handrail on upstream side of bridge; read by Wade Thornberry.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; clean and fairly permanent. Control is a gravel bar 200 feet below gage; shifts occasionally during high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 26.00 feet at 5 p. m. September 6 (discharge, 49,800 second-feet); minimum stage, 1.76 feet at 6 p. m. July 28 (discharge, 22 second-feet).

1922–1926: Maximum stage recorded, that of September 6, 1926; minimum discharge estimated at 12 second-feet August 20, 1922.

ACCURACY.—Stage-discharge relation changed during April and August; affected by ice during winter. Rating curves fairly well defined. Gage read to hundredths twice daily; readings rather unreliable after August 1. Daily discharge for open-water periods ascertained by applying mean daily gage height to rating table. Records fair except during periods of ice effect, for which they are poor.

Discharge measurements of Salt River near New London, Mo., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 5	2.27	144	Apr. 8	24.41	40,600	May 5	2.90	295
Feb. 25	8.94	6,030	Apr. 10	13.61	[a] 10,900	July 7	2.20	78
Apr. 7	22.71	32,800	Do	11.10	[b] 8,450	Aug. 26	2.96	473

[a] Measurement made during rapidly falling stage; computed discharge for constant stage, 12,200 second-feet.

[b] Measurement made during rapidly falling stage; computed discharge for constant stage, 8,790 second-feet.

Daily discharge, in second-feet, of Salt River near New London, Mo., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,060	157	287	130	1,530	2,120	332	350	277	160	254	391
2	948	149	264	130	1,450	1,060	326	320	465	120	246	417
3	595	130	287	770	1,140	735	343	305	572	105	242	1,860
4	14,000	144	840	1,370	948	560	3,890	268	277	105	238	26,500
5	10,800	157	2,460	5,070	700	430	15,300	277	207	96	230	40,200
6	4,520	157	4,960	3,890	630	343	22,600	230	169	94	218	49,800
7	3,690	157	6,920	2,810	560	528	34,000	230	127	94	163	26,000
8	2,900	4,740	3,890	2,380	528	630	40,200	214	100	148	91	7,470
9	1,780	8,870	495	1,530	462	469	33,600	192	91	405	67	14,400
10	1,210	4,960	528	840	365	450	10,300	192	67	3,590	47	21,800
11	665	2,540	665	770	365	2,120	6,140	196	58	855	43	4,740
12	495	1,530	840	495	365	3,790	9,430	185	855	940	38	4,090
13	310	1,370	1,060	365	310	3,290	9,290	178	325	350	31	3,790
14	244	770	1,060	264	310	2,290	4,520	172	1,110	246	45	3,790
15	144	1,060	910	430	310	1,450	1,990	166	2,990	166	154	8,170

Daily discharge, in second-feet, of Salt River near New London, Mo., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	95	1,370	700	398	310	1,060	1,360	166	3,890	127	690	6,920
17	57	2,040	560	398	310	910	940	166	9,150	103	5,070	6,660
18	2,290	2,380	430	462	3,290	840	690	163	11,800	87	2,990	6,270
19	2,040	3,090	310	398	11,800	770	535	154	9,850	76	1,140	5,070
20	1,530	1,780	264	264	10,000	1,530	500	1,630	7,190	62	4,850	3,090
21	1,210	365	223	130	12,400	2,200	405	730	5,300	51	3,790	1,700
22	700	495	188	130	10,900	1,530	378	291	2,710	38	1,860	1,780
23	326	528	188	106	8,310	3,090	350	230	770	33	1,290	1,700
24	195	430	157	106	6,020	2,120	1,900	192	435	41	800	1,290
25	157	287	157	130	7,050	1,210	1,630	169	315	28	600	1,060
26	157	287	157	188	8,170	735	2,530	140	272	27	473	1,140
27	163	398	157	264	6,020	528	2,530	112	246	24	300	1,140
28	188	528	130	238	3,690	430	1,360	85	254	22	200	2,720
29	188	595	130	462	-------	316	650	94	246	405	163	6,400
30	188	462	130	805	-------	292	435	435	210	340	220	7,190
31	188	-------	130	1,140	-------	360	-------	178	-------	268	256	-------

NOTE.—Stage-discharge relation affected by ice Dec. 15 to Jan. 2, Jan. 11–13, and 21–25; daily discharge estimated from gage heights, observer's notes, and weather records. Discharge estimated on account of unreliable gage readings Aug. 24, 25, 27, and 28; result of discharge measurement used Aug. 26.

Monthly discharge of Salt River near New London, Mo., for the year ending September 30, 1926

[Drainage area, 2,480 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	14,000	57	1,710	0.690	0.80
November	8,870	130	1,400	.565	.63
December	6,920	130	951	.383	.44
January	5,070	106	870	.351	.40
February	12,400	310	3,510	1.42	1.48
March	3,790	292	1,230	.496	.57
April	40,200	326	6,950	2.80	3.12
May	1,630	85	271	.109	.13
June	11,800	58	2,010	.810	.90
July	3,590	22	297	.120	.14
August	5,070	31	864	.348	.40
September	49,800	391	8,920	3.60	4.02
The year	49,800	22	2,380	.960	13.03

CUIVRE RIVER NEAR TROY, MO.

LOCATION.—In SW. ¼ sec. 18, T. 49 N., R. 1 E., at Frenchman Bluff highway bridge, 1½ miles above Sugar Creek, 3 miles northeast of Troy, Lincoln County, and 4 miles below West Fork.

DRAINAGE AREA.—908 square miles (measured on topographic maps).

RECORDS AVAILABLE.—February 15, 1922, to September 30, 1926.

GAGE.—Chain gage on upstream side of bridge; read by C. H. Kolb.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt, sand, and gravel; clean except for drift. Left bank high and rocky; right bank wooded; subject to overflow at extremely high stages. Control is a coarse gravel bar 300 feet below gage; clean except for brush growing on exposed part; shifts occasionally during high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 25.40 feet at 8 a. m. September 5 (discharge, from extension of rating curve, 50,000 second-feet); minimum stage, 1.48 feet at 5 p. m. August 15 (discharge, 15 second-feet).

1922–1926: Maximum stage recorded, that of September 5, 1926; minimum discharge, 4 second-feet September 9–25, 1925.

ACCURACY.—Stage-discharge relation changed during high water in November. Rating curves fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table except from October 4 to November 7 when shifting-control method was used. Records fair.

Discharge measurements of Cuivre River near Troy, Mo., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 5	2.10	40	July 7	1.46	14	Aug. 25	3.74	476
Feb. 25	15.02	10,100	Aug. 25	3.86	529	Aug. 26	3.16	302
May 5	2.44	111						

Daily discharge, in second-feet, of Cuivre River near Troy, Mo., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	49	305	55	[a] 133	365	305	170	[a] 129	24	1,060	3,340
2	354	42	138	53	138	365	335	128	88	21	538	690
3	1,560	40	128	70	117	275	1,710	138	78	[a] 20	170	3,260
4	8,360	38	170	1,060	110	245	12,100	128	64	20	97	23,200
5	1,800	36	6,640	810	107	208	6,520	117	57	[a] 19	74	47,400
6	510	34	3,100	575	86	195	3,870	114	[a] 51	18	49	10,000
7	308	12,800	730	365	86	538	31,600	94	45	[a] 18	42	1,150
8	200	24,000	1,150	220	83	466	9,440	100	[a] 40	19	32	890
9	120	5,110	1,060	170	[a] 83	414	1,510	97	36	70	26	15,300
10	68	730	810	121	83	335	1,020	94	[a] 36	1,610	23	3,260
11	56	575	612	91	80	4,810	1,510	[a] 91	35	730	22	1,710
12	44	414	414	88	[a] 80	2,550	4,610	88	32	501	19	650
13	36	335	335	[a] 77	80	1,060	1,510	[a] 86	538	305	17	466
14	31	335	275	66	78	650	650	83	220	159	16	398
15	29	335	232	66	[a] 76	501	612	78	[a] 152	75	15	335
16	268	501	170	78	75	501	501	73	83	64	7,120	1,020
17	3,100	970	148	78	75	466	398	68	1,150	47	3,100	466
18	1,240	890	148	86	10,000	431	365	88	650	42	1,510	320
19	440	730	138	501	8,360	365	350	107	148	36	650	245
20	268	501	170	335	2,200	320	305	114	102	27	501	170
21	100	365	159	232	1,660	305	275	100	76	24	398	148
22	75	290	159	114	1,100	305	260	80	[a] 70	350	335	138
23	53	232	124	107	770	1,240	245	78	65	110	275	124
24	212	195	[a] 110	100	365	650	1,200	75	48	47	232	110
25	920	148	97	91	12,200	448	730	70	72	42	501	11,200
26	685	220	[a] 85	73	2,550	414	398	68	52	35	159	2,200
27	278	690	73	70	1,330	275	320	61	36	27	121	4,710
28	178	538	64	70	612	208	220	59	32	23	86	15,300
29	120	448	59	[a] 87	-------	195	220	57	28	19	68	7,360
30	68	398	[a] 57	104	-------	220	195	55	24	17	2,550	9,720
31	56	-------	55	128	-------	275	-------	170	-------	1,330	3,420	-------

[a] Gage not read; discharge interpolated.

NOTE.—Gage read to top of ice Dec. 23 to Jan. 3, Jan. 11–15, and 26–31. An estimated correction of 0.10 foot was subtracted from gage height before applying to rating table.

Monthly discharge of Cuivre River near Troy, Mo., for the year ending September 30, 1926

[Drainage area, 908 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	8,360	29	698	0.769	0.89
November	24,000	34	1,730	1.91	2.13
December	6,640	55	578	.637	.73
January	1,060	53	198	.218	.25
February	12,200	75	1,530	1.69	1.76
March	4,810	195	632	.696	.80
April	31,600	195	2,780	3.06	3.41
May	170	55	94.5	.104	.12
June	1,150	24	141	.155	.17
July	1,610	17	189	.208	.24
August	7,120	15	749	.825	.95
September	47,400	110	5,510	6.07	6.77
The year	47,400	15	1,220	1.34	18.22

DES PLAINES RIVER AT LEMONT, ILL.

LOCATION.—In sec. 20, T. 37 N., R. 11 E., at concrete highway bridge on Stephens Street, a quarter of a mile north of main section of Lemont, Cook County, and 8 miles above junction of Des Plaines River and the Chicago Drainage Canal.

DRAINAGE AREA.—705 square miles.

RECORDS AVAILABLE.—November 4, 1914, to September 30, 1926.

GAGE.—Staff gage attached to bridge; read by William Weck, jr. Zero of gage is 584.10 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Concrete dam 500 feet below gage forms control for low and medium stages; permanent except for slight repairs in August, 1920.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.6 feet February 28 (discharge, 3,450 second-feet); minimum stage, 2.60 feet October 13, January 3, July 26 and 28, and August 30 to September 2 (discharge, 31 second-feet).

1915–1926: Maximum discharge recorded, 5,520 second-feet March 18, 1919; minimum discharge, no flow September 7, 8, 14–21, and 24–27, 1919, July 25–31, 1921, and September 8, 1925.

DIVERSIONS.—During extremely high water part of flow spills into Chicago Drainage Canal at Willow Springs 7 miles above station. Estimates of this overflow in previous years were published in Water-Supply Papers 505, 565, 585, and 605. Estimates for 1926 are given below:

Date	Overflow in second-feet	Date	Overflow in second-feet	Date	Overflow in second-feet
Feb. 27	430	Apr. 9	280	Apr. 14	160
Feb. 28	850	Apr. 10	720	Sept. 26	60
Mar. 1	620	Apr. 11	620	Sept. 27	430
Mar. 2	370	Apr. 12	520		
Mar. 3	100	Apr. 13	430		

ICE.—Stage-discharge relation not seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent at low and medium stages; at high stages affected by vegetation in overflow area. Rating curve well defined above 50 second-feet and fairly well defined below. Gage read to quarter-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurement was made:
April 13, 1926: Gage height, 5.45 feet; discharge, 3,150 second-feet.

Daily discharge, in second-feet, of Des Plaines River at Lemont, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	120	150	48	122	3,260	540	580	150	120	68	31
2	68	93	120	40	150	3,060	445	580	150	120	93	31
3	93	68	120	31	181	2,630	422	460	120	180	68	48
4	93	120	120	62	212	2,200	445	445	120	245	48	60
5	68	150	150	93	246	1,640	460	385	120	280	48	68
6	68	180	150	122	280	1,080	540	350	93	245	68	78
7	48	212	180	150	280	1,060	700	350	93	180	68	93
8	68	180	212	181	280	1,030	2,200	315	68	180	60	93
9	68	150	245	212	262	980	2,880	280	68	120	68	120
10	68	120	245	212	245	930	3,450	245	68	212	48	150
11	48	120	280	212	245	815	3,250	245	315	280	68	120
12	48	150	280	202	245	700	3,060	245	422	245	68	120
13	31	212	280	193	228	700	3,060	212	422	212	48	108
14	68	245	280	156	212	700	2,700	212	1,150	212	68	120
15	68	350	280	120	228	540	2,360	180	1,020	180	68	212
16	120	385	280	120	245	500	2,050	180	925	150	48	212
17	120	385	280	120	392	460	1,590	245	790	120	48	193
18	93	350	280	120	540	422	1,300	245	745	93	48	180
19	93	315	280	120	785	385	1,080	350	700	68	68	180
20	68	315	280	150	1,030	700	540	315	460	60	48	193
21	68	301	246	180	932	1,030	700	280	385	68	48	212
22	93	280	212	298	835	1,080	700	245	350	120	68	245
23	120	280	196	315	768	1,140	660	245	280	93	68	315
24	150	245	180	264	700	1,030	660	212	280	68	48	385
25	150	245	150	212	1,450	1,030	620	212	245	60	48	1,900
26	150	232	120	181	2,200	980	620	180	212	31	48	2,330
27	150	212	106	150	3,060	930	620	180	212	44	68	2,870
28	168	180	93	135	3,450	880	580	120	180	31	68	2,170
29	150	180	70	120	-------	790	540	150	150	48	48	1,780
30	120	150	48	106	-------	700	540	120	120	48	31	1,560
31	120	-------	48	93	-------	620	-------	180	-------	60	31	------

NOTE.—Gage read every other day Dec. 20 to Mar. 14; discharge interpolated for days when gage was not read. Gage readings to top of ice Dec. 11, 12, and 16–20; discharge estimated from observer's notes and weather records.

Monthly discharge of Des Plaines River at Lemont, Ill., for the year ending September 30, 1926

[Drainage area, 705 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	168	31	93.7	0.133	0.15
November	385	68	218	.309	.34
December	280	48	192	.272	.31
January	315	31	152	.216	.25
February	3,450	122	707	1.00	1.04
March	3,260	385	1,100	1.56	1.80
April	3,450	422	1,310	1.86	2.08
May	580	120	276	.391	.45
June	1,150	68	347	.492	.55
July	280	31	135	.191	.22
August	93	31	57.8	.082	.09
September	2,870	31	539	.765	.85
The year	3,450	31	423	.600	8.13

DES PLAINES RIVER AT JOLIET, ILL.

LOCATION.—In NE. ¼ sec. 9, T. 35 N., R. 10 E., at Jackson Street Bridge, Joliet, Will County, 1,200 feet upstream from Cass Street Bridge.

DRAINAGE AREA.—Indeterminate.

RECORDS AVAILABLE.—December 3, 1914, to September 30, 1926; at Cass Street Bridge September 5 to December 19, 1914.

GAGE.—Gurley 7-day water-stage recorder; inspected by H. A. McCann. Zero of gage is 524.31 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from Cass Street Bridge.

CHANNEL AND CONTROL.—Channel excavated in solid rock, with a concrete wall on either side; permanent.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 15,000 second-feet April 11; minimum mean daily discharge, 5,240 second-feet November 1.

1914–1926: Maximum mean daily discharge during days of record, 18,400 second-feet, March 18, 1919; minimum mean daily discharge, 5,240 second-feet, November 1, 1925.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Water is diverted to Illinois & Michigan Canal at Dam No. 1, 100 feet above gage.

REGULATION.—Flow past gage is largely regulated by operation of power plant of Chicago Sanitary District at Lockport, which utilizes flow of Chicago Drainage Canal, and, to a lesser extent, by operation of Economy Light & Power Co.'s plant, 100 feet above gage.

ACCURACY.—Stage-discharge relation permanent; not affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory except as noted in table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Records excellent, except for periods when water-stage recorder was not in operation, for which they are poor.

