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1965

Water Resources Data for Wisconsin

Part 1. Surface Water Records

Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of Wisconsin
and with other agencies

United States Department of the Interior
Geological Survey - Water Resources Division

WATER RESOURCES DATA FOR WISCONSIN

1965

Part 1: Surface Water Records

Prepared in cooperation with

Wisconsin Public Service Commission
Wisconsin State Conservation Department
Wisconsin State Committee on Water Pollution
Wisconsin State Highway Commission
Madison Metropolitan Sewerage District
Southeastern Wisconsin Regional Planning Commission
Corps of Engineers, U. S. Army
Fish and Wildlife Service, Department of the Interior
Soil Conservation Service, Department of Agriculture

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
1815 University Avenue
Madison, Wisconsin, 53705

CALENDAR FOR WATER YEAR 1965

OCTOBER 1964

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

NOVEMBER 1964

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29	30					

DECEMBER 1964

S	M	T	W	T	F	S
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27	28	29	30	31		

JANUARY 1965

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24	25	26	27	28	29	30
31						

FEBRUARY 1965

	1	2	3	4	5	6
7	8	9	10	11	12	13
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28						

MARCH 1965

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7	8	9	10	11	12	13
14	15	16	17	18	19	20
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28	29	30	31			

APRIL 1965

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MAY 1965

						1
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16	17	18	19	20	21	22
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30	31					

JUNE 1965

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6	7	8	9	10	11	12
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JULY 1965

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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 1965

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER 1965

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

CONTENTS

Part 1. SURFACE WATER RECORDS

(For Part 2 Table of Contents see p. 185)

ILLUSTRATIONS

SURFACE WATER RECORDS OF WISCONSIN, 1965

INTRODUCTION

The surface-water records for the 1965 water year for gaging stations, partial-record stations, and miscellaneous sites within the State of Wisconsin are given in this report. For convenience there are also included records for a few pertinent gaging stations in bordering States. The records were collected and computed by the Water Resources Division of the U. S. Geological Survey, under the direction of K. B. Young, district engineer, Surface Water Branch.

This report is a continuation of a new method of presenting, annually, basic data on surface-water records by States. Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U. S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in Wisconsin were contained in Parts 4 and 5 of that series.

Beginning with the 1961 water year, streamflow records and related data have been released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports is limited and primarily for local needs. Records will be published in Geological Survey water supply papers at 5-year intervals.

COOPERATION

Cooperative agreements between the U. S. Geological Survey and organizations of the State of Wisconsin for the systematic collection of streamflow records began in 1913. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Public Service Commission of Wisconsin, Arthur L. Padrutt, chairman, and R. E. Purucker, chief engineer.

Wisconsin State Conservation Department, L. P. Voigt, director.

Wisconsin State Committee on Water Pollution, T. F. Wisniewski, director.

Wisconsin State Highway Commission, E. L. Roettiger, State highway engineer, and H. B. Schultz, engineer of bridges.

Madison Metropolitan Sewerage District, H. O. Lord, chief engineer and director.

Southeastern Wisconsin Regional Planning Commission, Kurt W. Bauer, executive director.

Assistance in the form of funds or services was given by the Corps of Engineers, U. S. Army, in collecting records for 24 gaging stations published in this report.

Assistance was also furnished by the Fish and Wildlife Service of the United States Department of Interior and the Soil Conservation Service of the United States Department of Agriculture.

The following organizations aided in collecting records:

Wisconsin Valley Improvement Co.; Lake Superior District Power Co.; Wisconsin-Michigan Power Co.; Wisconsin Public Service Corp.; Northern States Power Co.; Dairyland Power Cooperative; Wisconsin Power and Light Co.; Nekoosa-Edwards Paper Co.; Wisconsin River Power Co.; and Milwaukee County Park Commission.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height, or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Partial-record station is a particular site where limited streamflow data are collected systematically over a period of years for use in hydrologic analyses.

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet per second per square mile (cfsm) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Runoff in inches (in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

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

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, a long reach of the channel, or an artificial structure.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in the same downstream order used in the water-supply papers. Records are listed in a downstream direction along the main stem with all stations on a tributary entering above a main-stem station listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed listing stations on first rank, second

rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention shows which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. The numbers have been assigned in the same downstream order used in the annual series of water-supply papers. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations, so that the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive.

The complete number for each station, such as 5-3655.00, includes the part number "5" and a six digit station number. In this report, the part number and only the essential digits of the station number are shown. For example, the complete number 5-3655.00 would appear as 5-3655, just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from a water-stage recorder that gives a continuous record of fluctuations or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-

opening measurements, or computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is in effect the shifting-control method.

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

At some gaging stations the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute the daily discharge. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins.

The data in this report generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge of the stream. For regular continuing gaging stations, records are published for the water year which begins on October 1 and ends on September 30. A calendar for the 1965 water year is shown on page II to facilitate finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage given under "Location" for some stations, is that determined and used by the Corps of Engineers unless otherwise noted. Under "Records available" are given periods for which there are published records for the present station or for stations generally equivalent to the present one. Under "Gage" are given the type of gage currently in use and the datum of the gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. The references to "datum of 1929" and adjustments of other years are to the datum and adjustments of the U. S. Coast and Geodetic Survey. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height if it is significant. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a non-recording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and to conditions which affect the natural flow at the gaging station is given under " Remarks."

Skeleton rating tables are published for all stations except those for which the daily discharge for the greater part of the open-water period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than one-tenth foot. Skeleton rating tables generally are not published for canals, ditches, or springs.

The daily table gives the discharge corresponding to the daily mean gage height unless there are large or rapid changes in discharge during a day. For days having large or rapid changes, discharge for the day is computed by averaging the mean discharges for several parts of a day. For stations equipped with nonrecording gages, the daily discharge corresponds to once-daily readings of the gage or to the mean of twice-daily readings; but for periods of rapidly changing stage the discharge is determined from a gage-height graph based on gage readings.

In the table of daily discharge, the figures for the maximum day and the minimum day for each month are underlined. If the figure is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed " Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed " Mean" gives the average flow in cubic feet per second during the month. Discharge for the month may be expressed in cubic feet per second per square mile (line headed " Cfsm"), or in inches (line headed " In."). Figures for cubic feet per second per square mile and runoff in inches are omitted if the drainage area includes large noncontributing areas, or if the flow is appreciably affected by regulation by reservoirs upstream.

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage height for most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour time, for example 12:30 a.m. is 0030; 1:30 p.m. is 1330.

Footnotes to the table of daily discharge indicate periods for which discharge was computed or estimated by unusual or special methods because of no gage-height record, ice effect, or other conditions that reduce the degree of accuracy of the records. The footnotes are either reference footnotes, with corresponding symbols used in the table of daily discharge to indicate the days included, or general footnotes, introduced by the word " Note," in which the

days included are stated. The methods used in computing data for such footnoted periods have been explained in preceding paragraphs.

For gaging stations on lakes the data presented comprise a description of the station and a table of stage observations. For reservoirs a brief description and a table showing month-end contents are given.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

Discharge at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversion, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur when relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

Records of mean daily flow collected during open-water periods at partial-record stations are presented in a seasonal-record section following the data for the regular gaging stations.

The data normally collected at partial-record stations and at miscellaneous sites are given at the end of this report. Data for partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements at miscellaneous sites are given in a third table. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are given in special tables after the list of measurements at miscellaneous sites.