No discharge measurements were made at this station during the year.

Daily discharge, in second-feet, of Des Plaines River at Joliet, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,400	5,240	7,880	7,500	8,120	11,200	9,620	9,400	8,590	[a]9,080	9,200	8,880
2	8,420	8,290	7,860		8,150	10,500	9,550	8,980	8,590	[b]9,200	9,480	9,220
3	8,310	7,640	7,900		8,190	10,400	9,750	9,350	[b]8,660	[a]9,320	9,100	[a]9,250
4	7,920	7,640	8,380		8,220	10,500	9,500	8,980	[b]8,690	9,480	9,120	[a]9,080
5	8,420	7,250	7,970	[a]7,480	8,030	10,300	9,960	8,900	[a]8,710	9,320	[a]9,200	9,480
6	8,060	6,830	7,500	7,410	7,680	9,880	10,300	9,120	8,540	9,180	[b]9,160	8,930
7	8,080	[a]6,770	7,580	7,560	8,030	[a]9,450	[b]11,300	9,050	8,590	8,950	[a]9,120	8,830
8	8,290		7,480	[a]7,750	8,190		[b]12,400	[a]8,850	8,640	[a]8,950	8,900	8,950
9	9,000		7,680	[a]7,860	8,260		[b]13,500	8,950	8,760	[b]9,020	9,100	9,020
10	7,830		7,660	7,210	8,710		[a]14,600	9,120	[a]8,950	[a]9,080	9,120	8,080
11	7,900	[a]7,000	[a]7,370	7,640	8,190		15,000	9,080	[a]9,080	8,900	9,150	7,130
12	7,990		[a]6,480	7,500	7,900	[b]9,000	14,100	[a]8,950	[b]9,200	9,200	9,150	8,680
13	8,010		7,050		8,060		13,100	[b]8,850	[b]10,700	9,100	9,050	7,660
14	7,880	[a]6,020	7,110	[b]7,500	7,570		[a]12,900	[b]8,750	[b]12,900	8,930	9,100	8,590
15	7,880	6,430	7,370		7,940		12,000	[a]8,660	12,600	8,810	9,020	8,570
16	7,770	7,980	7,750	[a]7,310	7,660		10,600	8,590	11,500	8,760	9,000	7,860
17	8,420	8,590	7,480	7,770	7,620		10,500	8,640	11,400	8,590	9,020	7,230
18	7,620	8,190	7,010	8,420	9,450	[a]8,470	10,200	8,730	[b]10,800	8,640	9,120	[a]6,930
19	7,520	[a]9,000	7,110	8,310	8,780	8,660	10,000	9,780	10,400	8,810	9,180	6,850
20	7,480	[b]8,010	7,770	8,540	[a]8,850	9,150	9,150	[a]9,200	10,100	8,570	9,150	7,270

[a] Discharge partly estimated because of incomplete gage records.
[b] No record, discharge estimated. Braced figures indicate estimated mean discharge for period included.

Daily discharge, in second-feet, of Des Plaines River at Joliet, Ill., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	7,750	a 8,010	7,790	8,260	9,220	9,320	8,900	b 9,080	9,620	8,540	9,280	6,830
22	8,060	8,010	7,810	a 8,170	9,100	9,860	9,120	a 8,950	9,350	9,750	9,020	7,170
23	7,940	7,480	7,150		9,020	9,910	9,200	8,780	9,320	9,080	9,100	8,970
24	a 8,420	7,860	7,410		8,610	a 9,830	9,120	9,080	9,280	a 9,080	9,020	a 8,590
25	8,450	8,170	a 7,480		a 9,700	b 9,770	9,780	9,200	9,250	9,150	9,050	a 8,710
26	8,310	a 8,010		b 8,200	b 10,100	b 9,710	9,420	a 9,080	a 9,200	9,450	8,640	8,810
27	8,120	a 8,010			a 10,500	a 9,650	9,450	b 9,040	8,930	9,380	8,900	9,180
28	7,830	7,790	b 7,500		10,600	9,620	9,800	b 8,990	8,930	9,350	a 8,660	9,120
29	7,830	7,810				9,550	9,080	a 8,950	8,690	9,250	8,660	8,710
30	8,170	7,810		a 8,240		10,200	9,250	8,660	9,120	9,020	9,050	8,780
31	7,710			8,060		10,500		8,640		a 9,220	8,850	

a Discharge partly estimated because of incomplete gage records.
b No record, discharge estimated. Braced figures indicate estimated mean discharge for period included.

NOTE.—Daily discharge in the above table does not include flow in Illinois & Michigan Canal (see "Diversions" in station description).

Monthly discharge of Des Plaines River at Joliet, Ill., for the year ending September 30, 1926

[Drainage area, indeterminate]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	9,000	7,480	8,060	May	9,780	8,590	8,980
November	9,000	5,240	7,490	June	12,900	8,540	9,570
December	8,380	6,480	7,520	July	9,750	8,540	9,070
January	8,540	7,210	7,850	August	9,480	8,640	9,050
February	10,600	7,570	8,590	September	9,480	6,830	8,380
March	11,200	8,470	9,560				
April	15,000	8,900	10,700	The year	15,000	5,240	8,730

ILLINOIS RIVER AT MORRIS, ILL.

LOCATION.—In sec. 9, T. 33 N., R. 7 E. third principal meridian, at highway bridge in Morris, Grundy County, 7 miles below station formerly maintained near Minooka and 10 miles below mouth of Kankakee River.

DRAINAGE AREA.—Indeterminate.

RECORDS AVAILABLE.—October 1, 1919, to September 30, 1926; January 1, 1903, to December 13, 1904, for the station near Minooka. Daily readings were obtained at present site by United States Engineer Corps December 10, 1899, to November 30, 1900, and April 20, 1903, to December 11, 1904.

GAGE.—Chain gage attached to bridge; read by employee of United States Weather Bureau. Zero of gage is 478.97 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Right bank high; left bank is overflowed at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 16.4 feet April 11 (discharge, 41,000 second-feet); minimum stage, 5.1 feet November 2 (discharge, 7,400 second-feet).

1919–1926: Maximum stage recorded, 20.1 feet April 12, 1922 (discharge, 60,600 second-feet); minimum stage occurred on November 2, 1925.

A discharge of 67,800 second-feet occurred at 8 a. m. March 26, 1904, at station near Minooka.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow at this station includes the flow from Chicago Drainage Canal. Operation of power plants at Lockport and Joliet above gage causes slight diurnal fluctuations at low and medium stages.

ACCURACY.—Stage-discharge relation probably permanent during year. Rating curve well defined. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good for medium and high stages; fair for low stages.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

No discharge measurements were made at this station during the year.

Daily discharge, in second-feet, of Illinois River at Morris, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,200	8,600	9,640		9,860	24,400	14,600	15,800	11,700	11,000	10,800	10,800
2	9,200	7,400	9,640		10,500	24,400	15,800	14,600	11,000	11,000	11,400	11,700
3	9,200	9,000	9,420	8,800	10,800	20,400	18,000	14,400	11,200	11,200	12,600	13,600
4	9,200	8,800	9,640		10,800	19,000	19,000	13,600	11,400	11,400	12,600	14,800
5	9,420	8,600	10,300		11,200	17,700	20,600	13,100	11,400	11,200	12,200	19,800
6	9,200	8,400	9,640	8,800	10,800	16,400	23,100	12,900	11,400	11,000	11,700	21,700
7	9,000	7,800	9,200	8,600	10,800	16,400	26,000	12,600	11,000	11,000	11,200	21,700
8	9,000	9,000	9,640	8,800	10,800	13,800	30,600	12,600	10,800	10,500	10,800	20,400
9	9,200	8,600	9,640	9,000	10,500	12,600	36,000	12,600	10,500	10,300	10,500	19,500
10	10,100	8,400	9,860	9,000	10,300	13,800	40,500	12,600	10,500	11,200	10,300	19,000
11	8,600	8,000	9,860	8,600	10,300	13,800	41,000	13,100	11,400	11,000	10,500	16,900
12	9,000	8,400	9,860	9,000	9,860	12,600	38,000	12,900	23,300	10,800	10,500	16,900
13	9,200	9,420	9,200	8,800	9,640	13,800	33,400	12,900	22,800	10,800	10,300	17,700
14	8,800	8,200	8,800	9,000	9,860	11,400	29,000	12,600	20,600	10,500	12,900	16,400
15	9,000	8,200	9,200	9,000	9,860	11,400	26,000	12,600	24,400	10,300	12,600	16,900
16	8,800	8,800	9,000	8,400	9,640	11,400	23,300	12,200	22,000	10,300	12,900	17,700
17	9,000	11,700	9,200	8,200	9,860	11,400	21,400	11,900	20,600	10,100	12,900	16,700
18	9,200	11,000	9,000	9,000	10,300	11,400	20,100	11,700	20,900	9,640	12,400	15,400
19	9,000	11,000	8,400	12,400	13,400	11,400	19,000	12,400	19,000	9,860	12,200	14,400
20	8,800	11,700	9,200	13,400	13,600	12,900	18,000	12,900	18,200	9,860	12,200	13,800
21	8,800	11,200	9,420	13,800	15,800	15,100	17,400	12,200	17,400	9,420	11,700	14,400
22	9,000	10,300	9,200	13,100	15,600	16,100	16,900	12,400	15,800	10,100	11,900	13,400
23	9,200	10,800	9,420	12,900	15,400	17,400	17,700	12,600	14,600	11,200	12,600	13,100
24	9,200	10,500	8,600	10,800	14,800	17,200	19,300	12,200	13,800	11,000	14,400	26,600
25	9,860	9,640	9,200	10,500	16,900	16,900	20,600	12,400	13,100	11,000	14,100	30,300
26	9,640	10,500	8,600	10,500	33,800	16,700	20,400	12,400	12,600	10,800	13,100	28,700
27	9,420	10,300		9,640	29,000	17,400	19,000	12,400	12,200	10,800	11,900	27,200
28	9,200	9,860		9,000	26,000	15,100	18,200	12,400	11,700	10,500	11,400	27,500
29	8,800	9,640	8,800	9,200	-------	14,600	17,200	12,400	11,200	10,500	11,000	28,100
30	9,000	9,640		9,420	-------	14,600	15,800	12,400	10,800	10,300	10,500	27,200
31	9,420	-------		9,640	-------	14,800	-------	11,900	-------	10,300	10,800	-------

NOTE.—Discharge estimated on account of ice Dec. 27 to Jan. 5 and Jan. 29 and 30, from records for Des Plaines River at Joliet and Kankakee River at Custer Park. Braced figures show mean discharge for periods indicated.

Monthly discharge of Illinois River at Morris, Ill., for the year ending September 30, 1926

[Drainage area, indeterminate]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	10,100	8,600	9,150	May	15,800	11,700	12,800
November	11,700	7,400	9,450	June	24,400	10,500	14,900
December	10,300	8,400	9,250	July	11,400	9,420	10,600
January	13,800	8,200	9,760	August	14,400	10,300	11,800
February	33,800	9,640	13,600	September	30,300	10,800	19,100
March	24,400	11,400	15,400				
April	41,000	14,600	23,200	The year	41,000	7,400	13,200

ILLINOIS RIVER AT PEORIA, ILL.

LOCATION.—In sec. 2, T. 8 N., R. 8 E., at foot of Grant Street, Peoria, Peoria County, 3½ miles above station formerly maintained at Peoria & Pekin Union Railroad bridge, and 4¼ miles above mouth of Kickapoo Creek.

DRAINAGE AREA.—Indeterminate.

RECORDS AVAILABLE.—March 8, 1910, to September 30, 1926; March 10, 1903, to July 21, 1906, for station at Peoria & Pekin Union Railroad bridge.

GAGE.—Vertical staff gage attached to wooden pile; read by employee of United States Engineer Corps. Zero of gage is 428.92 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from downstream side of Lower Free Bridge, 2 miles below gage.

CHANNEL AND CONTROL.—Bed of river, which forms control for medium and high stages, is composed of mud and may shift. Dam at Copperas Creek probably forms control for lowest stages; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.6 feet September 30 (discharge, 41,500 second-feet); minimum stage, 9.8 feet October 11 (discharge, 9,750 second-feet).

1903–1906: Maximum discharge recorded, 57,600 second-feet March 28 and 29, 1904; minimum discharge, 6,170 second-feet July 18–20, 1906.

1910–1926: Maximum stage recorded, 24.80 feet April 15–17, 1922 (discharge, 56,700 second-feet); minimum discharge, somewhat less than 7,250 second-feet occurred during period December 11, 1916, to January 10, 1917.

The highest known flood occurred in 1844, when a stage of about 26.6 feet on the present gage was reached.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow at this station includes water diverted from Lake Michigan through the Chicago Drainage Canal. No diurnal fluctuation is noticeable.

ACCURACY.—Stage-discharge relation practically permanent during year, except as slightly affected by ice. Rating curve well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Open-water records good; records for ice-affected periods fair.

COOPERATION.—Gage-height record furnished by United States Engineer Corps.

The following discharge measurement was made:

April 20, 1926: Gage height, 19.40 feet; discharge, 31,700 second-feet.

Daily discharge, in second-feet, of Illinois River at Peoria, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,200	10,200	11,600	10,500	13,000	24,600	19,800	27,600	14,900	17,600	13,400	14,900
2	10,400	10,200	11,600	10,700	13,400	26,100	20,000	26,700	14,900	17,300	13,400	16,200
3	10,400	10,000	11,600	11,000	13,500	26,400	20,000	26,400	14,900	16,600	13,500	17,600
4	10,400	9,900	11,600	11,300	13,900	26,400	19,800	25,200	14,500	16,400	13,700	18,500
5	10,400	10,000	11,500	11,500	14,100	26,400	20,500	24,000	14,100	16,000	13,900	20,800
6	10,000	10,200	11,500	11,600	13,900	25,800	20,800	23,800	13,700	15,800	14,100	21,800
7	10,400	10,400	11,600	11,800	13,900	25,200	21,800	23,000	13,700	15,300	14,300	23,000
8	10,200	10,500	11,600	12,000	13,900	24,600	23,000	22,500	13,700	14,900	14,100	23,800
9	10,400	10,400	11,800	12,000	13,900	23,800	24,600	22,000	13,500	14,500	13,900	26,400
10	10,200	10,400	12,000	12,000	13,900	23,500	27,000	21,500	13,400	14,900	13,900	27,000
11	9,750	10,400	11,600	12,000	13,500	23,000	30,000	21,000	13,200	14,700	14,100	27,300
12	10,200	10,500	11,600	11,800	13,000	23,000	32,700	20,200	13,000	14,100	13,900	27,600
13	10,400	10,500	12,000		13,400	22,200	34,600	19,800	13,900	14,100	13,700	28,200
14	10,000	10,600	12,000		13,400	21,500	35,800	19,500	15,100	14,100	13,900	27,900
15	10,200	11,000	11,600		13,200	21,000	36,600	19,000	16,600	13,700	13,900	28,800
16	10,000	10,600	11,500	11,300	12,800	20,000	35,800	18,500	17,600	13,200	13,900	29,700
17	10,400	10,600	11,300		12,800	20,000	35,800	18,000	19,000	13,000	13,900	30,600
18	10,000	10,400	11,300		13,400	19,800	35,800	17,600	20,200	13,000	14,100	30,600
19	10,000	11,000	11,000		13,700	19,500	34,200	17,600	21,000	13,000	14,100	31,300
20	10,000	11,300	11,000		13,700	19,200	32,700	16,900	21,000	12,700	14,100	31,300

Daily discharge, in second-feet, of Illinois River at Peoria, Ill., for the year ending September 30, 1926—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	10,000	11,000	11,000		14,700	19,000	32,000	16,000	20,500	12,500	14,100	30,300
22	10,000	11,600	11,000		15,500	19,000	31,300	16,900	21,000	12,700	14,100	30,300
23	10,200	11,800	11,000		16,000	19,200	31,300	16,400	21,000	12,500	14,100	29,400
24	10,000	11,600	11,000		16,200	19,500	30,000	16,000	20,800	12,300	14,300	30,600
25	10,000	12,000	11,000		17,100	20,000	30,600	16,200	20,200	12,500	14,100	33,400
26	9,900	12,000	10,600	12,800	18,500	20,000	30,000	16,000	20,200	12,500	13,700	36,200
27	10,000	12,000			21,000	20,200	29,700	16,000	19,500	12,300	14,300	38,600
28	10,400	12,000			22,200	20,200	29,400	15,800	19,000	12,300	14,100	40,200
29	10,200	12,000	10,500		-------	20,200	28,200	15,300	18,200	12,200	14,100	40,600
30	10,200	11,600			-------	20,800	27,900	15,300	18,000	12,300	14,100	41,500
31	10,200	-------			-------	21,000	-------	14,900	-------	12,700	13,900	-------

NOTE.—Discharge estimated on account of ice Dec. 27 to Jan. 2, and Jan. 13 to Feb. 3 from records for Illinois River at Morris. Braced figures show mean discharge for periods indicated.