Information of a more detailed nature than that published for most of the gaging stations is on file in the district office, such as discharge measurements and recorder charts or nonrecording-gage readings. Many gaging-station records in the State through 1960 have been analyzed with an electronic computer to give: (1) the number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year. These data are in a report "Flow Characteristics of Wisconsin Streams," and "Supplement to Report on Flow Characteristics of Wisconsin Streams," copies of which are available from the district office. At some gaging stations water samples are collected from the stream for the purpose of making chemical analyses; measuring water temperatures; or computing dissolved solids, suspended sediment loads, and particle-size distribution. For most of these samples the results are published in Part 2 of this report. A reference is made herein, under the Remarks paragraph of the gaging station description, to water quality records collected on a regular basis. Information on the availability of electronic computer analyses, unpublished data, or quality of water records may generally be obtained from the district office.

HYDROLOGIC CONDITIONS

Streamflow in Wisconsin for the water year ending Sept. 30, 1965, was near the long-term average. Streamflow in the west-central area and of rivers tributary to Lake Michigan south of Green Bay ranged between 115 and 140% of average (see figure 1). For the second consecutive year the lowest yearly runoff in the state occurred in the upper Rock River basin.

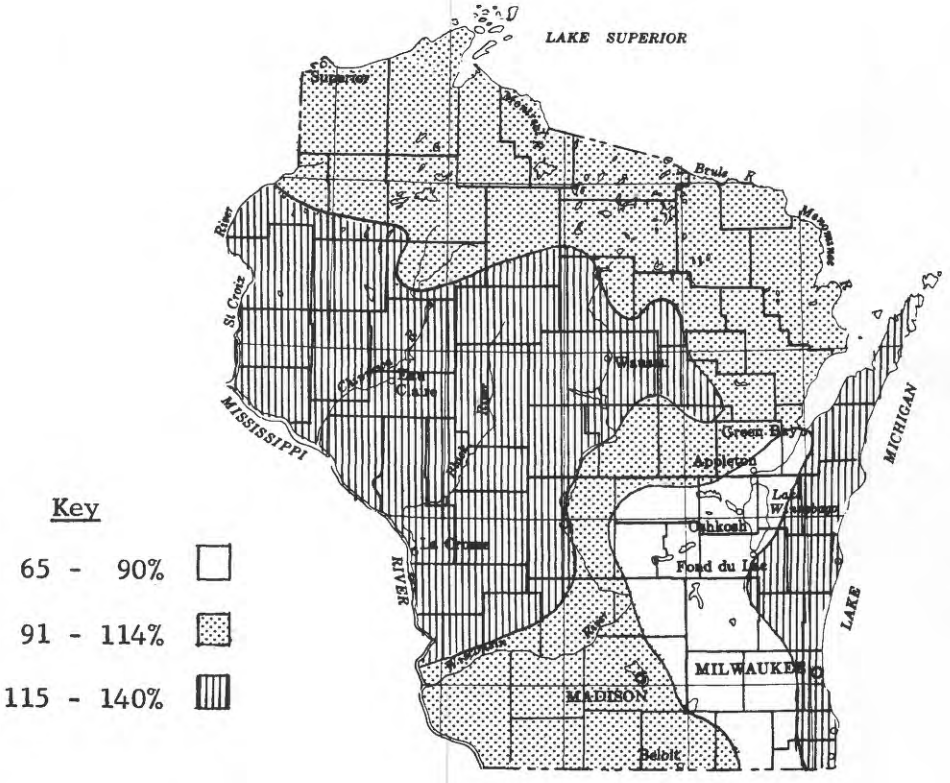

Figure 1. Variation of 1965 mean discharge as a percent of long-term average flow.

Much of the state, however, experienced extremes of monthly flow ranging from defient to excessive with the total for the year just happening to add up to near average yearly runoff. A plot of monthly and yearly mean discharge at three index stations is compared with the median discharge for the period 1931-60 in figure 2.

GPO 826-538-2

In the southern part of the state where streamflow was record low for the 1964 water year runoff in October and November continued deficient. From November through winter runoff was deficient in the northwest and near or below average elsewhere. Several light rains and warmer temperatures in the south during the winter period of January through March caused five sharp peaks on smaller rivers with severe ice jams on many, and runoff in those areas increased to above average. April flows were excessive, especially in the north due to the melting of a heavy snow cover and light general rains. May runoff was excessive in the north, above average in the south. From June to mid-August a deficiency of rainfall caused streamflow to decrease rapidly and by the end of July many southern streams were below 1964 summer drought minimums. The mean discharge in July for Sugar River near Brodhead was the second lowest in the 51 years of record since 1914. The Grant River at Burton July discharge was also the second lowest in its period of record (since October 1934). Frequent and heavy rains, starting in the latter part of August boosted streamflow throughout most of the state. In some areas rainfall totaled 15 inches in a 30-day period. Local flooding occurred in three periods in the upper Kickapoo River valley in September. Runoff for the month was excessive.

The outstanding streamflow event was the spring flood in the basins tributary to the Mississippi River. Although no record high peaks occurred at gaging stations with fairly long periods of record, rivers in the west half of the state experienced relatively high runoff as a result of snowmelt and rainfall. The most intensive runoff occurred during the second week of April. Thick ice in the north, the result of a long, cold winter, caused large ice jams and contributed to the damage caused by the high water. Storage in reservoirs helped to reduce and flatten the peaks on the Chippewa and Wisconsin Rivers, the most extreme peak occurring on the Wisconsin River at Wisconsin Rapids, 64,000 cfs, Apr. 13, the equivalent of an 18-year flood. The St. Croix River at St. Croix Falls peaked at 45,700 cfs Apr. 18, the second highest peak of record and the equivalent of an 18-year flood. More complete data on this flood will be contained in Water-Supply Paper 1850-A, "March-May 1965 Flood in the Upper Mississippi River Basin."

Figures 3 and 4 indicate for selected lakes the extremes of stage for water year 1965 compared with those of each water year since 1937. The minimum stage of 1.49 ft Feb. 8, 1965, for Devil's Lake near Baraboo is the lowest observed in the period of record since June 1934.

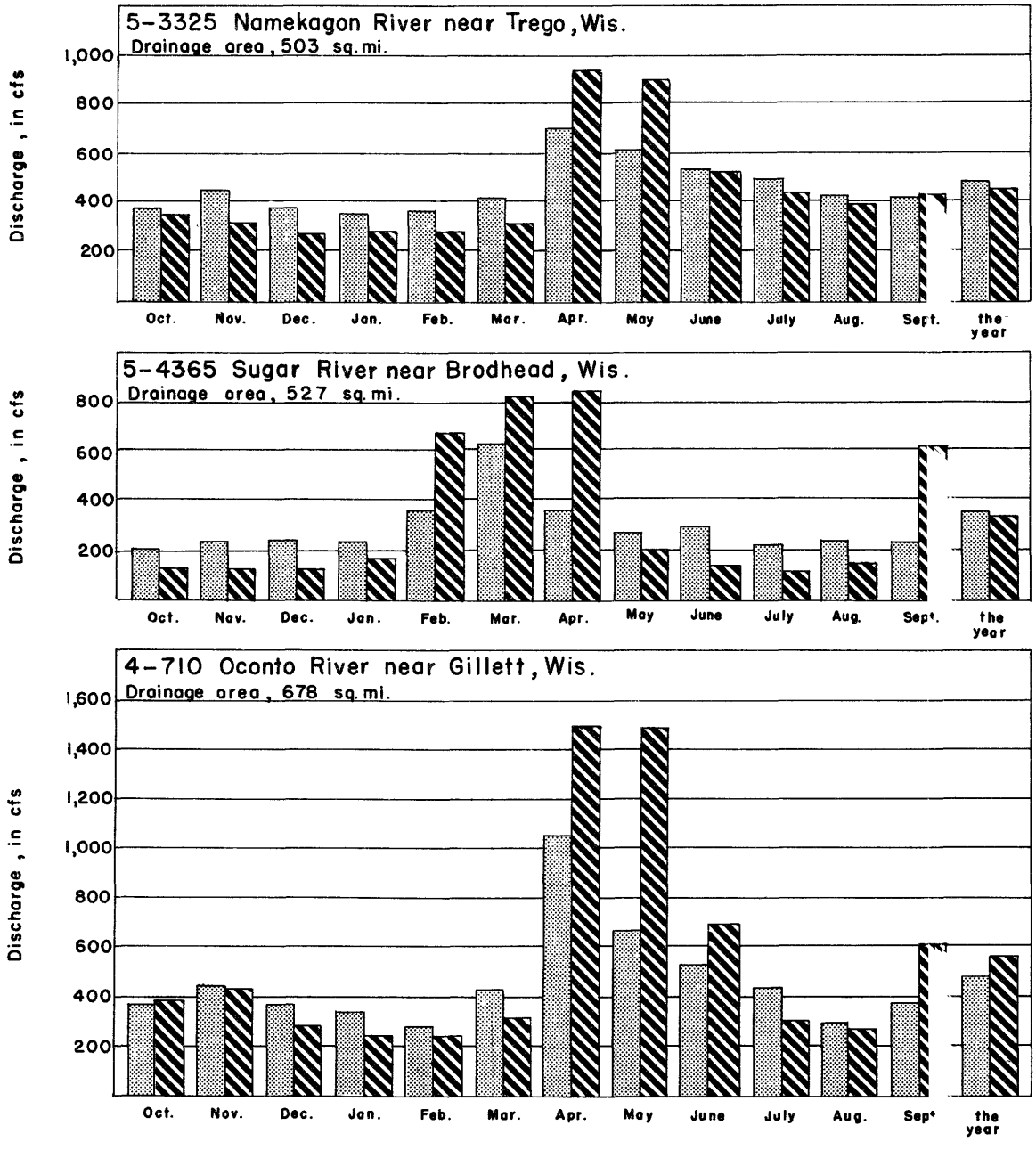

Figure 2. Comparison of discharge at three long-term representative gaging stations during 1965 water year with median discharge for period 1931-60.

Median of monthly and yearly mean discharge for period 1931-60.

Monthly and yearly mean discharge for 1965 water year.

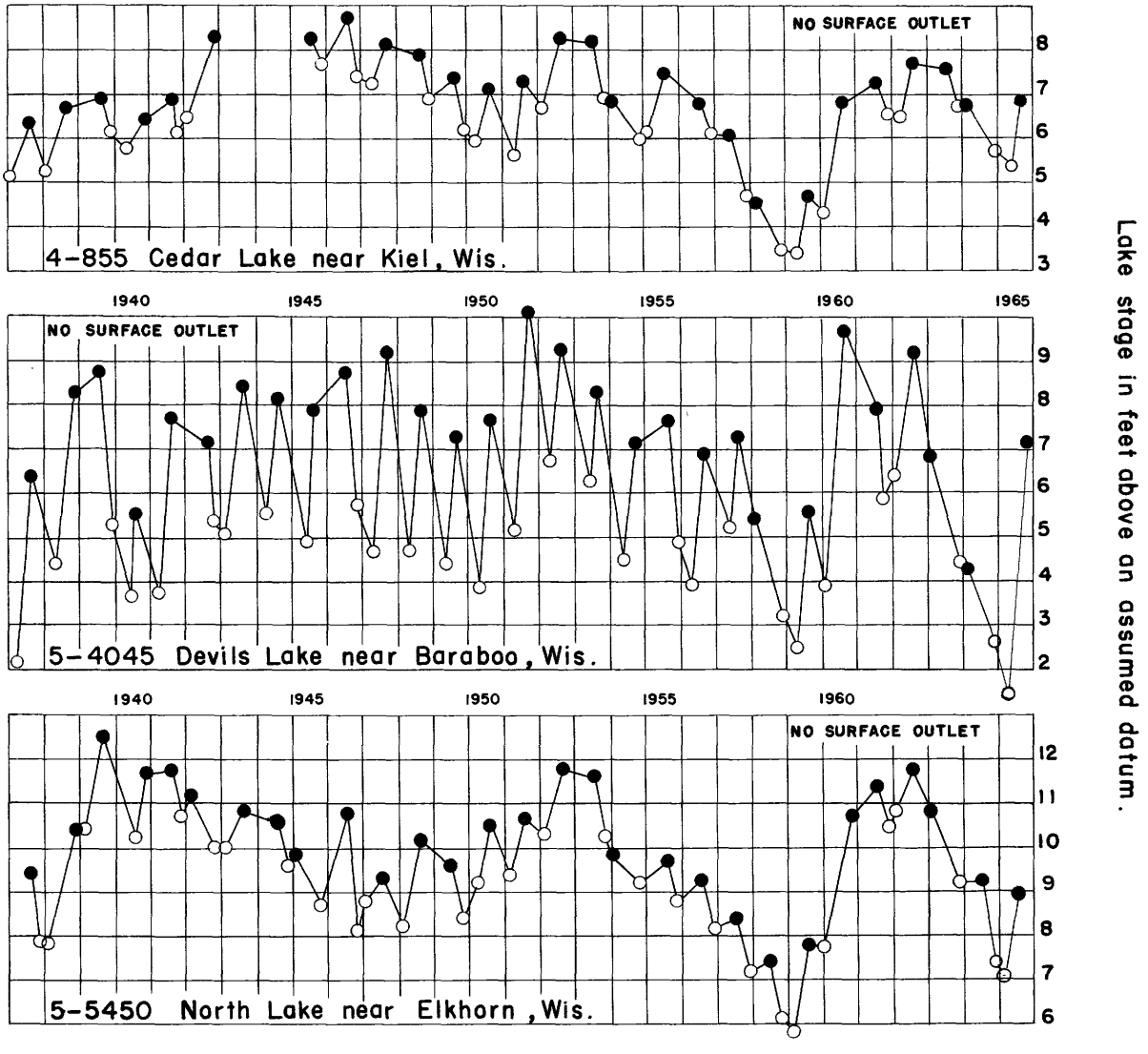

Figure 3. A comparison of extremes of stage of three southern lakes for each water year since 1937.

● Maximum stage observed

○ Minimum stage observed

Connecting lines do not indicate actual stage between extremes.