Monthly discharge of Illinois River at Peoria, Ill., for the year ending September 30, 1926

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	10,400	9,750	10,200	May	27,600	14,900	19,500
November	12,000	9,900	10,900	June	21,000	13,000	17,000
December	12,000	10,500	11,300	July	17,600	12,200	13,900
January	-------	10,500	11,900	August	14,300	13,400	14,000
February	22,200	12,800	14,700	September	41,500	14,900	28,500
March	26,400	19,000	22,000				
April	36,600	19,800	28,700	The year	41,500	9,750	16,800

ILLINOIS RIVER AT HAVANA, ILL.

LOCATION.—In sec. 1, T. 21 N., R 9 W., at highway bridge in Havana, Mason County, half a mile below mouth of Spoon River.

DRAINAGE AREA.—17,200 square miles (since January 17, 1900, flow has been increased by diversion from Lake Michigan through the Chicago Drainage Canal.

RECORDS AVAILABLE.—October 1, 1921, to September 30, 1926. Gage readings October, 1878, to May, 1881, and January, 1896, to December, 1904, published in House Document 263, Fifty-ninth Congress; gage readings since December, 1904, in files of United States Engineer Corps.

GAGE.—Vertical staff gage attached to pile 30 feet downstream from draw pier of bridge; read by employee of United States Engineer Corps. Zero of gage is 424.76 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Channel sandy and somewhat shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 19.3 feet September 19 and 20 (discharge, 46,000 second-feet); minimum stage, 7.6 feet October 21–23 (discharge, 10,300 second-feet).

1921–1926: Maximum stage recorded, 22.4 feet April 20, 1922 (discharge, 65,000 second-feet); minimum stage, 7.1 feet September 7–10, 1925 (discharge, 9,560 second-feet).

Maximum stage recorded since 1844 occurred in 1922.

ICE.—Stage-discharge relation slightly affected by ice.

REGULATION.—Flow at this station includes the flow of the Chicago Drainage Canal.

ACCURACY.—Stage-discharge relation practically permanent during year except as affected by ice. Rating curve well defined. Gage read to tenths once daily. Daily discharge for open-water periods determined by applying daily gage height to rating table. Records for open-water periods, good; for ice periods, fair.

COOPERATION.—Gage-height record furnished by United States Engineer Corps.

No discharge measurements were made at this station during the year.

Daily discharge, in second-feet, of Illinois River at Havana, Ill., for the year ending September 30, 1926

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

NOTE.—Discharge estimated on account of ice Dec. 27–30 and Jan. 13–31 from records for Illinois River at Peoria and Spoon River at Seville.

Monthly discharge of Illinois River at Havana, Ill., for the year ending September 30, 1926.

[Drainage area, 17,200 square miles]

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	11,800	10,300	10,900	May	31,600	17,600	23,400
November	13,600	10,900	12,500	June	26,700	14,800	20,800
December	13,600	12,000	12,900	July	21,400	13,300	16,400
January	16,000	12,000	14,500	August	17,600	16,000	16,600
February	24,100	14,300	17,100	September	46,000	16,600	37,900
March	27,600	22,900	25,300				
April	38,800	23,200	32,300	The year	46,000	10,300	20,000

ILLINOIS RIVER AT BEARDSTOWN, ILL.

LOCATION.—In sec. 15, T. 18 N., R. 12 W., at highway bridge on State Street, Beardstown, Cass County, 9½ miles below the mouth of Sangamon River.

DRAINAGE AREA.—23,445 square miles (since January 17, 1900, the natural run-off has been increased by diversion from Lake Michigan through the Chicago Drainage Canal).

RECORDS AVAILABLE.—October 1, 1920, to September 30, 1926.

GAGE.—Vertical staff gage attached to pile on inside of cribbing 40 feet above center span of bridge. Zero of gage is 420.33 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand and mud. Except at very high stages control is formed by LaGrange Dam about 11 miles downstream; probably permanent. The stage at Beardstown is slightly affected, in occasional seasons of high water, by backwater from Mississippi River, and occasionally by backwater from Crooked Creek, which enters 5 miles below Beardstown.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 22.2 feet September 18–20 (discharge, 71,200 second-feet); minimum stage, 8.3 feet October 20 to November 6 (discharge 11,800 second-feet).

1920–1926: Maximum stage recorded, 25.1 feet April 20, 1922 (discharge, 93,100 second-feet); minimum stage, 7.7 feet December 19–22, 1922, and September 10–12, 1925 (discharge, 9,620 second-feet).

Maximum stage since 1844 occurred in 1922. On April 4, 1904, discharge was determined by United States Engineer Corps as 115,000 second-feet (gage height, 20.0 feet).

ICE.—Stage-discharge relation slightly affected by ice in some years.

REGULATION.—The flow at this station includes the flow of the Chicago Drainage Canal.

ACCURACY.—Discharge for a given stage is dependent on slope which varies during high-water periods. Rating curves for different slopes are fairly well defined by discharge measurements between 10,700 and 94,000 second-feet and for slopes between 0.000010 and 0.000066. Gage read to tenths once daily. Daily discharge March 1 to June 30 and September 1–30 determined by applying daily gage height to rating curve for slope occurring on that day as indicated by stages at Beardstown and LaGrange. Daily discharge October 1 to February 28 and July 1 to August 31 determined by applying daily gage heights to rating table based on average slope. Records fair.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

The following discharge measurements were made:

October 31, 1925: Gage height, 8.35 feet; discharge, 11,900 second-feet.

September 17, 1926: Gage height, 22.11 feet; discharge, 69,100 second-feet (stage-discharge relation slightly affected by backwater from Crooked Creek).

Daily discharge, in second-feet, of Illinois River at Beardstown, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11,800	11,800	15,400	12,900	17,300	30,100	34,000	45,700	21,900	28,100	18,000	19,200
2	12,100	11,800	15,400	12,900	18,000	30,600	36,100	43,600	20,300	26,900	18,400	19,700
3	12,500	11,800	15,000	12,900	18,700	32,700	34,000	42,400	19,900	25,800	19,100	21,200
4	12,900	11,800	14,700	13,900	19,500	34,100	31,400	40,300	18,400	25,000	19,100	23,200
5	12,900	11,800	15,000	13,900	19,500	34,300	31,600	39,300	19,400	24,700	18,700	27,600
6	12,900	11,800	15,400	15,400	18,700	34,900	28,100	39,100	19,400	23,600	18,700	30,800
7	13,200	12,100	15,400	17,300	18,700	35,200	28,800	37,200	18,900	22,800	18,400	38,600
8	13,200	13,600	15,800	18,000	18,700	33,600	32,500	36,200	18,700	22,100	18,000	42,700
9	13,200	13,600	15,800	17,600	18,400	32,800	37,600	34,700	17,300	21,700	18,000	45,100
10	12,900	14,700	15,800	17,300	18,400	32,800	41,700	33,300	16,800	21,000	18,000	46,000
11	12,900	15,000	15,800	17,300	18,000	34,400	47,000	32,700	17,200	20,600	18,400	51,400
12	12,900	15,400	15,800	16,900	18,000	33,100	51,300	31,400	17,300	19,800	18,400	56,900
13	12,500	15,400	15,800	16,900	17,600	32,800	55,800	30,500	18,600	19,500	18,700	61,900
14	12,500	15,400	16,500	16,500	17,300	31,800	57,000	29,900	20,700	18,700	19,100	63,800
15	12,100	15,000	16,200	16,900	16,900	31,500	58,200	28,500	23,400	18,400	18,700	64,400
16	12,100	15,000	16,200	16,200	16,500	30,900	59,500	29,200	25,900	18,000	18,400	67,900
17	12,100	15,800	15,800	15,800	16,500	30,400	59,900	28,600	28,200	17,600	18,700	69,400
18	12,100	16,200	15,400	16,200	16,500	29,800	58,800	28,100	31,600	16,900	19,100	71,200
19	12,100	16,200	14,700	16,900	17,600	29,900	58,400	26,500	33,200	16,500	18,400	71,200
20	11,800	16,200	14,300	17,300	18,400	28,500	57,000	26,000	33,800	16,200	19,500	71,200
21	11,800	16,200	14,700	18,000	21,000	28,200	56,200	25,400	36,000	15,800	19,500	69,400
22	11,800	15,800	14,300	18,000	21,300	28,700	55,000	24,000	34,800	15,400	18,700	67,500
23	11,800	15,800	13,600	18,000	22,100	29,100	52,300	23,100	34,700	14,300	18,400	65,600
24	11,800	15,400	12,900	17,300	22,800	29,100	51,000	23,200	33,300	13,900	18,700	64,400
25	11,800	15,000	12,900	16,900	22,800	28,400	50,800	23,300	32,000	13,900	18,400	62,200
26	11,800	15,800	12,900	16,900	25,000	28,800	50,000	22,400	31,800	13,900	18,000	60,400
27	11,800	15,800	12,500	16,500	27,300	29,200	49,200	22,700	30,400	13,900	18,000	61,300
28	11,800	15,400	12,100	16,200	28,400	29,200	48,500	22,400	29,600	13,900	18,000	60,700
29	11,800	15,400	12,100	15,800	-------	28,100	47,100	21,200	28,800	13,900	17,600	62,100
30	11,800	15,400	12,100	15,800	-------	28,100	46,300	21,600	27,900	13,900	18,700	63,500
31	11,800	-------	12,500	16,900	-------	28,100	-------	21,000	-------	15,000	18,000	-------

NOTE.—Stage-discharge relation affected by backwater from Crooked Creek Oct. 1–3, Nov. 8–11, Jan. 4–8, Feb. 18–28, and July 31 to Aug. 5; discharge estimated from records of stage of Crooked Creek at Ripley and records of stage at Beardstown.

Monthly discharge of Illinois River at Beardstown, Ill., for the year ending September 30, 1926

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
October	13,200	11,800	12,300	May	45,700	21,000	30,100
November	16,200	11,800	14,500	June	36,000	16,800	25,300
December	16,500	12,100	14,600	July	28,100	13,900	18,800
January	18,000	12,900	16,300	August	19,500	17,600	18,500
February	28,400	16,500	19,600	September	71,200	19,200	53,400
March	35,200	28,100	30,900				
April	59,900	28,100	46,800	The year	71,200	11,800	25,000

SPRING CREEK AT JOLIET, ILL.

LOCATION.—In sec. 11, T. 35 N., R. 10 E., at Benton Street Bridge in Joliet, Will County, half a mile above mouth.

DRAINAGE AREA.—19.7 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 15, 1925, to September 30, 1926.

GAGE.—Vertical staff; read by Lulu Skoien.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Artificial channel with concrete walls; bed of loose rocks and earth.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.5 feet June 11 (discharge, 1,070 second-feet); minimum stage, 0.30 foot August 5 and August 10 to September 3 (discharge, 2.0 second-feet).

Maximum and minimum discharges since July 15, 1925, are those given above.

ACCURACY.—Stage-discharge relation changed slightly during June. Rating curves fairly well defined. Gage read to tenths and occasionally to hundredths once daily and oftener during high water. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for low stages, for which they are poor.

The following discharge measurements were made:
February 25, 1926: Gage height, 2.23 feet; discharge, 146 second-feet.
June 14, 1926: Gage height, 2.49 feet; discharge, 170 second-feet.
July 14, 1926: Gage height, 0.43 foot; discharge, 4.95 second-feet.

Daily discharge, in second-feet, of Spring Creek at Joliet, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	4.5	7.0	4.5	6.8	44	10	7.0	7.0	4.0	4.0	2.0
2	4.5	6.8	6.8	6.2	4.8	37	14	7.0	4.5	9.5	4.0	2.0
3	4.5	6.8	6.8	8.5	4.5	31	14	7.0	4.5	6.5	4.0	2.0
4	4.3	5.8	14	19	7.0	14	10	7.0	4.5	6.5	4.0	4.0
5	4.5	5.8	9.7	10	4.5	14	10	7.0	4.5	6.2	2.0	4.0
6	5.8	4.5	7.0	9.7	4.5	14	19	6.8	4.5	4.0	4.0	4.0
7	4.5	5.8	7.0	4.5	4.5	14	44	7.0	4.5	4.0	4.0	4.0
8	4.5	7.0	7.0	4.5	4.5	14	51	7.0	4.5	4.0	4.0	6.5
9	4.5	7.0	7.0	4.5	4.5	14	116	7.0	4.5	9.5	4.0	4.0
10	4.5	6.8	7.0	4.5	4.5	10	106	7.0	4.5	6.5	4.0	4.0
11	4.5	6.8	7.0	4.5	4.5	7.0	96	4.5	753	6.5	2.0	4.0
12	4.5	10	6.8		4.5	7.0	59	4.5	116	4.0	2.0	4.0
13	4.5	14	6.8	4.0	4.5	6.8	44	4.5	383	4.0	2.0	4.0
14	4.5	14	7.0		4.5	4.5	37	4.5	151	4.0	2.0	4.0
15	4.5	9.7	6.8		4.5	4.5	31	4.5	96	4.0	2.0	18
16	7.0	9.7	6.8	4.5	4.5	6.8	37	4.5	59	4.0	2.0	6.5
17	4.5	9.7	6.8	4.5	4.5	6.8	37	4.5	68	4.0	2.0	4.0
18	4.5	9.7	6.8	127	31	10	25	7.0	48	4.0	2.0	4.0
19	4.5	7.0	6.8	7.0	14	14	19	4.5	37	4.0	2.0	4.0
20	4.5	7.0	6.8	14	18	19	14	4.5	37	4.0	2.0	6.5
21	4.5	7.0	6.8	10	18	13	10	4.5	18	4.0	2.0	4.0
22	4.5	7.0	4.5		18	13	10	10	12	6.5	2.0	4.0
23	4.5	7.0			18	14	14	7.0	9.5	4.0	2.0	44
24	5.8	7.0			18	10	19	4.5	9.5	4.0	2.0	30
25	4.5	7.0			188	10	14	4.5	9.2	4.0	2.0	18
26	6.8	7.0		4.0	64	10	14	7.0	6.5	4.0	2.0	14
27	6.8	6.8	4.0		28	10	14	7.0	6.5	4.0	2.0	14
28	5.8	6.8			139	10	14	4.5	6.5	4.0	2.0	14
29	4.5	6.8			-------	9.7	10	4.5	6.5	4.0	2.0	9.5
30	4.5	6.8			-------	10	10	4.5	4.0	4.0	2.0	9.5
31	4.5	-------			-------	13	-------	5.8	-------	4.0	2.0	-------

NOTE.—Stage-discharge relation affected by ice Dec. 23–31, Jan. 12–15, and Jan. 22–31; discharge estimated from gage heights, weather records, and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of Spring Creek at Joliet, Ill., for the year ending September 30, 1926

[Drainage area, 19.7 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	7.0	4.3	4.84	0.246	0.28
November	14	4.5	7.59	.385	.43
December	14	----------	6.29	.319	.37
January	127	----------	9.79	.497	.57
February	188	4.5	22.7	1.15	1.20
March	44	4.5	13.4	.680	.78
April	116	10	30.7	1.56	1.74
May	10	4.5	5.84	.296	.34
June	753	4.0	62.8	3.18	3.55
July	9.5	4.0	4.83	.245	.28
August	4.0	2.0	2.58	.131	.15
September	44	2.0	8.55	.434	.48
The year	753	2.0	14.8	.751	10.17

WEST BRANCH OF DU PAGE RIVER AT WINFIELD, ILL.

LOCATION.—In sec. 12, T. 39 N., R. 9 E., at highway bridge at Winfield, Du Page County, 60 feet above Chicago & Northwestern Railway bridge.

DRAINAGE AREA.—44 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 2, 1925, to January 15, 1926, when station was discontinued.

GAGE.—Staff gage near right end of bridge, read by William Zeier.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge or by wading.

CHANNEL AND CONTROL.—Channel composed of gravel and rock. Banks will be overflowed at medium stages. Railroad bridge below gage forms permanent control for high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 2.50 feet January 3 (discharge estimated, 50 second-feet); minimum stage, 1.24 feet September 2–11, 1925 (discharge, 0.5 second-foot.)

ACCURACY.—Stage-discharge relation permanent during period. Rating curve well defined. Gage read to hundredths once daily. Daily discharge for open-water period ascertained by applying daily gage height to rating table. Records good except for ice-affected period, for which they are poor.

The following discharge measurements were made:

February 26, 1926: Gage height, 4.11 feet; discharge, 203 second-feet (stage-discharge relation affected by ice).

April 12, 1926: Gage height, 3.52 feet; discharge, 188 second-feet.

Daily discharge, in second-feet, of West Branch of Du Page River at Winfield, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.
1	0.9	2.7	7.6	25	16	0.9	16	5.5	
2	.9	3.4	8.3	36	17	.9	15	5.0	
3	1.3	3.8	10	50	18	.9	14	4.5	
4	1.5	4.1	20	42	19	.9	13	4.5	
5	2.2	4.5	23	35	20	1.0	13	5.0	
6	1.5	5.5	21	30	21	1.2	12	5.5	
7	1.3	6.5	18	26	22	1.3	7.0	6.0	
8	1.2	7.0	14	23	23	1.5	6.5	6.5	
9	1.5	8.3	13	21	24	1.5	6.0	6.5	
10	2.0	9.6	10	19	25	1.5	6.0	7.0	
11	1.5	10	8.6	13	26	1.7	6.0	6.5	
12	1.3	13	7.0	9	27	2.0	6.0	6.2	
13	1.2	13	7.0	7	28	2.2	6.0	6.0	
14	1.0	14	6.5	6	29	2.5	6.5	6.5	
15	.9	15	6.0	5	30	2.5	7.0	7.0	
					31	2.7		10	

NOTE.—Stage-discharge relation affected by ice Dec. 26 to Jan. 15; discharge estimated.

Monthly discharge of West Branch of Du Page River at Winfield, Ill., for the year ending September 30, 1926

[Drainage area, 44 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2.7	0.9	1.46	0.033	0.04
November	16	2.7	8.68	.197	.22
December	23	4.5	8.97	.204	.24

KANKAKEE RIVER AT MOMENCE, ILL.

LOCATION.—In sec. 24, T. 31 N., R. 13 E., at highway bridge in Momence, Kankakee County, half a mile below Chicago & Eastern Illinois Railroad bridge and 1½ miles above Tower Creek.

DRAINAGE AREA.—2,340 square miles.

RECORDS AVAILABLE.—February 24, 1905, to July 20, 1906; December 3, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge over left channel; read by Earl Clark.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and boulders; somewhat shifting. River at gage divided into two channels by an island. Aquatic plants sometimes grow in bed of river during summer.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.05 feet April 10 (discharge, 7,870 second-feet); minimum stage, 1.83 feet October 5 (discharge, 653 second-feet).

1905–6; 1915–1926: Maximum open-water stage recorded, 6.4 feet January 22, 1916 (discharge, estimated from extension of rating curve, 12,600 second-feet); minimum stage, 1.37 feet September 1, 16, and 17, 1919 (discharge, 306 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

ACCURACY.—Stage-discharge relation permanent during year except as affected by ice. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good for open-water periods and fair for ice-affected period.

The following discharge measurements were made:

February 17, 1926: Gage height, 2.34 feet; discharge, 1,290 second-feet.

April 14, 1926: Gage height, 4.34 feet; discharge, 5,690 second-feet.

June 24, 1926: Gage height, 2.89 feet; discharge, 2,170 second-feet.

Daily discharge, in second-feet, of Kankakee River at Momence, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	675	785	1,220			4,720	3,420	2,560	1,760	1,440	960	785
2	675	785	1,160			4,440	3,910	2,460	1,760	1,360	900	1,090
3	697	785	1,220			4,170	4,170	2,370	1,760	1,360	900	1,090
4	664	785	1,360		1,500	4,170	4,170	2,190	1,670	1,440	900	1,160
5	653	785	1,360			4,170	4,720	2,100	1,590	1,360	840	1,160
6	675	785	1,440			3,660	5,310	2,010	1,590	1,290	840	1,160
7	697	785	1,440			3,420	6,250	1,840	1,510	1,220	840	1,090
8	686	960	1,360	785	1,510	3,190	6,570	1,840	1,440	1,220	785	1,090
9	686	1,020	1,440		1,440	3,190	7,540	1,920	1,440	1,220	785	1,090
10	708	1,160	1,360		1,510	2,760	7,870	1,920	1,360	1,220	785	1,020
11	686	1,290	1,290		1,440	2,460	7,870	1,920	1,840	1,220	840	1,020
12	697	1,360	1,290		1,440	2,370	7,210	1,760	3,190	1,160	785	960
13	697	1,360	1,220		1,440	2,190	6,570	1,760	3,420	1,220	785	960
14	708	1,670	1,160		1,360	2,010	5,930	1,760	3,420	1,160	840	1,020
15	697	1,760	1,160		1,290	1,920	5,310	1,670	3,660	1,090	785	1,090
16	686	1,840	1,220		1,360	1,840	5,310	1,670	3,420	1,020	900	1,290
17	697	1,840	1,220		1,290	1,760	5,010	1,670	3,420	1,020	1,020	1,360
18	730	1,760	1,220	1,150	1,440	1,920	4,720	1,670	3,420	1,020	1,090	1,290
19	708	1,840	1,090		2,370	1,920	4,170	1,760	3,420	960	1,020	1,220
20	708	1,760			2,280	2,370	3,660	1,840	3,190	960	1,020	1,290
21	697	1,760			2,370	2,560	3,190	1,840	3,190	960	1,020	1,360
22	719	1,760			2,560	2,760	3,190	1,840	2,760	1,090	1,020	1,360
23	697	1,670			2,100	3,190	3,190	1,840	2,560	1,090	900	1,440
24	697	1,760			2,190	3,190	2,760	1,840	2,100	1,090	960	1,760
25	708	1,670	850		3,660	3,190	3,190	1,760	2,010	1,090	900	1,920
26	730	1,440		1,950	4,440	3,420	3,190	1,760	1,760	1,020	840	2,100
27	785	1,510			4,720	3,190	3,190	1,760	1,760	960	840	2,190
28	785	1,440			4,720	3,190	2,970	1,840	1,670	960	785	2,460
29	785	1,440			-------	3,190	2,760	1,840	1,670	960	730	2,460
30	840	1,290			-------	3,190	2,760	1,840	1,590	900	785	2,560
31	785	-------			-------	3,420	-------	1,840	-------	900	785	------

NOTE.—Discharge Dec. 20 to Feb. 7 estimated because of ice, from gage heights, weather records, observer's notes, and gage heights on Kankakee River at Custer Park. Braced figures show mean discharge for periods indicated.

Monthly discharge of Kankakee River at Momence, Ill., for the year ending September 30, 1926

[Drainage area, 2,340 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile.	
October	840	653	712	0.304	0.35
November	1,840	785	1,360	.581	.65
December	1,440		1,110	.474	.55
January			1,260	.538	.62
February	4,720	1,290	2,050	.876	.91
March	4,720	1,760	3,000	1.28	1.48
April	7,870	2,760	4,670	2.00	2.23
May	2,560	1,670	1,890	.808	.93
June	3,660	1,360	2,310	.987	1.10
July	1,440	900	1,130	.482	.56
August	1,090	730	877	.375	.43
September	2,560	785	1,390	.594	.66
The year	7,870	653	1,810	.774	10.47

KANKAKEE RIVER AT CUSTER PARK, ILL.

LOCATION.—In sec. 19, T. 32 N., R. 10 E., at Wabash Railroad bridge in Custer Park, Will County, one-quarter mile above Horse Creek and 18 miles below dam and power plant at Kankakee.

DRAINAGE AREA.—4,870 square miles.

RECORDS AVAILABLE.—November 6, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by F. A. Anderson.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of rock strewn with boulders and gravel. Control is sometimes affected by growth of vegetation during summer.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.2 feet April 9 and 10 (discharge, 20,100 second-feet); minimum stage, 5.21 feet at 4 p. m. October 6 (discharge, 600 second-feet).

1914–1926: Maximum stage recorded, 15.05 feet April 11, 1922 (discharge, 31,200 second-feet); minimum stage, 4.09 feet November 15, 1914 (discharge, 250 second-feet).

ICE.—Stage-discharge relation seriously affected by ice.

REGULATION.—Operation of power plant at Kankakee causes slight fluctuation at gage.

ACCURACY.—Stage-discharge relation probably fairly permanent during year. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for ice period for which they are poor.

The following discharge measurement was made:

June 25, 1926: Gage height, 6.87 feet; discharge, 3,200 second-feet.

Daily discharge, in second-feet, of Kankakee River at Custer Park, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	858	690	1,550			12,200	5,490	4,980	2,250	1,800	1,470	3,140
2	915	858	1,470			11,600	8,030	4,730	2,160	1,800	3,350	3,570
3	915	858	1,400			9,920	9,600	4,150	2,530	1,720	3,920	3,570
4	915	690	1,470			8,650	10,900	3,920	2,530	1,720	3,350	7,430
5	800	690	1,470			7,140	12,200	3,790	2,250	1,720	2,930	
6	800	858	1,800			6,570	13,600	3,350	1,980	1,800	2,440	
7	800	858	1,890			5,750	16,400	3,140	1,800	1,720	2,070	
8	800	915	1,890	1,000		5,490	18,200	3,140	1,800	1,320	1,800	
9	745	1,040	1,980			5,490	19,700	2,930	1,630	1,550	1,630	
10	800	1,180	1,890			4,390	20,100	3,140	1,720	1,720	1,720	8,500
11	858	1,470	1,800			3,790	18,900	3,350	3,350	1,720	1,630	
12	915	1,720	1,720		3,000	3,570	16,700	3,570	6,290	1,630	1,720	
13	690	1,800	1,800			3,350	13,600	3,570	5,490	1,550	1,800	
14	690	1,890	1,980			2,930	12,900	3,140	5,750	1,550	2,730	
15	690	2,160	1,630			2,930	14,300	2,930	6,570	1,550	3,570	
16	745	2,160	1,400			2,730	8,960	2,930	6,850	1,470	3,790	7,140
17	745	2,340				2,730	8,030	2,730	7,140	1,470	3,920	7,140
18	745	2,440		2,200		2,730	7,730	2,730	7,140	1,320	3,570	7,140
19	745	2,440				2,730	7,430	2,930	6,020	1,250	3,350	6,570
20	745	2,440				4,150	7,140	3,350	6,020	1,180	2,930	6,290
21	745	2,340				5,490	6,850	3,140	5,750	1,250	2,530	6,020
22	800	2,340				6,570	6,850	3,140	5,230	1,800	3,350	6,570
23	800	2,250				7,140	6,850	2,930	4,390	1,980	5,750	10,600
24	800	2,160	1,150		8,650	7,140	7,430	2,730	3,790	1,980	6,020	13,900
25	978	2,070			10,900	6,290	8,030	2,930	3,140	1,800	4,980	13,900
26	978	1,890		3,700	13,600	6,020	8,030	2,730	2,730	1,800	4,150	15,000
27	915	1,720			13,600	5,490	7,430	2,730	2,530	1,630	3,140	15,700
28	915	1,630			12,900	5,490	6,850	2,930	2,250	1,550	2,730	16,700
29	915	1,630			-------	5,230	6,020	2,930	2,160	1,550	2,340	16,700
30	690	1,630			-------	4,980	5,490	2,730	1,980	1,470	2,250	16,400
31	745	-------			-------	5,230	-------	2,530	-------	1,400	2,530	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 23; discharge estimated from gage heights, observer's notes, and climatic record. Gage not read Sept. 5–15; discharge estimated by comparison with records on Kankakee River at Momence and Iroquois River near Chebanse. Braced figures show mean discharge for periods indicated.

Monthly discharge of Kankakee River at Custer Park, Ill., for the year ending September 30, 1926

[Drainage area, 4,870 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	978	690	813	0.167	0.19
November	2,440	690	1,640	.337	.38
December	1,980	-------	1,430	.294	.34
January	-------	-------	2,150	.442	.51
February	13,600	-------	4,590	.943	.98
March	12,200	2,730	5,610	1.15	1.33
April	20,100	5,490	10,700	2.20	2.45
May	4,980	2,530	3,220	.661	.76
June	7,140	1,630	3,840	.789	.88
July	1,980	1,180	1,610	.331	.38
August	6,020	1,470	3,010	.618	.71
September	16,700	3,140	9,230	1.90	2.12
The year	20,100	690	3,950	.811	11.03

IROQUOIS RIVER NEAR CHEBANSE, ILL.

LOCATION.—In sec. 16, T. 29 N., R. 13 W., at highway bridge 4½ miles east of Chebanse, Kankakee County, 3 miles below Beaver Creek, and 6 miles above junction with Kankakee River.

DRAINAGE AREA.—2,120 square miles.

RECORDS AVAILABLE.—April 13, 1923, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by Charles Haselow.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders. Banks low and wooded. Aquatic vegetation sometimes grows in channel during summer.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.74 feet September 28 (discharge, 12,700 second-feet); minimum stage, 0.66 foot October 4 and 24 (discharge, 21 second-feet).

1923–1926: Maximum stage recorded, that of September 28, 1926; minimum stage, 0.60 foot September 4, 1925 (discharge, 12 second-feet). In the spring of 1913 a stage of about 19.6 feet was reached.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to hundredths once daily. Daily discharge determined by applying daily gage height to rating table. Records good except for ice period, for which they are poor.

The following discharge measurements were made:

April 9, 1926: Gage height, 10.84 feet; discharge, 11,600 second-feet.

June 24, 1926: Gage height, 2.61 feet; discharge, 881 second-feet.

Daily discharge, in second-feet, of Iroquois River near Chebanse, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	45	159		1,130	6,750	2,100	1,490	585	223	1,570	935
2	27	50	180		1,420	5,140	3,560	1,340	668	231	2,730	2,100
3	24	50	194		1,730	3,650	5,010	1,200	1,000	201	2,300	3,770
4	21	56	208		1,570	2,950	5,530	1,060	875	194	1,650	6,470
5	41	50	215		1,270	2,730	6,610	935	505	194	1,420	7,880
6	86	68	255		1,130	2,100	7,590	815	480	180	935	7,590
7	62	86	295		612	1,130	9,280	725	455	208	640	7,450
8	41	119	362	190	875	1,130	10,600	668	318	194	480	7,450
9	45	119	385		815	1,000	11,600	668	318	194	340	6,610
10	50	119	408		725	935	11,200	1,000	275	187	385	6,460
11	45	194	362		695	755	9,450	935	612	215	558	6,750
12	41	208	318		558	695	8,030	875	755	180	668	6,190
13	41	239	295		505	640	6,470	875	815	173	1,130	4,370
14	32	255	295		612	695	5,420	875	1,130	173	1,650	4,880
15	24	275	275		725	668	4,370	815	1,570	166	2,400	3,770
16	45	385	255		935	558	4,250	755	2,100	152	2,840	3,890
17	36	408	239		1,000	530	4,130	668	2,300	138	2,300	4,130
18	41	385	231	800	1,420	558	3,170	755	2,300	125	1,730	4,370
19	45	362	208		2,730	558	1,910	1,000	2,200	119	1,420	3,890
20	50	362			3,290	1,340	2,400	1,000	2,100	106	1,570	3,410
21	56	340			3,890	1,820	2,510	935	1,570	106	2,100	3,170
22	41	318			4,250	3,410	2,300	875	1,420	180	3,410	3,170
23	32	295			4,130	3,410	2,510	815	1,130	340	3,890	4,620
24	21	255			3,890	3,060	3,410	755	875	318	4,250	6,470
25	27	231	180		4,750	2,510	3,890	875	640	318	2,950	7,030
26	36	208		1,200	5,920	2,100	3,410	1,000	455	215	2,300	10,400
27	36	201			7,880	1,910	2,950	1,060	408	173	1,420	12,100
28	41	194			7,310	1,340	2,400	1,130	340	194	935	12,700
29	56	187			-------	1,200	1,910	935	275	159	1,000	12,300
30	50	173			-------	1,130	1,730	774	247	138	935	12,100
31	41	-------			-------	1,740	-------	612	-------	132	935	-------

NOTE.—Stage-discharge relation affected by ice Dec. 20 to Jan. 31; discharge estimated from gage heights, observer's notes, and weather records. Gage height missing Apr. 2, 14, and May 30; discharge interpolated. Braced figures show mean discharge for periods indicated.