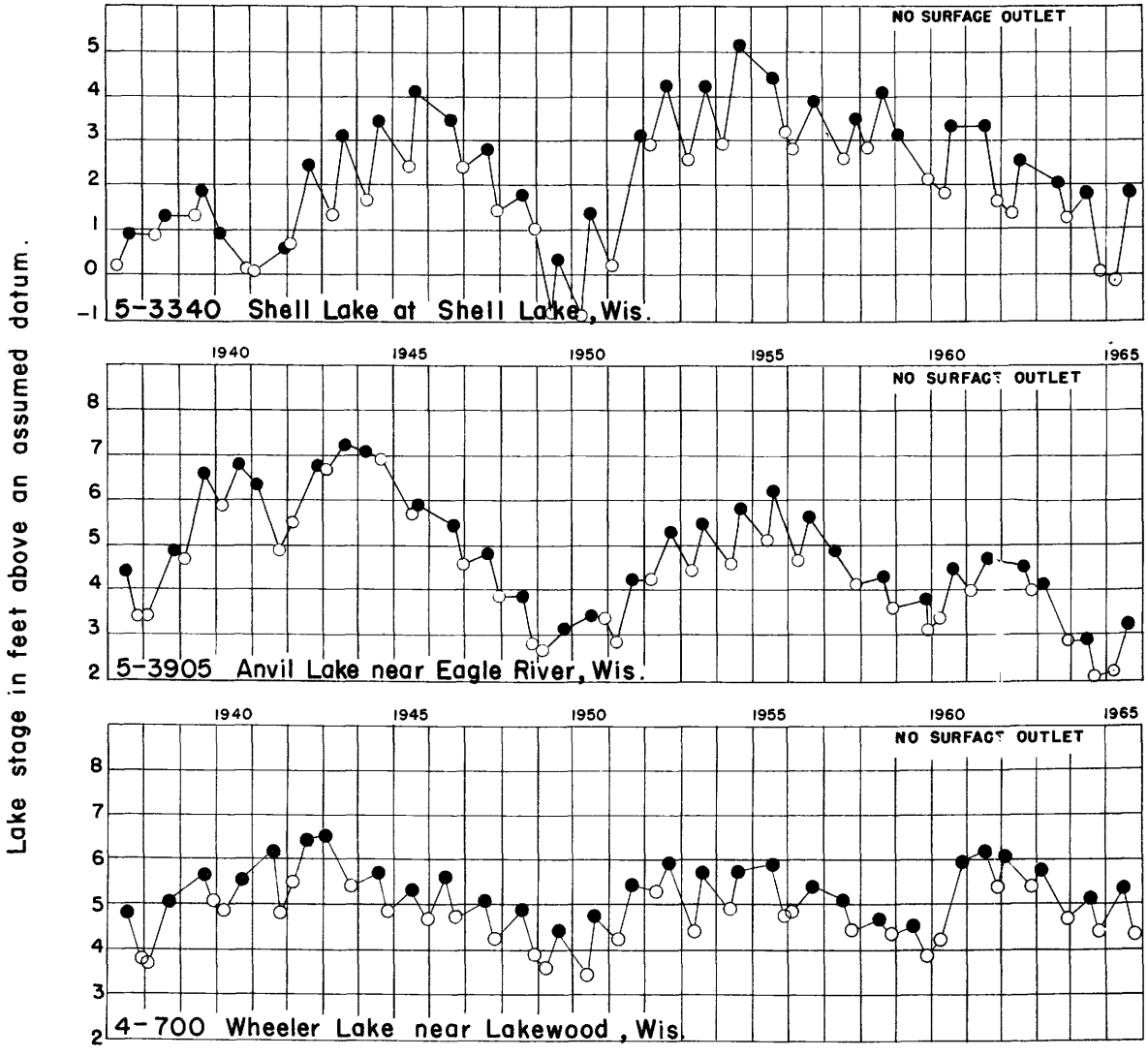

Figure 4. A comparison of extremes of stage of three northern lakes for each water year since 1937.

● Maximum stage observed

○ Minimum stage observed

Connecting lines do not indicate actual stage between extremes.

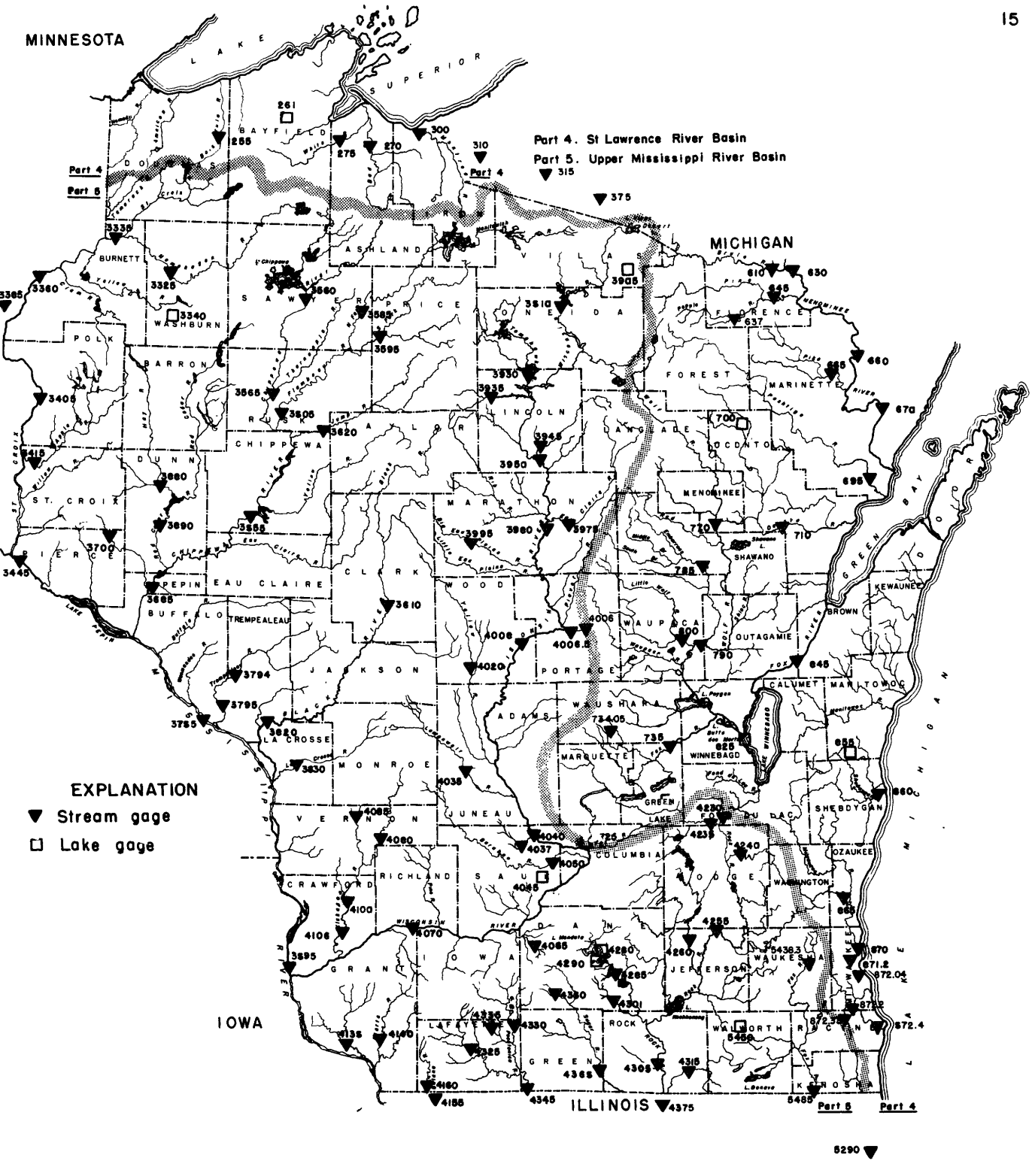

Figure 5. Map of Wisconsin showing location of lake and stream gaging stations.

4-255. Bois Brule River at Brule, Wis.

Location.--Lat 46°32'15", long 91°35'45", in NW 1/4 SW 1/4 sec. 23, T. 47 N., R. 10 W., on right bank, 1.4 miles southwest of Brule Post Office, 1.4 miles downstream from Nebagamon Creek, and 1.7 miles upstream from Little Brule River.

Drainage area.--113 sq mi.

Records available.--October 1942 to September 1965. Prior to January 1943 monthly discharge only, published in WSP 1307.

Gage.--Water-stage recorder. Datum of gage is 948.49 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, chain gage at same site and datum.

Average discharge.--23 years, 169 cfs.

Extremes.--Maximum discharge during year, 855 cfs Apr. 18 (gage height, 4.09 ft); minimum, 117 cfs July 28 (gage height, 1.44 ft). 1942-65: Maximum discharge, 1,520 cfs June 5, 1944 (gage height, 5.2 ft, from graph based on gage readings), from rating curve extended above 750 cfs; minimum observed, 67 cfs Mar. 13, 1943.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.4	111	2.0	214
1.6	140	3.0	443
1.8	174	4.0	812

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	163	127	122	124	118	130	140	321	188	153	174	134
2	169	127	120	126	118	144	139	303	190	161	174	131
3	165	127	120	128	118	150	137	283	176	158	170	127
4	154	127	118	130	118	150	*137	265	184	156	154	127
5	153	125	118	134	120	146	140	253	180	174	145	127
6	150	125	118	136	122	142	154	259	184	156	143	125
7	145	*124	118	138	126	135	167	*291	178	153	186	127
8	142	125	118	138	122	132	169	321	196	163	202	127
9	140	125	120	130	122	132	172	369	188	176	184	125
10	137	124	126	126	120	135	186	350	178	165	172	124
11	*137	160	132	124	120	132	238	321	169	153	160	122
12	137	182	138	122	118	132	255	294	161	145	148	127
13	137	186	142	120	118	132	276	272	154	146	142	139
14	135	176	138	118	118	132	276	253	150	145	137	154
15	134	167	132	120	120	132	338	255	145	143	134	196
16	134	160	*126	122	118	132	454	270	*142	148	132	208
17	131	153	124	124	118	130	549	267	139	165	132	188
18	130	148	122	122	*118	128	664	261	137	163	130	188
19	132	143	122	122	118	126	660	244	137	154	127	198
20	131	136	120	120	120	124	621	230	156	145	125	200
21	131	128	120	*120	122	122	*595	249	150	*142	135	202
22	130	120	122	122	124	120	573	238	143	139	139	200
23	130	124	122	120	122	120	553	228	139	134	132	190
24	130	130	124	120	120	120	500	222	135	132	128	186
25	128	132	124	120	120	122	462	224	131	130	*137	174
26	128	130	124	120	118	126	428	218	130	125	142	167
27	128	126	124	118	120	128	403	212	145	124	153	161
28	127	124	122	118	122	130	379	208	180	121	150	160
29	127	124	120	118	----------	132	355	200	169	119	143	172
30	127	122	120	118	----------	135	338	192	161	132	140	*228
31	127	----------	122	118	----------	137	----------	186	----------	176	137	----------
Total	4,269	4,127	3,838	3,836	3,358	4,088	10,458	8,059	4,815	4,596	4,607	4,834
Mean	138	138	124	124	120	132	349	260	160	148	149	161
Cfsm	1.22	1.22	1.10	1.10	1.06	1.17	3.09	2.30	1.42	1.31	1.32	1.42
In.	1.41	1.36	1.26	1.26	1.11	1.35	3.44	2.65	1.58	1.51	1.52	1.59

Calendar year 1964 : Max 480 Min 103 Mean 150 Cfsm 1.33 In. 18.03
Water year 1964-65 : Max 664 Min 118 Mean 167 Cfsm 1.48 In. 20.04

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20-24, Nov. 26 to Mar. 6, Mar. 17-29 (no gage-height record Dec. 18-20, 22-27).

4-261. Long Lake near Iron River, Wis.

Location.--Lat 46°35'30", long 91°20'30", in SW 1/4 sec. 35, T. 48 N., R. 8 W., at residence of Stanley Wilcox, on north end 3.6 miles northeast of Iron River.

Drainage area.--1.28 sq mi. Area of Long Lake, 184 acres.

Records available.--October 1964 to September 1965 (fragmentary).

Gage.--Staff gage read once weekly during open water. Altitude of gage is 1,096 ft (from topographic map).

Extremes.--Maximum gage height observed during year, 2.19 ft May 8; minimum observed, 1.57 ft Aug. 25.

Remarks.--Lake has no surface outlet. Lake ice covered Nov. 24 to near end of April.

Elevation, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								2.18				
2												
3										1.90		
4							2.01					1.58
5			1.87						2.08			
6												
7		1.80									1.66	
8								2.19				
9												
10										1.86		
11												1.58
12			1.88						2.04			
13												
14		1.88									1.62	
15								2.16				
16			1.90									
17	1.92									1.80		
18					1.88							1.58
19			1.90						1.98			
20												
21		1.87								1.78	1.60	
22								2.12				
23				1.85								
24	1.86						2.16			1.76		
25											1.57	1.60
26			1.92						1.96			
27												
28		1.87									1.60	
29								2.10				
30					---							1.72
31	1.82	---			---		---		---	1.70		---

4-270. Bad River near Odanah, Wis.

Location.--Lat 46°29'15", long 90°41'45", in SE 1/4 sec. 2, T. 46 N., R. 3 W., on left bank just downstream from Elm Hoist Bridge, 5.0 miles downstream from Potato River, 8.5 miles south of Odanah, and 23 miles from mouth.

Drainage area.--611 sq mi.

Records available.--July 1914 to December 1922, May 1948 to September 1965. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder. Datum of gage is 668.3 ft above mean sea level, datum of 1929. May 17, 1948, to Nov. 6, 1959, water-stage recorder, Nov. 7, 1959, to Oct. 18, 1960, wire-weight gage, Oct. 19, 1960, to Nov. 23, 1961, Bristol pressure gage, and Nov. 24, 1961, to July 12, 1962, wire-weight gage at same site and datum. Prior to Nov. 11, 1922, water-stage recorder at site 2 miles downstream at different datum.

Average discharge.--25 years (1914-22), 1948-65), 600 cfs.

Extremes.--Maximum discharge during year, 6,520 cfs Apr. 23 (gage height 10.23 ft); maximum gage height, 11.20 ft Apr. 12 (backwater from ice); minimum discharge, 89 cfs July 30 (gage height, 2.19 ft).
1914-22, 1948-65: Maximum discharge, 27,700 cfs Apr. 24, 1960 (gage height, 21.7 ft, from floodmarks), from rating curve extended above 12,000 cfs and comparison with contracted-opening measurement of peak flow (45,600 cfs) at Odanah, drainage area 970 sq mi, approximately; minimum, 49 cfs Aug. 8, 1964 (gage height, 2.03 ft).
Flood of June 24, 1946, reached a stage of at least 22.2 ft (top of bridge submerged), from information by Irdian Service.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	66	4.0	830
2.3	119	6.0	2,260
2.6	203	8.0	4,010
3.0	336	10.0	6,220