Monthly discharge of Iroquois River near Chebanse, Ill., for the year ending September 30, 1926

[Drainage area, 2,120 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	86	21	40.8	0.019	0.02
November	408	45	208	.098	.11
December	408	159	235	.111	.13
January			647	.305	.35
February	7,880	505	2,350	1.11	1.16
March	6,750	530	1,550	.731	.84
April	11,600	1,730	4,990	2.35	2.62
May	1,490	612	910	.429	.49
June	2,300	247	957	.451	.50
July	340	106	188	.089	.10
August	4,250	340	1,700	.802	.92
September	12,700	935	6,210	2.93	3.27
The year	12,700	21	1,670	7.88	10.51

FOX RIVER AT ALGONQUIN, ILL.

LOCATION.—In NW. ¼ sec. 34, T. 43 N., R. 8 E. third principal meridian, at Chicago Street Bridge in Algonquin, McHenry County, 100 feet above Public Service Co.'s dam and 300 feet above Crystal Lake outlet.

RECORDS AVAILABLE.—October 1, 1915, to September 30, 1926.

DRAINAGE AREA.—1,340 square miles (measured on base map of Illinois).

GAGE.—Staff gage attached to concrete abutment of bridge; read by Edward Pedersen to May 29 and by John Filip beginning July 1. Zero of gage is 729.75 feet above mean sea level.

CHANNEL AND CONTROL.—Control is a concrete dam 100 feet below gage; permanent since August, 1919.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge or by wading.

EXTREMES OF DISCHARGE.—Maximum and minimum stages during year not obtained.

1916–1926: Maximum stage recorded, 5.3 feet March 31, 1916 (discharge, 7,120 second-feet); minimum stage, 0.59 foot August 31, 1918 (discharge, 67 second-feet).

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Operation of gristmill at dam below gage was discontinued and mill torn down in March, 1926. Stage is occasionally affected during low-water periods by operation of flashboards on dam 16 miles above gage which controls elevation of water surface in Pistakee Lake.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table from July 1 to September 30. Mean monthly discharge October 1 to June 30, estimated, because of doubtful gage readings, by comparison with records for Fox River at Dayton, and with records for Des Plaines, Pecatonica, and Little Calumet Rivers. Records from October 1 to June 30 are poor; records July 1 to September 30 are good.

The following discharge measurements were made:

April 30, 1926: Gage height, 2.08 feet; discharge, 1,340 second-feet.

June 29, 1926: Gage height, 1.36 feet; discharge, 435 second-feet.

Daily discharge, in second-feet, of Fox River at Algonquin, Ill., for the year ending September 30, 1926

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	580	316	500	16	410	362	770
2	600	316	520	17	378	378	710
3	580	316	520	18	330	362	666
4	540	302	540	19	330	394	644
5	580	330	580	20	316	410	600
6	540	330	580	21	330	446	600
7	520	330	580	22	330	410	830
8	500	330	540	23	302	410	1,020
9	446	330	560	24	316	428	1,360
10	500	330	560	25	316	428	1,500
11	500	330	500	26	316	446	1,500
12	500	330	644	27	316	482	1,500
13	464	362	644	28	316	500	1,500
14	464	362	688	29	302	500	1,500
15	410	362	746	30	302	500	1,500
				31	316	482	

Monthly discharge of Fox River at Algonquin, Ill., for the year ending September 30, 1926

[Drainage area, 1,340 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October			350	0.261	0.30
November			500	.373	.42
December			350	.261	.30
January			400	.299	.34
February			850	.634	.66
March			1,400	1.04	1.20
April			1,900	1.42	1.58
May			600	.448	.52
June			700	.522	.58
July	600	302	418	.312	.36
August	500	302	384	.287	.33
September	1,500	500	830	.619	.69
The year			720	.537	7.28

NOTE.—Mean monthly discharge October to June estimated by comparison with records for Fox River at Dayton and adjacent streams.

FOX RIVER AT DAYTON, ILL.

LOCATION.—In sec. 29, T. 34 N., R. 4 E., at plant of North Counties Hydroelectric Co., in Dayton, La Salle County, 3 miles below station formerly maintained at Wedron, and 6 miles above mouth of river.

DRAINAGE AREA.—2,570 square miles.

RECORDS AVAILABLE.—April 13, 1925, to September 30, 1926. From November 5, 1914, to February 8, 1925, records were obtained at a station at Wedron, having a drainage area of 2,500 square miles.

GAGE.—Float gages in head and tail race are used for determining head on wheels and flow over spillway.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during period of record, 11,500 second-feet September 24, 1926; minimum mean daily discharge, 168 second-feet June 22, 1925.

ACCURACY.—Gages read to tenths hourly. Except during flood periods entire flow passes through wheels. Daily discharge through plant is computed from mean head, electrical output, and curve of plant efficiency based on manufacturer's ratings. To the discharge through plant is added daily discharge over dam as computed from mean daily head on dam crest, using weir coefficients estimated from data in Water-Supply Paper 200. Records are fair.

COOPERATION.—Power-house data furnished by North Counties Hydroelectric Co.

Daily discharge, in second-feet, of Fox River at Dayton, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	406	507	647	379	577	5,220	1,840	1,820	547	640	502	660
2	425	549	594	379	886	4,210	1,680	1,650	667	572	573	618
3	472	728	575	378	872	1,820	2,120	1,740	573	780	493	914
4	459	640	616	504	647	2,340	1,800	1,720	572	865	595	1,120
5	418	687	753	895	552	2,480	2,380	1,590	507	954	487	964
6	482	596	596	1,090	577	2,440	2,270	1,410	525	932	482	936
7	820	714	381	828	616	2,240	3,020	1,530	508	864	472	933
8	430	709	756	672	735	1,040	4,250	1,130	490	825	414	930
9	471	716	726	579	872	1,640	7,070	985	545	733	357	927
10	568	834	612	575	825	1,980	7,210	803	472	961	500	842
11	430	716	656	368	761	1,990	2,520	933	1,100	645	453	711
12	459	726	775	419	714	2,100	4,970	1,010	3,540	684	405	671
13	418	847	476	492	825	1,580	4,990	901	1,890	645	400	842
14	596	942	442	432	573	1,630	4,380	783	3,480	662	424	1,170
15	426	831	682	493	645	1,710	4,080	731	1,810	532	484	2,160
16	458	828	554	502	645	1,510	3,730	600	1,950	525	416	3,780
17	525	967	452	436	694	1,530	3,660	573	2,330	572	416	2,280
18	477	904	307	945	2,360	1,860	3,660	671	2,160	477	442	1,820
19	416	740	444	1,350	3,960	1,720	4,690	822	1,880	404	499	1,440
20	509	825	552	1,360	1,420	2,290	3,160	889	1,360	391	426	1,700
21	507	892	418	1,050	659	2,280	2,920	809	1,300	523	1,210	1,750
22	420	930	379	527	1,790	2,310	2,680	901	1,330	547	1,090	1,280
23	444	778	392	460	1,900	2,270	2,460	853	1,020	459	936	1,890
24	487	842	426	527	1,320	2,310	2,660	638	961	428	886	11,500
25	471	1,130	452	462	9,800	2,460	2,430	753	714	360	806	9,180
26	817	783	353	505	8,570	2,630	2,400	662	1,030	379	756	6,350
27	596	662	260	572	5,090	9,070	2,220	731	647	353	689	5,110
28	731	872	212	459	3,750	2,410	2,240	656	620	446	594	4,410
29	581	594	337	365	-------	2,500	2,020	582	711	413	638	3,770
30	538	566	396	460	-------	2,460	2,050	600	664	384	614	4,080
31	499	-------	416	420	-------	2,460	-------	538	-------	572	570	------

Monthly discharge of Fox River at Dayton, Ill., for the year ending September 30, 1926

[Drainage area, 2,570 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	820	406	508	0.198	0.23
November	1,130	507	768	.299	.33
December	775	212	504	.196	.23
January	1,360	365	609	.237	.27
February	9,800	552	1,880	.732	.76
March	9,070	1,040	2,470	.961	1.11
April	7,210	1,680	3,250	1.26	1.41
May	1,820	538	968	.377	.43
June	3,540	472	1,200	.467	.52
July	961	353	598	.233	.27
August	1,210	357	582	.226	.26
September	11,500	618	2,490	.969	1.08
The year	11,500	212	1,310	.510	6.90

VERMILION RIVER AT STREATOR, ILL.

LOCATION.—In sec. 1, T. 30 N., R. 3 E. third principal meridian, at South Bloomington Street highway bridge, in Streator, La Salle County.

DRAINAGE AREA.—1,080 square miles.

RECORDS AVAILABLE.—July 27, 1914, to September 30, 1926.

GAGE.—Chain gage attached to highway bridge; read by Andrew Gall. Bridge used from 1914 to 1925 was torn down September 15, 1925. Gage replaced on new bridge 300 feet downstream from old location September 24, 1925, with datum lowered about 0.70 foot.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel composed of gravel and rocks. Brush and timber growing on banks above low-water stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 16.1 feet September 24 (discharge, 9,400 second-feet); minimum stage, 1.30 feet October 1–4 and 9 (discharge, 3.3 second-feet).

1914–1926: Maximum stage recorded, 22.9 feet April 20, 1920 (discharge, 16,500 second-feet); minimum discharge, no flow, August 25–28, September 16–30, 1920, August 24–27, and September 3 and 4, 1923.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation permanent since gage was moved on September 24, 1925. Rating curve well defined by six discharge measurements. Gage read to hundredths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Open-water records good; records during period of ice effect, poor.

The following discharge measurements were made:

April 14, 1926: Gage height, 7.74 feet; discharge, 2,140 second-feet.

July 15, 1926: Gage height, 2.22 feet; discharge, 101 second-feet.

Daily discharge, in second-feet, of Vermilion River at Streator, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	14	138	57	163	2,190	690	1,030	435	113	830	2,680
2	3.3	13	129	57	280	2,190	725	830	385	106	2,400	3,520
3	3.3	13	129	57	460	1,690	760	725	340	106	2,260	5,700
4	3.3	13	121	70	410	1,350	690	630	510	106	2,120	6,150
5	3.8	20	121	220	320	1,160	725	540	460	98	1,690	6,870
6	4.4	21	129	210	260	990	1,570	485	385	98	1,350	6,060
7	3.8	23	129	200	260	1,160	5,160	435	320	90	1,250	4,890
8	3.8	23	146	190	240	990	5,700	690	230	76	910	4,240
9	3.3	61	172	181	200	725	5,700	690	154	106	725	4,080
10	4.4	163	200	181	181	540	5,520	630	106	38	690	4,480
11	4.4	190	200	190	190	460	4,240	540	121	19	660	4,480
12	5.2	210	200	154	200	410	3,280	460	91	4.4	690	4,480
13	6.2	300	200	138	210	360	2,540	410	210	121	1,120	4,480
14	6.2	300	181	129	190	385	1,990	360	360	106	1,350	4,640
15	5.2	300	172	77	181	435	1,630	360	630	106	1,160	5,340
16	5.2	320	154	78	163	435	1,300	320	570	90	1,030	4,320
17	6.2	320	146	80	163	460	1,250	280	830	90	870	3,680
18	6.2	320	146	80	172	540	1,450	280	990	76	725	3,120
19	5.2	320	146	210	181	600	1,450	250	830	62	600	2,750
20	6.2	300	138	1,070	1,070	1,030	1,690	250	630	50	660	2,400
21	7.4	320	121	870	1,070	990	1,690	230	460	38	570	1,810
22	6.2	340	113	760	1,070	1,070	2,050	230	410	210	485	1,400
23	8.8	300	106	630	1,030	1,120	2,820	210	360	435	460	1,990
24	7.4	260	95	510	1,200	1,160	3,120	210	320	830	410	9,400
25	15	240	84	410	1,630	1,070	2,750	190	230	690	360	8,900
26	17	220	73	385	2,820	950	2,470	460	210	435	280	6,600
27	19	200	65	340	2,610	1,030	2,120	460	190	320	250	5,430
28	17	181	60	320	2,330	990	1,690	760	154	250	210	5,250
29	20	181	57	220	-------	910	1,300	630	138	210	172	5,070
30	17	154	57	172	-------	870	1,160	510	121	260	190	5,250
31	17	-------	57	163	-------	795	-------	485	-------	1,350	154	------

NOTE.—Discharge Dec. 21 to Jan. 18 and Jan. 23–31 estimated, because of ice, from gage heights and weather records.

Monthly discharge of Vermilion River at Streator, Ill., for the year ending September 30, 1926

[Drainage area, 1,080 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	20	3.3	7.89	0.007	0.01
November	340	13	188	.174	.19
December	200	57	129	.119	.14
January	1,070	57	271	.251	.29
February	2,820	163	688	.637	.66
March	2,190	360	937	.867	1.00
April	5,700	690	2,310	2.14	2.39
May	1,030	190	470	.435	.50
June	990	91	373	.345	.38
July	1,350	4.4	216	.200	.23
August	2,400	154	859	.795	.92
September	9,400	1,400	4,650	4.31	4.81
The year	9,400	3.3	916	.848	11.52

MACKINAW RIVER NEAR GREEN VALLEY, ILL.

LOCATION.—In sec. 15, T. 23 N., R. 5 W., at Chicago & Northwestern Railway bridge 3 miles north of Green Valley, Tazewell County.

DRAINAGE AREA.—1,100 square miles (measured on base map of Illinois).

RECORDS AVAILABLE.—March 9, 1921, to September 30, 1926.

GAGE.—Chain gage on downstream side of bridge; read by John Eggena.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel is sandy and somewhat shifting. Banks are overflowed during extremely high stages. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.42 feet September 5 (discharge, 7,520 second-feet); minimum discharge, 91 second-feet October 14, 15, 24, 25, and 31.

1921–1926: Maximum stage recorded, 13.3 feet August 22, 1924 (discharge, 18,500 second-feet); minimum discharge, 30 second-feet September 28 to October 5, October 13 and 14, 1922.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation changed probably during April. Rating curves well defined above and fairly well defined below 2,000 second-feet. Gage read to hundredths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating tables. Records good for open-water periods; fair for ice periods.

Discharge measurements of Mackinaw River near Green Valley, Ill., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 29	1.26	97.1	July 27	1.42	176.
Apr. 21	4.00	996	Sept. 8	9.94	6,190

Daily discharge, in second-feet, of Mackinaw River near Green Valley, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,300	96	292	134	1,180	1,180	360	908	320	202	767	4,500
2	390	102	279	134	1,300	900	390	813	296	194	520	5,000
3	191	102	267	346	1,360	845	655	813	274	187	520	5,000
4	127	102	255	1,300	845	745	745	722	264	180	484	6,400
5	114	292	244	955	575	745	1,060	679	254	174	418	7,520
6	141	305	244	745	495	700	2,880	637	244	167	296	7,520
7	141	575	244	425	408	655	3,600	596	244	167	244	7,250
8	127	1,240	267	360	375	615	4,400	557	226	167	226	6,580
9	120	1,010	615	267	305	360	4,600	557	218	161	218	7,000
10	108	615	655	244	267	360	4,800	767	218	167	187	6,240
11	102	615	615	232	267	495	3,510	596	218	167	180	5,220
12	102	615	495	173	267	575	2,700	596	254	167	333	4,700
13	96	575	425	164	255	495	2,110	520	320	235	484	3,700
14	91	575	408	156	267	460	1,740	520	679	218	1,010	2,700
15	91	655	375	156	267	425	1,600	520	813	187	813	3,150
16	96	700	360	156	255	442	1,470	484	813	167	767	4,600
17	102	700	332	164	244	745	1,280	484	813	155	520	4,200
18	114	655	318	615	442	575	1,280	450	1,110	150	360	3,330
19	114	700	332	2,340	1,420	575	1,110	418	908	144	333	2,520
20	114	745	346	1,300	1,180	745	1,060	450	679	129	333	2,270
21	114	700	279	1,010	1,360	1,690	957	520	557	120	450	1,880
22	102	700	267	700	1,180	1,360	957	484	418	136	274	1,740
23	96	615	211	615	1,120	1,300	1,060	450	388	139	254	1,600
24	91	460	201	495	955	1,240	1,220	418	360	134	244	2,880
25	91	442	211	495	1,180	1,180	1,600	388	320	264	244	4,600
26	102	425	173	495	2,160	955	1,540	360	320	254	226	5,450
27	102	390	156	495	2,250	745	1,340	360	274	161	209	4,300
28	102	346	156	495	1,760	575	1,220	360	254	155	167	3,240
29	102	318	148	495	------	495	1,110	333	244	144	155	3,240
30	96	292	141	535	------	442	957	333	226	139	360	3,330
31	91	------	134	1,010	------	408	------	320	------	161	388	------

NOTE.—Discharge estimated on account of ice Dec. 25 to Jan. 1 and Jan. 19 to Feb. 1 from observer's notes, gage readings, and weather records.