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	318	174	190	190	110	130	160	1,820	753	146	218	180
2	380	171	190	190	110	140	*160	1,640	742	160	212	174
3	600	171	190	190	100	140	170	1,440	655	180	180	163
4	515	186	190	190	100	150	180	1,250	575	174	163	141
5	415	289	190	190	100	160	210	1,400	510	180	146	119
6	348	292	190	190	100	180	300	1,040	645	174	141	119
7	299	268	190	190	110	210	500	1,640	714	183	567	122
8	299	243	180	200	110	230	800	2,200	753	191	682	119
9	368	*239	180	200	110	230	1,300	3,430	848	329	505	119
10	360	239	180	200	120	220	1,500	*4,710	714	447	364	114
11	329	275	190	190	120	220	3,000	3,520	570	348	275	110
12	*318	560	230	180	120	210	4,500	2,420	456	275	218	116
13	318	1,080	260	170	120	210	4,400	1,710	372	249	188	124
14	296	1,040	260	160	120	200	5,370	1,300	321	262	160	146
15	272	902	240	150	120	200	5,540	1,280	272	246	143	230
16	249	753	220	140	120	190	4,950	2,440	246	212	127	340
17	230	620	*210	140	120	190	4,320	2,700	224	236	122	545
18	218	480	200	130	130	190	4,520	3,420	203	282	174	896
19	206	389	200	130	*150	180	4,700	2,680	183	282	174	992
20	197	299	190	140	160	180	4,840	1,940	177	243	141	1,110
21	200	250	190	*140	160	180	4,840	1,540	*168	206	130	1,060
22	206	220	190	140	150	170	5,220	1,300	163	*183	130	1,120
23	221	210	200	140	140	170	6,100	1,100	166	166	119	914
24	236	220	200	140	130	170	5,400	950	160	152	114	786
25	236	230	200	140	120	170	3,960	860	149	141	114	660
26	215	220	200	140	120	160	3,080	1,060	138	124	*132	545
27	215	210	190	130	120	160	2,590	1,150	135	119	157	451
28	206	200	190	130	130	160	2,280	1,080	138	106	174	419
29	188	200	180	120	------	160	1,980	1,150	143	97	180	545
30	188	190	180	120	------	160	1,880	968	146	97	171	786
31	177	------	180	110	------	160	------	802	------	149	166	------
Total	8,823	10,820	6,170	4,910	3,420	5,580	88,750	55,940	11,439	6,339	6,487	13,265
Mean	285	361	199	158	122	180	2,958	1,805	381	204	209	442
Cfsm	0.466	0.591	0.326	0.259	0.200	0.295	4.84	2.95	0.624	0.334	0.342	0.723
In.	0.54	0.66	0.38	0.30	0.21	0.34	5.40	3.41	0.70	0.39	0.39	0.81

Calendar year 1964 : Max 8,340 Min 52 Mean 559 Cfsm 0.915 In. 12.47
Water year 1964-65 : Max 6,100 Min 97 Mean 608 Cfsm 0.995 In. 13.53

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-23	2000	10.23	6,520	5-18	1500	7.84	3,870
5-10	0500	9.10	5,120				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 13.

4-275. White River near Ashland, Wis.

Location.--Lat 46°29'50", long 90°54'15", in sec. 6, T. 46 N., R. 4 W., at downstream end of powerplant of Lake Superior District Power Co., 0.3 mile downstream from bridge on State Highway 112 over dam, and 4.5 miles south of Ashland city limits.

Drainage area.--269 sq mi.

Records available.--May 1948 to September 1965.

Gage.--Chain gage read twice daily or more often when plant load is changed. Datum of gage is 660.15 ft above mean sea level, datum of 1929 (Lake Superior District Power Co. bench mark).

Average discharge.--17 years, 294 cfs.

Extremes.--Maximum discharge during year, 2,960 cfs Apr. 12 (gage height, 4.80 ft); minimum observed, 100 cfs Nov. 20, 21, 28, 30, Dec. 15, Jan. 10 (gage height, 0.78 ft).
1948-65: Maximum discharge, 6,270 cfs July 1, 1953 (gage height, 7.90 ft), from rating curve extended above 3,000 cfs; minimum, 3.1 cfs Apr. 28-30, 1949 (gage height, 0.09 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplant at gage.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 12 to July 1)

0.8	104	2.5	898
1.0	158	3.0	1,270
1.5	343	3.5	1,690
2.0	585		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	160	136	170	166	166	180	379	239	152	254	175
2	175	166	176	160	168	172	189	299	250	199	237	164
3	212	166	164	168	166	176	*217	278	245	208	198	164
4	186	166	160	158	158	172	196	267	230	191	209	164
5	201	166	146	158	168	172	217	256	250	202	181	164
6	152	168	146	180	160	180	252	240	239	196	198	161
7	161	163	162	184	162	190	321	722	250	180	388	155
8	167	163	170	180	170	190	670	*676	358	224	374	164
9	167	*163	170	174	170	200	800	908	434	196	326	164
10	162	168	180	120	170	170	940	804	369	299	254	164
11	156	220	183	140	164	190	1,250	670	240	209	209	164
12	*172	524	201	164	166	190	1,630	482	204	192	186	175
13	168	500	195	166	166	180	1,370	406	188	243	181	186
14	162	388	163	168	164	180	1,620	339	178	220	164	198
15	162	361	114	168	164	180	1,640	295	172	198	175	226
16	151	303	*132	164	164	190	1,510	653	162	175	164	243
17	162	225	156	170	160	190	1,540	543	*163	232	181	237
18	154	208	152	164	*166	170	1,480	713	163	276	181	237
19	160	208	154	172	170	124	1,360	630	158	226	175	306
20	154	119	154	168	170	160	1,130	585	158	215	164	393
21	154	100	158	172	166	180	961	532	159	198	175	402
22	160	114	162	*170	168	185	990	482	160	*186	164	411
23	154	213	154	172	170	185	947	448	208	181	181	366
24	157	208	154	172	166	185	804	425	236	180	164	288
25	163	191	158	170	168	180	688	420	162	181	175	254
26	157	169	154	170	168	180	596	406	155	175	*175	226
27	157	163	152	172	170	175	527	379	151	164	181	209
28	163	123	130	140	172	180	448	348	159	175	181	209
29	157	158	140	158	--------	180	397	325	158	164	181	232
30	152	126	158	158	--------	175	384	268	157	170	164	379
31	155	----------	154	168	--------	180	----------	268	----------	206	186	----------
Total	5,083	6,270	4,888	5,118	4,660	5,527	25,254	14,446	6,355	6,213	6,326	6,980
Mean	164	209	158	165	166	178	842	466	212	200	204	233
Cfsm	0.610	0.777	0.587	0.613	0.617	0.662	3.13	1.73	0.788	0.744	0.758	0.866
In.	0.70	0.87	0.68	0.71	0.64	0.76	3.49	2.00	0.88	0.86	0.87	0.96

Calendar year 1964: Max 2,160 Min 89 Mean 233 Cfsm 0.866 In. 11.79
Water year 1964-65: Max 1,640 Min 100 Mean 266 Cfsm 0.989 In. 13.42

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 10, Dec. 17 to Jan. 3, Jan. 6 to Apr. 1.

4-300. Montreal River near Saxon, Wis.

Location.--Lat 46°32'45", long 90°24'05", in NW 1/4 sec. 23, T. 48 N., R. 49 W., Michigan meridian, on right bank 2 miles upstream from mouth and 3.5 miles north of Saxon.

Drainage area.--262 sq mi.

Records available.--September 1938 to September 1965.

Gage.--Water-stage recorder. Altitude of gage 760 ft (from power company data).

Average discharge.--27 years, 324 cfs.

Extremes.--Maximum discharge during year, 2,710 cfs Apr. 23 (gage height, 4.89 ft); minimum 2.0 cfs Sept. 9 (gage height, 0.87 ft). 1938-65: Maximum discharge, 6,600 cfs Apr. 24, 1960 (gage height, 7.50 ft); minimum, 2 cfs Sept. 21, Oct. 8, 1939, Sept. 9, 1965.

Remarks.--Records good except those for periods of ice effect and no gage-height record, which are fair. Diurnal fluctuation caused by Saxon Falls powerplant 1.5 miles upstream. Flow regulated by Gile Reservoir on West Branch Montreal River (capacity, 1,290,000,000 cu ft) since April 1941.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	68	3.0	600
1.9	113	3.5	984
2.2	204	4.0	1,520
2.6	372	5.0	2,870

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	191	190	125	78	160	160	796	324	201	204	188
2	211	194	190	135	80	190	155	743	372	211	211	188
3	256	194	190	135	82	200	155	740	338	204	215	184
4	208	201	195	125	76	200	160	730	302	208	211	184
5	208	229	200	120	70	200	165	725	248	218	201	184
6	197	208	200	110	70	200	190	700	348	215	204	184
7	194	194	200	105	70	200	220	900	453	215	256	184
8	226	194	200	105	74	195	310	1,400	324	218	188	184
9	244	194	195	110	80	190	640	2,000	305	244	181	68
10	204	194	195	115	82	180	2,000	*2,230	252	236	181	134
11	194	229	195	110	80	200	1,400	2,150	218	215	188	188
12	191	398	195	105	74	200	1,960	1,180	191	181	188	188
13	*191	557	200	105	70	200	1,860	693	204	181	188	188
14	191	470	200	95	70	200	2,080	498	201	181	194	197
15	191	367	200	88	120	200	2,250	600	191	194	194	204
16	188	293	200	80	130	200	2,000	1,700	204	191	191	191
17	188	248	200	76	125	200	1,720	1,640	222	181	204	306
18	188	215	200	76	115	200	1,860	1,500	*226	174	208	431
19	188	194	200	76	110	200	1,960	1,100	215	181	204	358
20	188	195	195	78	110	200	1,940	679	215	181	204	404
21	204	185	190	80	105	200	1,920	570	208	194	208	431
22	226	170	190	*84	105	200	2,010	470	194	197	211	442
23	197	170	195	84	120	200	2,540	448	194	*197	201	338
24	191	190	200	84	145	200	2,150	409	191	197	188	284
25	191	174	200	84	150	190	1,590	353	188	208	191	248
26	191	185	200	84	130	180	1,250	372	184	211	272	218
27	191	195	200	84	130	170	1,060	353	181	194	*324	191
28	191	200	195	84	140	170	930	362	197	211	264	226
29	191	195	150	82	-------	170	811	414	204	215	191	233
30	194	190	125	80	---------	170	796	338	204	215	184	324
31	194	----------	115	78	---------	165	----------	298	----------	226	188	----------
Total	6,195	7,013	5,900	2,982	2,791	5,930	38,242	27,091	7,299	6,295	6,437	7,272
Mean	200	234	190	96.2	99.7	191	1,275	874	243	203	208	242
Cfsm	0.763	0.893	0.725	0.367	0.381	0.729	4.87	3.34	0.927	0.775	0.794	0.924
In.	0.88	1.00	0.84	0.42	0.40	0.84	5.43	3.85	1.04	0.89	0.91	1.03

Calendar year 1964: Max 4,050 Min 53 Mean 341 Cfsm 1.30 In. 17.74
Water year 1964-65: Max 2,540 Min 68 Mean 338 Cfsm 1.29 In. 17.53

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20-24, Nov. 26 to Apr. 11. No gage-height record May 3-9.

4-310. Black River near Bessemer, Mich.

Location.--Lat 46°30'41", long 90°04'28", in NE 1/4 SE 1/4 sec. 32, T. 48 N., R. 46 W., on right bank 450 ft downstream from bridge on county highway, 500 ft downstream from Powder Mill Creek, and 2 1/2 miles northwest of Bessemer.

Drainage area.--200 sq mi.

Records available.--October 1954 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map).

Average discharge.--11 years, 222 cfs.

Extremes.--Maximum discharge during year, 3,750 cfs Apr. 23 (gage height, 8.52 ft); minimum, 12 cfs July 28, 29 (gage height, 0.50 ft). 1954-65: Maximum discharge, 14,800 cfs Apr. 24, 1960 (gage height, 14.27 ft, from floodmark), from rating curve extended above 5,300 cfs on basis of slope-area measurement of peak flow; minimum, 12 cfs July 19, 1962, July 28, 29, 1965.

Remarks.--Records good except those for period of ice effect, which are fair. Some ground water pumped from mines at Bessemer. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

0.5	12	3.0	565
.8	33	6.0	2,020
1.1	68	8.0	3,300
1.5	142	9.0	4,200
2.0	262		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	160	81	*120	70	60	58	80	1,420	235	24	20	65
2	212	76	120	70	60	60	84	1,160	218	28	18	50
3	188	*74	120	70	60	64	88	935	177	27	16	40
4	157	128	120	70	60	66	96	740	157	28	15	32
5	136	155	120	*70	60	70	110	582	164	35	15	29
6	*132	138	120	70	60	72	130	534	218	30	19	24
7	136	126	120	72	60	74	160	1,260	191	29	125	22
8	157	116	120	74	60	76	230	1,870	222	30	93	22
9	162	112	120	74	60	76	293	2,250	203	55	53	20
10	144	110	130	72	60	76	389	2,160	160	53	38	20
11	132	230	140	70	58	78	*1,060	1,470	130	39	30	18
12	132	461	150	68	56	78	1,310	990	104	34	25	19
13	122	660	160	66	54	80	1,200	692	84	38	21	24
14	112	558	160	64	54	80	1,440	518	73	*35	19	38
15	102	461	150	64	52	82	1,730	582	*61	28	17	124
16	93	386	140	62	*50	82	1,600	1,360	55	24	15	*113
17	86	326	120	60	50	*82	1,560	1,220	49	23	16	336
18	76	270	110	60	50	82	1,740	912	43	25	*15	359
19	78	235	100	60	50	82	1,910	668	40	21	15	435
20	86	200	95	60	50	82	1,880	904	39	20	14	470
21	140	150	90	60	50	82	*2,170	446	37	20	18	441
22	177	140	80	60	50	80	2,300	368	28	20	23	407
23	168	130	75	60	50	80	3,490	305	31	19	18	333
24	155	130	70	60	50	80	2,490	265	28	17	17	291
25	142	130	70	60	50	80	2,060	210	27	16	29	249
26	130	120	70	60	52	80	1,760	179	24	15	65	210
27	122	120	70	60	54	80	1,670	164	27	14	244	173
28	112	120	70	60	56	80	1,400	188	29	14	138	172
29	98	120	70	60	-------	80	1,350	198	27	14	74	209
30	91	120	70	60	------	80	1,520	168	27	15	57	281
31	84	------	70	60	-----	80	-----	149	-----	17	61	------
Total	4,022	6,183	3,340	2,006	1,536	2,382	37,300	24,867	2,908	807	1,363	5,026
Mean	130	206	108	64.7	54.9	76.8	1,243	802	96.9	26.0	44.0	168
Cfsm	0.650	1.03	0.540	0.324	0.274	0.384	6.21	4.01	0.484	0.130	0.220	0.840
In.	0.75	1.15	0.62	0.37	0.29	0.44	6.93	4.62	0.54	0.15	0.25	0.94

Calendar year 1964: Max 4,490 Min 17 Mean 248 Cfsm 1.24 In. 16.88
Water year 1964-65: Max 3,490 Min 14 Mean 251 Cfsm 1.26 In. 17.05

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-23	0430	8.52	3,750	5-16	1100	5.17	1,560
5- 9	2230	6.97	2,570				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20 to Apr. 7 (no gage-height record Feb. 9-16).

4-315. Presque Isle River at Marenisco, Mich.

Location.--Lat 46°22'20", long 89°41'32", in SE 1/4 NW 1/4 sec. 21, T. 46 N., R. 43 W., on left bank 0.3 mile upstream from highway bridge in Marenisco and 1 1/2 miles downstream from confluence of East and West Branches.

Drainage area.--171 sq mi.

Records available.--February 1945 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,489.30 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to May 27, 1949, wire-weight gage at site 0.3 mile downstream at different datum.

Average discharge.--20 years, 171 cfs.

Extremes.--Maximum discharge during year, 1,620 cfs May 10 (gage height, 8.38 ft); minimum, 24 cfs Aug. 19 (gage height, 3.02 ft). 1945-65: Maximum discharge, 3,520 cfs Apr. 25, 1960 (gage height, 11.25 ft); minimum observed, 13 cfs Sept. 30, 1948 (gage height, 2.25 ft, site and datum then in use).