Monthly discharge of Mackinaw River near Green Valley, Ill., for the year ending September 30, 1926

[Drainage area, 1,100 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,300	91	157	0.143	0.16
November	1,240	96	522	.475	.53
December	655	134	305	.277	.32
January	2,340	134	555	.505	.58
February	2,250	244	855	.776	.81
March	1,690	360	743	.675	.78
April	4,800	360	1,780	1.62	1.81
May	908	320	529	.481	.55
June	1,110	218	418	.380	.42
July	264	120	171	.155	.18
August	1,010	155	387	.352	.41
September	7,520	1,600	4,390	3.99	4.45
The year	7,520	91	891	.810	11.00

SPOON RIVER AT SEVILLE, ILL.

LOCATION.—In sec. 24, T. 6 N., R. 1 E. fourth principal meridian, at Toledo Peoria & Western Railway bridge one-quarter mile east of railway station at Seville, Fulton County.

DRAINAGE AREA.—1,600 square miles.

RECORDS AVAILABLE.—July 24, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by Edward Bebard. Zero of gage is 467.78 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel and low-water control is clay and sand; somewhat shifting. Brush and trees above medium stages. Banks are overflowed at high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 26.8 feet September 4 (discharge, 19,700 second-feet); minimum discharge estimated because of ice, 105 second-feet October 30.

1914–1926: Maximum stage recorded, 30.5 feet August 22, 1924 (discharge, 28,900 second-feet); minimum stage, 1.35 feet July 31 and August 27–29, 1914 (discharge, 3.8 second-feet.)

High water of September, 1911, reached a height of about 25.8 feet on present gage; flood of 1883, when there was backwater from ice, reached a stage of about 33.0 feet on the present gage.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good except during periods of ice effect, for which they are poor.

The following discharge measurements were made:

October 30, 1925: Gage height, 3.66 feet; discharge, 105 second-feet (stage-discharge relation slightly affected by ice).

April 20, 1926: Gage height, 6.19 feet; discharge, 1,120 second-feet.

September 9, 1926: Gage height, 19.08 feet; discharge, 10,300 second-feet.

Daily discharge, in second-feet, of Spoon River at Seville, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	625	148	325			1,430	462	1,020	625	582	2,210	8,070
2	500	162	310			865	582	965	425	582	1,920	9,450
3	1,480	168	294			625	462	865	294	540	1,220	16,500
4	625	221	294		750	625	670	865	279	582	865	19,700
5	425	221	582	1,500		815	915	717	235	540	625	18,200
6	264	250	1,020			865	1,160	670	235	500	500	17,300
7	221	425	582		582	582	1,870	625	235	462	425	14,200
8	221	625	717		520	221	3,170	625	221	425	390	11,300
9	221	865	815		444	425	4,980	540	207	390	357	10,500
10	194	625	717		425	625	5,190	625	160	462	3,880	11,800
11	172	625	670		357	717	4,350	625	146	481	1,220	13,600
12	153	625	625		310	765	3,560	582	9,650	765	1,160	8,160
13	134	582	540		294	582	2,810	582	6,530	462	1,220	3,500
14	162	540	500		310	374	2,570	500	10,700	390	2,930	3,170
15	117	540	444	600	279	408	1,870	325	9,550	341	3,240	6,170
16	235	582	425		279	481	1,650	462	5,610	294	1,430	8,520
17	221	500	357		325	1,760	1,480	425	6,100	264	915	11,100
18	207	481	310		1,700	1,430	1,380	425	7,170	250	865	10,200
19	194	481			4,490	1,120	1,220	444	5,750	235	865	5,120
20	178	500			2,750	1,160	1,160	408	2,810	207	1,120	3,430
21	168	481			2,390	1,120	1,060	408	2,090	194	582	3,110
22	139	462			2,690	1,020	1,020	408	1,700	1,160	481	2,630
23	144	444			2,450	965	1,220	425	1,480	425	540	2,390
24	148	425			1,120	915	1,820	390	1,220	294	965	2,810
25	126	408	220	350	1,760	865	2,390	341	1,650	250	481	4,840
26	144	374			4,490	765	2,330	310	1,760	325	425	4,980
27	194	357			3,430	717	1,650	1,060	1,020	294	444	4,700
28	172	357			2,090	625	1,430	500	865	235	357	3,360
29	158	341			-------	582	1,260	310	765	194	357	3,050
30	105	325			-------	670	1,060	357	670	194	1,060	3,950
31	115	-------			-------	500	-------	341	-------	4,020	865	-------

NOTE.—Discharge Oct. 30, 31, and Dec. 19 to Feb. 6 estimated because of ice, from gage heights, weather records, and results of one discharge measurement. Braced figures show mean discharge for periods indicated.

Monthly discharge of Spoon River at Seville, Ill., for the year ending September 30, 1926

[Drainage area, 1,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,480	105	263	0.164	0.19
November	865	148	438	.274	.31
December	1,020		400	.250	.29
January			802	.501	.58
February	4,490	279	1,360	.850	.89
March	1,760	221	794	.496	.57
April	5,190	462	1,890	1.18	1.32
May	1,060	310	553	.346	.40
June	10,700	146	2,670	1.67	1.86
July	4,020	194	527	.329	.38
August	3,880	357	1,090	.681	.78
September	19,700	2,630	8,190	5.12	5.71
The year	19,700	105	1,560	.975	13.28

SANGAMON RIVER AT MONTICELLO, ILL.

LOCATION.—In sec. 12, T. 18 N., R. 5 E. third principal meridian, at Illinois Central Railroad bridge half a mile west of Monticello, Piatt County.

DRAINAGE AREA.—550 square miles.

RECORDS AVAILABLE.—February 4, 1908, to December 31, 1912; June 23, 1914, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by Malon Taylor.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Banks are overflowed at high stages. Low-water control is gravel, somewhat shifting, high-water control affected by trees and vegetation on banks.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.3 feet April 8 and September 7 (discharge, 5,580 second-feet); minimum stage, 2.14 feet July 29 and 30 (discharge, 17 second-feet).

1908–1912; 1914–1926: Maximum stage recorded, 15.2 feet May 14, 1908 (discharge, 9,280 second-feet); minimum stage, 1.5 feet July 31 to August 3, 1914 (discharge, 1 second-foot).

Maximum stage during flood of March and April, 1913, 17.7 feet March 25 (discharge not known).

ICE.—Stage-discharge relation slightly affected by ice.

ACCURACY.—Stage-discharge relation changed probably during April. Rating curves fairly well defined. Gage read to tenths once daily. Daily discharge for open-water periods ascertained by applying daily gage height to rating table. Records good.

The following discharge measurements were made:

October 4, 1925: Gage height, 5.94 feet; discharge, 374 second-feet.

April 8, 1926: Gage height, 13.29 feet; discharge, 5,600 second-feet.

July 30, 1926: Gage height, 2.23 feet; discharge, 20.3 second-feet.

Daily discharge, in second-feet, of Sangamon River at Monticello, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	44	136	60	600	1,930	620	536	234	66	166	52
2	175	44	136	67	368	1,250	950	495	198	58	311	46
3	459	44	126	142	354	920	1,210	455	186	52	664	90
4	329	44	175	248	287	620	1,330	410	117	52	704	1,450
5	199	38	199	261	235	580	1,450	380	108	52	503	2,740
6	142	38	321	223	187	544	1,770	352	108	52	234	4,030
7	131	50	443	199	170	463	4,480	338	108	46	153	5,580
8	101	306	412	164	153	382	5,420	311	90	46	142	5,100
9	83	562	397	142	142	354	4,480	318	81	41	132	4,630
10	67	600	368	134	136	340	3,320	324	73	41	108	3,600
11	64	475	354	126	126	443	2,940	311	108	41	98	3,180
12	60	412	340	96	116	397	2,550	395	272	41	90	3,600
13	53	382	307	79	106	368	1,630	324	326	52	81	4,030
14	53	382	274	71	308	361	1,350	298	380	352	142	2,790
15	41	428	248	71	509	354	1,050	272	352	127	253	1,930
16	44	475	235	64	368	340	960	319	536	81	366	1,450
17	50	443	187	322	261	340	845	366	440	52	285	1,300
18	73	427	175	580	427	326	808	352	380	43	210	1,020
19	96	412	153	805	1,020	397	770	338	410	34	127	1,080
20	79	382	144	980	1,250	492	748	324	341	29	98	1,130
21	71	354	136	1,020	1,350	1,330	684	298	272	25	90	1,090
22	71	334	116	580	1,450	1,170	624	324	210	25	82	1,210
23	64	313	142	492	1,250	1,300	644	279	175	25	73	1,090
24	56	287	136	416	1,050	1,130	770	234	164	25	66	930
25	56	235	126	340	1,770	860	880	210	142	23	324	1,450
26	56	223	116	235	2,120	686	990	175	164	21	246	2,740
27	50	199	96	153	2,330	562	930	164	131	21	108	4,030
28	50	187	75	96	2,130	487	770	153	98	21	90	4,630
29	50	170	64	92	-------	412	664	142	81	17	78	3,880
30	44	153	60	92	-------	382	570	194	73	17	66	2,920
31	44	-------	60	346	-------	459	-------	246	-------	21	52	-------

NOTE.—Gage not read Sundays; discharge interpolated. Discharge Dec. 27 to Jan. 8 and Jan. 27 to Feb. 1 estimated on account of ice from weather records, gage heights, and observer's notes.

Monthly discharge of Sangamon River at Monticello, Ill., for the year ending September 30, 1926

[Drainage area, 550 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	459	20	94.5	0.172	0.20
November	600	38	281	.511	.57
December	443	60	202	.367	.42
January	1,020	60	281	.511	.59
February	2,330	106	735	1.34	1.40
March	1,930	326	644	1.17	1.35
April	5,420	570	1,540	2.80	3.12
May	536	142	311	.565	.65
June	536	73	212	.385	.43
July	352	17	51.6	.094	.11
August	664	52	198	.360	.42
September	5,580	46	2,430	4.42	4.93
The year	5,580	17	574	1.04	14.19

SANGAMON RIVER AT RIVERTON, ILL.

LOCATION.—In SE. ¼ SW. ¼ sec. 9, T. 16 N., R. 4 W. third principal meridian, at Wabash Railroad bridge a quarter of a mile west of Riverton, Sangamon County, and 2½ miles below mouth of South Fork.

DRAINAGE AREA.—2,560 square miles.

RECORDS AVAILABLE.—February 13, 1908, to December 31, 1912; August 7, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by J. J. Washburn. Zero of gage is 503.15 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge, from highway bridge one-fourth mile upstream, or by wading.

CHANNEL AND CONTROL.—Low-water control is gravel; somewhat shifting. Banks are overflowed at high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 30.15 feet September 11 (discharge, 25,200 second-feet); minimum stage, 8.28 feet July 30 (discharge, 149 second-feet).

1908–1912; 1914–1926: Maximum stage recorded, that of September 11, 1926; minimum stage, 6.9 feet October 3–15, 1915 (discharge, 3 second-feet). High water of 1883 reached a height of about 32 feet on present gage, and that of 1875 is said to have been half a foot lower (discharge not determined).

ICE.—Stage-discharge relation not seriously affected by ice.

REGULATION.—The flow during low-water periods is affected by storage at the municipal reservoir at Decatur.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Sangamon River at Riverton, Ill., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	9.35	380	July 29	8.31	153
Apr. 21	16.96	3,250	Sept. 16	25.42	13,400

Daily discharge, in second-feet, of Sangamon River at Riverton, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	284	168	535	318	820	6,130	2,380	2,380	1,220	670	2,260	1,290
2	364	168	485	295	1,010	6,230	3,320	2,260	1,460	640	2,180	1,660
3	251	168	485	295	1,040	6,030	4,730	1,980	1,360	640	910	2,140
4	208	168	485	1,180	1,080	5,930	6,340	1,780	1,180	700	700	5,930
5	240	168	700	1,430	1,010	5,190	6,890	1,620	1,010	670	412	8,550
6	436	188	820	1,290	1,010	3,550	7,860	1,460	820	760	341	10,900
7	412	262	940	1,180	850	3,070	10,700	1,400	730	700	295	12,000
8	388	510	1,220	1,010	760	2,260	13,400	1,320	670	790	284	11,800
9	318	910	1,360	1,010	700	2,020	13,400	1,260	670	640	262	19,800
10	262	1,010	1,290	790	700	1,820	12,400	1,290	640	730	251	22,600
11	229	1,180	1,360	670	670	2,220	11,800	2,180	1,040	510	229	25,200
12	218	1,260	1,150	535	670	2,060	12,000	2,220	2,380	388	240	23,400
13	198	1,290	1,010	510	760	1,820	12,000	1,620	3,320	318	240	20,800
14	188	1,360	940	485	850	1,700	10,300	1,460	4,980	341	229	17,800
15	178	1,180	760	460	940	1,690	9,820	1,260	5,250	341	218	15,100
16	188	1,150	730	388	1,220	1,670	7,730	1,010	3,020	273	251	13,400
17	229	880	700	412	1,620	1,660	7,000	940	4,980	251	251	13,000
18	436	820	700	1,010	1,700	1,740	6,340	1,290	6,230	240	485	12,400
19	388	820	730	1,860	1,860	1,780	4,490	1,540	5,830	240	790	11,100
20	284	820	700	2,140	2,180	2,060	3,860	1,580	4,130	218	1,040	9,480
21	262	820	700	2,020	2,620	2,340	3,220	1,360	2,420	208	1,320	8,120
22	251	760	700	1,900	2,970	2,570	2,870	940	1,860	198	975	7,240
23	273	730	485	1,580	2,920	3,170	2,770	910	1,540	188	880	7,120
24	262	820	485	1,500	2,970	2,770	2,970	820	1,290	178	700	7,480
25	251	820	436	1,500	3,550	2,920	3,490	820	1,120	178	670	7,730
26	229	790	436	1,500	4,810	2,670	3,850	760	940	168	510	9,480
27	229	760	341	1,220	5,530	2,570	4,060	730	910	158	485	10,300
28	168	700	295	1,120	6,030	2,340	3,320	700	820	158	485	10,900
29	198	700	341	1,010	------	2,100	3,020	700	730	149	790	10,900
30	198	670	341	760	------	1,860	2,720	670	700	149	2,220	11,100
31	178	------	364	760	------	2,220	------	940	------	158	1,900	------

NOTE.—Discharge estimated Dec. 25–30 because of ice, from gage heights and observer's notes; discharge interpolated Mar. 15–16 and Apr. 20 on account of missing gage heights.

Monthly discharge of Sangamon River at Riverton, Ill., for the year ending September 30, 1926

[Drainage area, 2,560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	436	168	264	0.103	0.12
November	1,360	168	735	.287	.32
December	1,360	295	710	.277	.32
January	2,140	295	1,040	.406	.47
February	6,030	670	1,890	.738	.77
March	6,230	1,660	2,840	1.11	1.28
April	13,400	2,380	6,640	2.59	2.89
May	2,380	670	1,330	.520	.60
June	6,230	640	2,110	.824	.92
July	790	149	385	.150	.17
August	2,260	218	735	.287	.33
September	25,200	1,290	11,600	4.53	5.05
The year	25,200	149	2,500	.977	13.24

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

LOCATION.—In sec. 14, T. 13 N., R. 3 W., at Chicago & Illinois Midland Railroad bridge 6 miles northwest of Taylorville, Christian County, 500 feet east of power plant of Central Illinois Public Service Co., 5 miles below mouth of Bear Creek, and 8 miles below station formerly maintained at Wabash Railroad bridge.

DRAINAGE AREA.—510 square miles.

RECORDS AVAILABLE.—May 18, 1917, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by H. Hendricks.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clay, mud, and coal mine waste; shifting. Banks wooded and will be overflowed above medium stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.75 feet September 12 (discharge, 6,720 second-feet); minimum stage, 4.50 feet August 11 and 18 (discharge, 4.2 second-feet).

1917–1926: Maximum discharge recorded, 11,800 second-feet March 15, 1922; minimum discharge, no flow, August 29 and October 6–23, 1922.

A stage of about 27.3 feet on present gage is said to have been reached January 31, 1916 (discharge, 11,300 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—An average of about half a second-foot is used for boiler feed and other purposes at power plant just above gage.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good for medium and high stages; fair for low stages.

Discharge measurements of South Fork of Sangamon River at power plant near Taylorville, Ill., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 3	4.77	8.88	Apr. 8	16.62	2,620
Do	4.77	9.91	July 30	4.69	7.07

Daily discharge, in second-feet, of South Fork of Sangamon River at power plant, near Taylorville, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	6.2	64	21	78	2,260	1,040	318	496	42	50	74
2	7.1	5.4	64	19	88	1,890	1,310	294	566	32	30	34
3	8.8	6.2	61	84	144	1,770	1,510	259	354	29	16	16
4	22	6.2	74	164	95	1,130	1,810	237	330	27	14	950
5	20	4.6	285	318	84	834	1,810	210	220	290	9.8	1,840
6	19	4.6	496	366	74	538	1,810	184	110	552	5.7	2,720
7	9.3	102	524	306	61	431	2,210	174	102	282	6.6	2,310
8	9.3	144	452	164	61	330	2,600	164	102	102	5.7	1,890
9	9.3	457	379	126	61	248	3,020	154	102	55	5.0	2,480
10	7.1	566	318	55	64	248	3,500	144	95	42	5.0	3,290
11	7.1	552	259	44	67	366	3,080	184	126	36	4.2	4,820
12	6.2	431	248	34	67	444	2,480	164	70	32	4.6	6,360
13	6.2	330	204	46	95	366	2,260	144	194	26	5.0	5,820
14	6.2	306	179	42	135	318	1,930	126	318	24	7.5	4,250
15	6.2	306	154	39	294	366	1,540	110	354	26	5.7	3,500
16	5.4	306	135	39	366	270	1,370	110	270	29	5.0	3,850
17	8.2	306	118	42	405	392	1,220	102	282	18	5.0	4,010
18	12	354	101	110	431	457	850	95	418	16	4.2	3,080
19	15	366	84	431	640	510	580	95	405	16	5.7	2,480
20	17	336	95	543	780	655	482	95	326	14	35	2,030
21	19	306	88	655	925	800	405	95	248	11	64	1,580
22	15	294	67	670	950	800	330	84	174	9.7	24	1,370
23	12	154	67	366	900	825	366	78	118	9.7	12	1,340
24	11	126	61	248	725	850	610	74	78	9.2	9.7	1,400
25	11	102	55	192	900	800	1,010	70	74	8.6	5.7	1,480
26	9.3	95	44	135	1,440	687	950	67	70	58	5.7	1,730
27	8.2	95	39	84	1,930	580	825	61	70	40	5.7	1,580
28	8.2	88	36	78	2,160	470	640	125	58	25	5.0	1,730
29	6.2	81	34	74	-------	354	366	189	52	15	5.0	2,110
30	5.4	70	21	61	-------	248	366	254	49	7.3	5.7	2,360
31	6.2	-------	21	67	-------	379	-------	318	-------	40	5.7	-------

NOTE.—Gage not read; discharge interpolated Oct. 5, 13, 14, 18, 20, Nov. 20, Dec. 5, 8, 14, 17, 18, Jan. 20, 25, Feb. 5, 20, Mar. 5, 20, Apr. 5, 20, May 5, 20, 28, 29, 30, June 5, 20, July 5, 20, 24, Aug. 5, 12, 20, Sept. 5, 11, and 20. Discharge estimated July 27–29 and July 31 to Aug. 2 from records for Sangamon River at Monticello and Riverton.

Monthly discharge of South Fork of Sangamon River at power plant near Taylorville, Ill., for the year ending September 30, 1926

[Drainage area, 510 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	23	5.4	10.8	0.021	0.02
November	566	4.6	210	.412	.46
December	524	21	156	.306	.35
January	670	19	181	.355	.41
February	2,160	61	501	.982	1.02
March	2,260	248	665	1.30	1.50
April	3,500	330	1,410	2.76	3.08
May	318	61	154	.302	.35
June	566	49	208	.408	.46
July	552	7.3	62.0	.122	.14
August	64	4.2	12.2	.024	.03
September	6,360	16	2,420	4.75	5.30
The year	6,360	4.2	493	.967	13.12

CROOKED CREEK AT RIPLEY, ILL.

LOCATION.—In sec. 33, T. 1 N., R. 2 W., at highway bridge one-fourth mile east of Ripley, Brown County.

DRAINAGE AREA.—1,310 square miles (measured on base of map of Illinois).

RECORDS AVAILABLE.—March 12, 1921, to September 30, 1926.

GAGE.—Chain gage attached to downstream side of bridge; read by Mrs. John Hess. Gage was moved to a new bridge about 200 feet downstream from old location July 28, 1926; datum unchanged.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of soft mud and clay. Banks high and are wooded above medium stage. Control poorly defined; somewhat shifting. Illinois River, when at high stage, causes backwater at the station.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.5 feet June 17 (discharge, 8,850 second-feet); minimum stage, 3.11 feet October 15 (discharge, 67 second-feet).

1921–1925: Maximum stage recorded 25.0 feet July 25, 1924 (discharge, 12,500 second-feet); minimum discharge, 9 second-feet September 8 and 9, 1922.

Old high-water mark, date unknown, is at a stage of about 26.0 feet on gage.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table except for periods when there was backwater from Illinois River. Records good except for periods when discharge was estimated owing to ice effect, missing gage heights, or backwater from Illinois River, for which they are poor.

The following discharge measurements were made:

October 31, 1925: Gage height, 3.25 feet; discharge, 86 second-feet.

July 28, 1926: Gage height, 3.23 feet; discharge, 87 second-feet.

September 7, 1926: Gage height, 14.22 feet; discharge, 3,460 second-feet (stage-discharge relation affected by backwater from Illinois River).

Daily discharge, in second-feet, of Crooked Creek at Ripley, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,360	85	205			2,370	620	893	515	620	4,930	415
2	890	79	195			1,960	565	930	490	415	3,570	340
3	1,320	76	185			1,640	415	881	415	415	1,570	302
4	770	75	185			1,360	800	818	340	620	1,100	6,900
5	710	72	1,220	1,600		980	2,460	705	236	565	1,040	6,830
6	680	71	860			770	4,070	655	205	490	800	4,930
7	650	620	515		600	740	6,620	612	155	465	680	3,700
8	540	2,000	565			680	6,250	490	110	478	565	3,010
9	440	1,760	590			565	5,750	365	107	490	515	6,680
10	340	1,570	620			800	5,360	365	102	620	620	6,360
11	236	1,160	680			1,360	4,850	340	97	620	680	5,750
12	165	680	650			1,290	3,710	302	2,820	590	1,500	4,970
13	100	565	620			1,190	2,520	290	4,120	590	620	4,470
14	78	540	490		257	1,160	1,780	279	5,050	540	340	3,600
15	67	740	415		205	1,100	1,230	268	5,350	470	225	4,950
16	92	710	365		205	1,070	1,120	268	5,530	400	185	3,650
17	165	680	268		740	980	992	257	8,850	320	279	2,850
18	365	590			1,960	920	878	246	7,250	300	415	2,280
19	302	565			3,040	860	721	225	6,760	270	257	2,080
20	246	490			2,680	830	725	215	6,550	250	1,570	1,820
21	205	440		500	2,240	830	631	205	5,130	240	340	1,230
22	175	415			3,620	800	610	205	3,820	550	185	1,210
23	165	415			3,370	800	644	195	2,550	850	175	1,530
24	145	365	190		2,730	800	1,490	195	1,040	720	155	1,480
25	100	340			3,770	770	1,280	185	980	600	127	1,370
26	100	290			3,180	740	820	185	860	415	118	990
27	97	279			2,680	740	844	185	800	200	110	1,030
28	96	257			2,420	710	830	185	680	85	104	1,160
29	92	236			-------	680	845	215	620	74	94	1,470
30	88	225			-------	680	846	680	540	69	365	1,950
31	90	-------			-------	680	-------	620	-------	4,570	830	------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 13; discharge estimated from gage heights, observer's notes, and weather records. Stage-discharge relation affected by backwater from Illinois River Apr. 8 to May 7, June 21, and Sept. 7–30; discharge estimated from results of discharge measurements. Gage not read; discharge estimated from records for Spoon River at Seville July 15–27, and interpolated July 8.

Monthly discharge of Crooked Creek at Ripley, Ill., for the year ending September 30, 1926

[Drainage area, 1,310 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,360	67	351	0.268	0.31
November	2,000	71	546	.417	.47
December	1,220		364	.278	.32
January			855	.653	.75
February	3,770	205	1,460	1.11	1.16
March	2,370	565	995	.760	.88
April	6,620	415	2,010	1.53	1.71
May	930	185	402	.307	.35
June	8,850	97	2,400	1.83	2.04
July	4,570	69	577	.440	.51
August	4,930	94	776	.592	.68
September	6,900	302	2,980	2.27	2.53
The year	8,850	67	1,130	.863	11.71

MACOUPIN CREEK NEAR KANE, ILL.

LOCATION.—In sec. 7, T. 9 N., R. 11 W., at Chicago & Alton Railway bridge 3 miles northwest of Kane, Greene County.

DRAINAGE AREA.—865 square miles (measured on base map of Illinois).

RECORDS AVAILABLE.—March 11, 1921, to September 30, 1926.

GAGE.—Vertical staff used prior to July 29, 1926. On July 29, 1926, chain gage was installed on bridge and gage datum lowered 3.00 feet. Gage heights in this report referred to new datum. Gage read by Claude Linn.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading; during high water also at bridges over flood channels one-fourth mile south and one-eighth mile north of main channel.

CHANNEL AND CONTROL.—New channel dredged in summer of 1923 decreased the length and increased the slope of the stream. Bed composed of heavy clay in dredged channel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 19.8 feet September 5 (discharge, 11,700 second-feet); minimum stage, 2.46 feet August 10, 13, and 14 (discharge, 7 second-feet).

1921–1926: Maximum stage recorded, 24.6 feet March 15, 1922 (discharge, 15,000 second-feet); minimum discharge, 1 second-foot September 29, October 3, 5, and 15, 1922.

High water of 1915 reached a stage of 29.5 feet on present gage.

ICE.—Stage-discharge relation slightly affected by ice.

ACCURACY.—Stage-discharge relation changed slightly during April. Rating curve used October 1 to April 30 well defined between 40 and 300 second-feet and fairly well defined beyond these limits; rating curve used May 1 to September 30 fairly well defined. Gage read to hundredths once daily. Low-water section of gage washed out February 13; gage heights for low stages February 13 to July 28 estimated by observer. Daily discharge ascertained by applying daily gage height to rating tables. Records good for medium stages and fair for high and low stages. Discharge below 300 second-feet is poor for the period February 13 to July 28.

Discharge measurements of Macoupin Creek near Kane, Ill., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft*
Nov. 1	3.23	54.1	July 29	2.64	11.5
Apr. 7	16.08	5,260	Sept. 10	14.43	3,500

Daily discharge, in second-feet, of Macoupin Creek near Kane, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	388	56	96	59	104	530	2,350	170	109	67	10	1,170
2	350	53	96	73	104	350	2,080	159	114	67	56	182
3	1,630	50	92	407	122	314	3,170	159	123	64	50	79
4	8,720	50	530	828	141	265	3,050	138	109	64	30	9,100
5	3,750	50	2,990	745	104	223	1,480	128	96	60	22	11,700
6	350	50	1,990	388	113	250	2,440	118	96	207	17	11,400
7	174	1,750	1,020	236	96	620	5,150	109	91	295	13	10,400
8	122	3,750	645	210	104	332	5,150	96	91	263	10	5,000
9	96	2,930	388	96	96	281	4,840	91	87	552	12	4,200
10	80	965	314	96	96	297	2,400	87	79	486	7	3,700
11	66	447	265	96	96	828	1,200	83	75	444	9	3,560
12	59	597	223	88	96	695	1,320	83	75	279	7	2,430
13	59	772	174	84	280	720	1,170	79	900	207	7	575
14	56	427	152	80	464	350	645	75	552	138	7	404
15	53	447	152	84	648	427	388	75	329	96	295	486
16	113	552	113	73	832	388	360	71	263	64	43	2,430
17	297	407	104	62	1,020	530	332	71	1,490	26	96	2,280
18	467	297	96	530	1,200	488	297	128	1,320	24	46	2,740
19	223	223	104	1,750	2,490	467	265	148	625	22	27	960
20	141	186	100	720	1,830	427	223	87	312	22	109	444
21	88	163	96	388	910	407	210	83	220	20	148	234
22	73	141	92	152	509	388	281	79	182	19	91	194
23	70	131	88	131	427	369	297	79	148	18	100	182
24	62	131	88	265	388	350	1,380	79	123	17	138	207
25	174	141	80	198	2,870	297	1,560	114	295	17	29	4,020
26	695	131	80	141	3,380	265	530	109	138	15	11	2,380
27	388	122	73	131	2,870	236	388	109	114	15	10	1,940
28	73	122	59	104	1,170	210	281	104	96	14	8	4,200
29	66	113	62	152	---	186	236	104	87	12	8	4,200
30	59	108	66	163	-------	223	210	100	75	13	675	4,020
31	59	-------	66	104	-------	1,480	-------	104	-------	10	1,110	-------

NOTE.—Discharge estimated because of ice Dec. 28 to Jan. 4 from gage heights, observer's notes, and weather records. Discharge interpolated Feb. 13 to 17 because of missing gage heights.

Monthly discharge of Macoupin Creek near Kane, Ill., for the year ending September 30, 1926

[Drainage area, 865 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	8,720	53	613	0.709	0.82
November	3,750	50	512	.592	.66
December	2,990	59	339	.392	.45
January	1,750	59	279	.323	.37
February	3,380	96	806	.932	.97
March	1,480	186	426	.492	.57
April	5,150	210	1,460	1.69	1.89
May	170	71	104	.120	.14
June	1,490	75	280	.324	.36
July	552	10	117	.135	.16
August	1,110	7	103	.119	.14
September	11,700	79	3,160	3.65	4.07
The year	11,700	7	675	.780	10.60

KASKASKIA RIVER AT VANDALIA, ILL.

LOCATION.—In sec. 16, T. 6 N., R. 1 E. third principal meridian, at highway bridge at east end of Main Street, Vandalia, Fayette County, 3½ miles above Hickory Creek.

DRAINAGE AREA.—1,980 square miles.

RECORDS AVAILABLE.—February 26, 1908, to December 31, 1912; August 11, 1914, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by Wilson Haley. Zero of gage is 456.23 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Measuring section is at a pool; control slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.47 feet September 17 (discharge, 8,460 second-feet); minimum stage, 0.80 foot October 2 (discharge, 37 second-feet).

1908–1912; 1914–1926: Maximum discharge recorded, 18,800 second-feet April 18, 1922; minimum discharge, 3.5 second-feet August 22, 1911.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good except for ice periods, for which they are fair.

The following discharge measurement was made:

October 8, 1925: Gage height, 0.93 foot; discharge, 45.9 second-feet.

Daily discharge, in second-feet, of Kaskaskia River at Vandalia, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	54	278	192	900	5,070	2,320	1,470	590	278	91	72
2	37	55	260	192	960	3,790	1,920	1,330	1,050	242	86	76
3	42	56	242	184	870	3,040	2,920	1,200	1,230	242	81	113
4	540	57	1,580	337	720	2,760	3,640	1,080	1,080	225	76	96
5	126	58	3,340	665	640	2,520	3,080	990	900	225	67	317
6	67	57	2,440	720	640	2,200	3,000	900	750	216	58	1,140
7	56	870	1,170	640	515	2,040	3,640	840	615	208	55	1,300
8	46	2,200	1,050	540	490	1,780	4,770	780	558	192	51	960
9	41	930	990	490	490	1,750	5,210	720	501	184	47	2,720
10	40	379	930	467	615	1,170	5,210	780	444	168	41	4,290
11	39	400	930	400	515	1,200	5,350	930	358	161	41	4,830
12	41	444	900	358	444	1,230	5,930	900	337	139	40	5,010
13	41	720	840	337	665	1,140	6,010	840	750	126	39	5,280
14	42	540	750	317	900	1,020	5,770	690	1,080	126	47	5,700
15	42	590	665	260	1,750	960	5,420	665	1,110	119	67	6,090
16	56	930	590	260	1,140	990	5,010	665	870	113	62	8,190
17	58	720	515	242	1,140	1,080	3,940	615	810	113	62	8,460
18	58	615	467	1,140	1,330	1,050	2,760	590	900	102	58	7,930
19	58	590	467	3,000	3,200	1,300	2,120	640	840	96	96	7,320
20	56	565	444	2,400	2,840	1,500	1,860	565	720	91	132	6,770
21	49	540	422	2,600	1,890	1,500	1,750	515	615	91	168	6,180
22	48	515	379	2,200	1,720	1,610	1,720	467	540	86	208	5,490
23	46	467	297	2,000	1,540	3,080	1,750	444	422	86	216	4,140
24	62	444	297	1,610	1,470	2,440	2,320	422	422	81	225	3,390
25	62	422	242	1,500	5,140	1,750	2,760	400	422	67	192	2,960
26	67	400	200	1,680	5,930	1,580	2,320	358	422	67	161	3,000
27	62	379	192	1,610	7,440	1,400	2,120	337	720	62	132	2,800
28	58	358	192	1,260	6,460	1,200	1,920	317	490	58	107	3,440
29	54	317	192	960	-------	1,110	1,780	297	400	57	91	4,650
30	53	317	192	750	-------	1,920	1,610	297	278	54	86	5,350
31	54	-------	192	720	-------	2,880	-------	297	-------	96	76	-------

NOTE.—Discharge estimated on account of ice Dec. 25 to Jan. 6 and Jan. 22 to Feb. 6 from gage readings, observer's notes, and weather records. Discharge interpolated June 8 and 9.

Monthly discharge of Kaskaskia River at Vandalia, Ill., for the year ending September 30, 1926

[Drainage area, 1,980 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	540	37	69.0	0.035	0.04
November	2,200	54	500	.253	.28
December	3,340	192	698	.353	.41
January	3,000	184	969	.489	.56
February	7,440	444	1,870	.944	.98
March	5,070	960	1,870	.944	1.09
April	6,010	1,610	3,330	1.68	1.87
May	1,470	297	688	.347	.40
June	1,230	278	674	.340	.38
July	278	54	135	.068	.08
August	225	39	95.5	.048	.06
September	8,460	72	3,930	1.98	2.21
The year	8,460	37	1,220	.616	8.36

BIG MUDDY RIVER AT PLUMFIELD, ILL.

LOCATION.—In W. ½ sec. 20, T. 7 S., R. 2 E., at highway bridge at Plumfield, Franklin County, 6 miles west of West Frankfort, 1½ miles below mouth of Middle Fork, and 2 miles below station formerly maintained at Chicago, Burlington & Quincy Railroad bridge.

DRAINAGE AREA.—753 square miles.

RECORDS AVAILABLE.—August 18, 1914, to September 30, 1926. From June 16, 1908, to December 31, 1912, records were obtained at Chicago, Burlington & Quincy Railroad bridge.

GAGE.—Chain gage attached to bridge; read by Louis Robertson.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Practically permanent at low stage. Banks wooded above medium stage. Right bank is overflowed at high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.5 feet February 19 (discharge, 3,330 second-feet); minimum stage, 0.80 foot June 30 (discharge, 1.5 second-feet).

1914–1926: Maximum stage recorded, 30.2 feet February 1, 1916 (discharge, 16,300 second-feet); minimum discharge, no flow, August 18–26, 1914.

ACCURACY.—Stage-discharge relation practically permanent during year; slightly affected by ice. Rating curve fairly well defined above 7 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good except during ice period and for very low stages, for which they are fair.

The following discharge measurement was made:

October 12, 1925: Gage height, 2.20 feet; discharge, 48.0 second-feet.

Daily discharge, in second-feet, of Big Muddy River at Plumfield, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	24	364	12	1,280	3,080	1,820	98	6.3	2.0	3.7	208
2	30	23	253	12	1,440	2,980	1,600	86	6.6	4.4	5.1	690
3	40	22	197	15	1,400	2,570	1,640	78	6.3	4.0	21	872
4	1,340	22	754	24	1,180	1,970	1,440	64	5.7	3.7	219	583
5	1,720	404	1,540	29	855	1,220	1,280	51	5.2	29	241	241
6	1,740	770	1,820	36	628	706	940	42	4.9	42	135	175
7	1,700	1,540	2,080	42	502	1,030	628	42	4.6	8.4	70	230
8	1,320	2,230	2,050	45	377	1,460	1,620	40	4.3	5.7	31	364
9	738	2,610	2,530	45	325	1,720	1,920	94	4.8	4.4	19	265
10	265	2,940	2,530	45	277	1,740	2,380	60	4.8	4.0	18	135
11	78	2,920	2,320	48	230	1,200	2,850	34	4.8	4.4	13	94
12	45	2,900	1,870	45	208	923	3,030	26	4.6	6.6	8.4	54
13	40	2,730	1,180	40	186	754	2,980	19	4.6	5.1	165	51
14	37	2,500	643	37	804	658	2,810	16	3.8	8.0	78	45
15	37	2,410	338	34	1,500	493	2,610	13	3.0	7.8	186	32
16	301	2,290	219	26	1,840	390	2,290	12	3.1	7.4	478	28
17	1,220	2,140	165	29	2,260	325	1,720	10	2.7	7.4	448	25
18	1,320	1,970	120	301	3,080	301	940	9.6	2.7	6.1	390	15
19	1,300	1,840	94	1,080	3,330	289	301	8.6	2.9	5.2	316	12
20	1,160	1,770	90	1,400	2,980	325	241	8.8	3.5	4.8	241	8.8
21	722	1,740	86	1,670	2,500	508	175	9	3.6	4.3	553	7.2
22	289	1,480	82	1,820	2,050	1,100	155	8	3.5	4.0	706	6.4
23	184	1,220	70	1,740	1,420	1,480	145	7.2	3.2	3.5	478	5.7
24	78	754	60	1,640	1,080	1,670	171	6.8	3.1	3.0	230	4.9
25	74	418	51	1,260	1,700	1,770	197	6.1	3.1	2.5	120	5.1
26	78	265	51	821	1,980	1,870	197	6.1	2.7	2.5	54	4.8
27	61	364	42	628	2,260	1,770	186	5.6	2.5	2.2	29	4.3
28	45	463	74	906	2,650	1,280	165	5.6	2.1	2.1	22	4.9
29	28	613	74	1,030	-------	658	135	5.6	2.0	1.9	14	8.2
30	24	508	17	1,160	-------	390	116	5.1	1.5	1.9	10	241
31	23	-------	14	1,140	-------	994	-------	5.9	-------	3.5	11	-------

NOTE.—Gage not read, discharge interpolated Oct. 23, 27, 28, Nov. 11, 22, 27, Jan. 6, Feb. 7, 26, Mar. 25, Apr. 24, Aug. 19, and Sept. 11; discharge estimated Dec. 28 to Jan. 3, because of ice, from gage readings, observer's notes, and weather records.

Monthly discharge of Big Muddy River at Plumfield, Ill., for the year ending September 30, 1926

[Drainage area, 753 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,740	23	519	0.689	0.79
November	2,940	22	1,400	1.86	2.08
December	2,530	14	703	.934	1.08
January	1,820	12	554	.736	.85
February	3,330	186	1,440	1.91	1.99
March	3,080	289	1,210	1.61	1.86
April	3,030	116	1,220	1.62	1.81
May	98	5.1	28.5	.038	.04
June	6.6	1.5	3.88	.005	.01
July	42	1.9	6.51	.009	.01
August	706	3.7	171	.227	.26
September	872	4.3	147	.195	.22
The year	3,330	1.5	609	.809	11.00

BIG MUDDY RIVER AT MURPHYSBORO, ILL.

LOCATION.—In SW. ¼ sec. 8, T. 9 S., R. 2 W., at lower highway bridge on South Twentieth Street, Murphysboro, Jackson County, a quarter of a mile below mouth of Louis Creek and Mobile & Ohio Railway bridge.

DRAINAGE AREA.—2,170 square miles (measured on base map of Illinois).

RECORDS AVAILABLE.—December 6, 1916, to September 30, 1926.

GAGE.—Chain gage attached to bridge; read by Clarence Jacobs. Zero of gage is 331.00 feet above mean sea level.

CHANNEL AND CONTROL.—Bed composed of heavy clay; likely to shift.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 23.35 feet March 1 (affected by backwater from Mississippi River); minimum stage, 1.95 feet July 6 (discharge, 8.0 second-feet).

1917–1926: Maximum discharge determined, 15,600 second-feet January 10, 1917; minimum discharge, 1.0 second-foot August 1, 1921.

Highest known stage, 39.6 feet on present gage occurred about February 2, 1916 (discharge, ascertained from extension of rating curve, 28,000 second-feet).

ICE.—Stage-discharge relation affected by ice during some winters.

ACCURACY.—Stage-discharge relation probably permanent during the year; affected by ice and also by backwater from Mississippi River whenever height on gage of United States Weather Bureau at Chester, Ill., is above about 10 feet. Rating curve fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table; not determined for periods of backwater. Records fair.

The following discharge measurement was made:

October 12, 1925: Gage height, 6.75 feet; discharge, 688 second-feet.

Daily gage height, in feet, of Big Muddy River at Murphysboro, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.37	3.87	11.50	3.86	12.40	23.35	12.54	5.25	2.45	2.89	1.98	4.49
2	6.57	3.92	12.35	3.81	12.40	23.16	12.40	4.75	2.49	2.45	2.74	4.54
3	8.67	3.97	14.80	3.41	12.50	21.40	13.40	4.30	2.59	2.30	3.74	5.04
4	7.17	3.87	17.20	4.46	12.45	19.70	13.24	4.05	2.65	2.05	3.14	6.44
5	8.67	6.72	19.35	3.56	11.40	17.10	13.20	3.90	2.55	1.99	3.44	7.84
6	11.80	10.00	18.40	3.40	11.10	16.30	12.10	3.25	2.51	1.95	3.59	8.04
7	13.40	10.90	17.95	3.41	10.25	14.40	11.20	3.35	2.49	3.45	3.64	9.44
8	13.55	11.40	18.10	3.16	8.66	13.15	14.30	3.55	2.43	3.95	3.44	12.00
9	12.50	11.55	17.90	3.31	6.41	12.40	18.55	3.50	2.41	3.55	3.34	12.10
10	11.30	12.45	18.65	3.51	6.46	11.76	19.35	3.45	2.41	2.85	3.14	12.20
11	9.57	14.20	16.40	3.46	5.06	11.48	20.24	3.55	2.39	2.95	3.20	12.60
12	6.82	17.40	16.20	3.66	4.86	11.20	20.96	3.55	2.37	2.85	3.24	13.18
13	6.17	19.30	14.45	3.86	4.91	10.46	21.85	3.45	2.35	2.75	3.34	12.70
14	5.67	22.40	13.25	3.66	5.56	9.36	22.00	3.35	2.25	2.75	3.44	12.60
15	6.07	22.38	12.40	3.56	11.62	8.36	21.58	3.19	2.09	2.59	3.54	12.70
16	10.00	19.70	10.90	3.61	12.65	7.31	19.35	2.99	2.05	2.59	3.59	12.18
17	10.50	19.85	7.76	3.86	16.35	6.71	18.70	2.99	2.75	2.68	3.84	11.84
18	10.40	19.20	5.16	3.91	17.90	6.11	18.70	2.95	3.85	2.58	4.39	12.50
19	12.55	18.10	4.66	6.11	18.60	5.61	14.50	3.01	5.95	2.50	5.44	12.80
20	13.34	17.90	4.71	9.91	17.80	5.31	9.45	2.95	7.95	2.44	5.79	13.40
21	13.90	17.65	4.56	10.10	17.20	5.61	8.30	2.85	8.25	2.34	6.09	13.60
22	12.40	16.40	4.26	12.50	16.65	5.31	7.10	2.75	7.85	2.34	7.04	13.30
23	9.47	16.35	4.16	13.14	15.75	11.40	6.50	2.75	7.55	2.30	7.34	13.48
24	8.32	14.80	4.16	13.60	15.00	12.12	6.45	2.69	6.45	2.32	7.19	12.40
25	5.52	10.20	4.06	13.70	19.20	12.56	6.15	2.65	6.35	2.20	6.24	13.26
26	5.37	9.07	4.01	13.65	20.30	12.26	6.10	2.59	6.30	2.04	5.49	13.45
27	4.37	8.67	3.91	13.60	21.30	11.82	5.95	2.67	5.45	2.06	4.49	13.40
28	4.52	8.42	------	13.65	22.40	11.38	5.95	2.57	5.10	2.04	4.04	14.10
29	4.47	9.07	------	13.70	------	10.72	5.90	2.51	4.45	2.02	3.74	14.40
30	4.27	10.45	------	13.60	------	9.46	5.85	2.43	3.45	2.00	4.24	14.60
31	4.12	------	------	12.10	------	10.40	------	2.47	------	2.04	4.39	------

NOTE.—Gage not read Dec. 28-31.

Daily discharge, in second-feet, of Big Muddy River at Murphysboro, Ill., for the year ending September 30, 1926

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	May	June	July	Aug.	Sept.
1	620	112	2,320	112	2,660	-------	-------	22	-------	8.6	205
2	675	118	2,660	107	2,660	-------	-------	23	-------	33	214
3	1,340	124	3,750	71	2,700	-------	-------	27	-------	102	300
4	855	112	4,960	196	2,660	-------	-------	29	-------	54	620
5	1,340	705	6,170	84	2,280	-------	-------	25	8.8	75	-------
6	-------	1,790	5,720	75	2,180	-------	-------	23	8.0	88	-------
7	-------	2,100	5,400	71	1,860	-------	-------	23	75	92	-------
8	-------	2,280	5,460	54	1,340	-------	-------	21	124	75	-------
9	-------	-------	5,340	64	620	-------	-------	20	84	68	-------
10	-------	-------	5,830	79	645	-------	-------	-------	38	54	-------
11	-------	-------	4,550	75	320	-------	-------	-------	42	57	-------
12	735	-------	4,450	92	280	-------	-------	-------	-------	60	-------
13	570	-------	3,550	112	280	-------	-------	18	-------	68	-------
14	448	-------	2,990	92	426	-------	-------	16	-------	75	-------
15	545	-------	2,660	84	2,350	-------	-------	11	27	84	-------
16	1,790	-------	2,100	88	2,740	-------	-------	-------	27	88	-------
17	1,960	-------	1,040	112	4,550	-------	-------	-------	31	112	-------
18	1,930	-------	340	118	5,340	-------	-------	-------	26	188	-------
19	2,740	5,460	232	545	5,830	-------	-------	-------	23	382	-------
20	3,040	5,340	241	1,760	5,290	-------	-------	-------	21	470	-------
21	3,300	5,180	214	1,820	-------	-------	-------	-------	18	545	-------
22	2,660	4,550	164	2,700	-------	-------	-------	-------	18	795	-------
23	1,620	4,550	150	2,940	-------	-------	-------	-------	17	885	-------
24	1,200	3,750	150	3,170	-------	-------	-------	-------	18	855	-------
25	404	1,860	136	3,220	-------	-------	-------	-------	14	570	-------
26	382	1,480	130	3,170	-------	-------	-------	-------	9.8	404	-------
27	180	1,340	118	3,170	-------	-------	29	-------	10	205	-------
28	205	1,230	118	3,170	-------	-------	26	-------	9.8	136	-------
29	196	1,480	112	3,220	-------	2,040	23	-------	9.4	102	-------
30	164	1,930	112	3,170	-------	-------	21	-------	9.0	164	-------
31	143	-------	107	2,540	-------	-------	22	-------	9.8	188	-------

NOTE.—Stage-discharge relation affected by backwater from Mississippi River Oct. 6–11, Nov. 9–18, Feb. 21 to Mar. 28, Mar. 30 to May 26, June 10–12, June 16 to July 4, July 12–14, and Sept. 5–30. Gage not read Dec. 28–31 because of ice; discharge estimated from weather records.

Monthly discharge of Big Muddy River at Murphysboro, Ill., for the year ending September 30, 1926

[Drainage area, 2,170 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
December	6,170	107	2,300	1.06	1.22
January	3,220	54	1,170	.539	.62
August	885	86	228	.105	.12

MISCELLANEOUS DISCHARGE MEASUREMENTS

Discharge measurements of streams in the upper Mississippi River Basin at points other than regular gaging stations are listed in the following table:

Miscellaneous discharge measurements in the upper Mississippi River drainage basin during the year ending September 30, 1926

Date	Stream	Tributary to—	Locality	Discharge
				Sec. ft.
Oct. 13	Iowa River	Mississippi River	Belmond, Iowa	67.4
Do.	Lime Creek	Shellrock River	Mason City, Iowa	53.6

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