Remarks.--Records good except those for periods of ice effect, which are fair. Occasional regulation for lake or pond level control at several places above station.

Rating table, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

3.0	23	6.0	500
3.5	65	7.0	820
4.0	126	8.5	1,690
5.0	287		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	53	*95	110	80	82	90	716	292	116	50	57
2	106	51	95	110	80	82	90	655	283	101	46	49
3	101	*54	95	110	80	82	92	667	266	88	41	43
4	84	54	95	*110	80	82	96	640	250	83	39	38
5	86	61	95	110	80	82	100	583	244	80	38	37
6	*86	62	95	110	80	84	110	548	249	77	39	34
7	86	62	95	120	80	84	120	649	233	70	53	35
8	80	63	95	120	80	84	140	945	235	67	60	37
9	80	59	95	120	80	84	180	1,410	220	136	50	36
10	81	59	100	120	80	84	250	1,590	202	156	43	33
11	80	93	110	120	80	84	350	*1,410	188	137	43	32
12	82	160	130	110	80	84	*450	1,150	162	117	39	30
13	81	233	130	110	78	84	430	950	149	104	36	32
14	80	237	130	100	76	84	410	652	137	89	35	44
15	73	232	120	95	76	84	*400	450	*127	*80	29	*66
16	67	202	120	90	*76	84	600	716	118	72	28	69
17	62	178	120	90	76	*84	560	910	113	67	28	136
18	58	150	120	86	76	84	620	870	104	68	*26	166
19	61	134	120	84	78	84	685	740	95	66	26	178
20	65	120	120	84	78	84	712	649	96	57	26	215
21	72	110	120	84	80	84	*776	580	99	57	27	213
22	78	100	120	82	80	84	860	512	90	56	40	207
23	83	100	120	82	80	84	1,090	329	90	55	38	180
24	80	95	120	82	80	84	1,200	345	86	52	35	156
25	82	93	120	80	80	84	1,140	365	78	49	33	134
26	76	95	110	80	80	86	1,050	363	70	44	43	116
27	73	95	110	80	80	86	*1,000	361	83	40	50	101
28	67	95	110	80	80	86	930	337	213	38	54	109
29	65	95	110	80	-------	86	870	329	166	36	46	129
30	59	95	110	80	-------	86	870	301	133	35	42	144
31	57	-------	110	80	-------	88	-------	285	-------	37	58	-------
Total	2,403	3,290	3,435	2,999	2,214	2,608	16,271	21,007	4,871	2,330	1,241	2,856
Mean	77.5	110	111	96.7	79.1	84.1	542	678	162	75.2	40.0	95.2
Cfsm	0.453	0.643	0.649	0.567	0.463	0.492	3.17	3.96	0.947	0.440	0.234	0.557
In.	0.52	0.72	0.75	0.65	0.48	0.57	3.54	4.56	1.06	0.51	0.27	0.62

Calendar year 1964: Max 1,000 Min 28 Mean 139 Cfsm 0.813 In. 11.06
Water year 1964-65: Max 1,590 Min 26 Mean 180 Cfsm 1.05 In. 14.25

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20-24, Nov. 26 to Apr. 18 (no gage height record Mar. 18 to Apr. 11).

4-375. Cisco Branch Ontonagon River at Cisco Lake Outlet, Mich.

Location.--Lat 46°15'12", long 89°27'05", in E 1/2 sec. 32, T. 45 N., R. 41 W., on right bank 80 ft downstream from Cisco Lake Dam, 2 1/2 miles upstream from Langford Creek, 5 miles upstream from U. S. Highway 2, and 13 miles west of Watersmeet.

Drainage area.--50.7 sq mi.

Records available.--October 1944 to September 1965.

Gage.--Staff gage read once daily. Datum of gage is 1,676.69 ft above mean sea level, datum of 1929.

Average discharge.--21 years, 45.3 cfs.

Extremes.--Maximum discharge during year, 263 cfs May 17 (gage height, 2.00 ft); minimum daily, 0.7 cfs July 2-8.
1944-65: Maximum discharge, 288 cfs May 1-4, 1951 (gage height, 2.10 ft); minimum daily, 0.2 cfs May 29 to June 17, 1948, Nov. 8, 9, 1961.

Remarks.--Records good except those below 5 cfs, which are poor. Flow regulated by Cisco Lake (usable capacity, 15,600 acre-ft).

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0	0.7	0.5	15
.1	1.7	.8	38
.2	3.4	1.3	104
.3	5.9	1.8	213
.4	9.7	2.0	263

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	115	*45	33	29	19	29	178	42	0.9	0.9	64
2	9.7	108	45	34	29	34	36	174	45	.7	1.0	64
3	9.7	*108	45	33	*29	34	36	174	47	.7	1.0	59
4	9.7	98	42	*34	29	34	36	133	59	.7	1.0	59
5	9.7	77	42	34	29	34	36	51	59	.7	1.0	45
6	*9.7	45	42	34	28	34	46	40	59	.7	2.7	36
7	9.7	42	40	34	28	34	61	14	56	.7	3.1	24
8	9.7	40	40	33	28	33	61	5.3	56	.7	18	3.4
9	9.7	38	40	33	28	33	61	7.3	56	1.0	25	3.4
10	9.7	38	40	33	28	28	61	8.8	46	1.0	26	3.4
11	9.7	42	42	33	28	14	*80	29	22	1.0	25	3.4
12	11	45	49	33	44	14	94	62	22	1.0	23	3.4
13	11	58	49	33	66	14	94	78	22	1.1	23	3.9
14	11	64	49	33	66	15	94	97	16	*1.1	22	4.3
15	11	80	49	33	66	15	94	143	*1.4	1.0	22	*4.3
16	11	74	47	33	64	15	103	251	3.1	1.0	22	4.3
17	59	71	47	2.5	54	19	111	263	1.0	1.0	*22	19
18	88	71	47	14	34	38	111	*250	.9	3.1	16	58
19	82	71	45	14	34	56	111	238	1.1	3.1	2.4	92
20	82	71	45	14	34	54	108	233	1.0	3.1	2.4	115
21	136	71	45	15	34	54	111	199	1.0	3.1	2.4	138
22	169	71	45	15	31	54	124	121	1.0	3.1	2.4	134
23	160	59	45	15	26	54	156	85	1.0	3.1	2.4	110
24	155	40	45	18	26	54	196	85	.9	2.7	2.4	71
25	188	29	47	29	22	43	208	85	.9	2.4	2.4	32
26	178	31	45	29	13	26	208	88	.9	1.0	2.4	11
27	169	33	40	29	13	26	208	80	.9	.9	2.4	11
28	188	34	33	29	13	26	208	59	.9	.9	4.8	12
29	138	34	33	29	-------	28	*203	40	.9	.9	16	20
30	130	34	33	29	-------	28	191	38	.9	.9	27	42
31	122	----------	33	29	-------	28	----------	38	----------	.9	46	----------
Total	2,207.0	1,792	1,334	866	953	992	3,276	3,347.4	624.8	44.2	370.1	1,249.8
Mean	71.2	59.7	43.0	27.9	34.0	32.0	109	108	20.8	1.43	11.9	41.7

Calendar year 1964 : Max 201 Min 0.6 Mean 40.4 Cfsm 0.797 In. 10.85
Water year 1964-65 : Max 263 Min 0.7 Mean 46.7 Cfsm 0.921 In. 12.50

* Discharge measurement made on this day.

4-610. Brule River near Florence, Wis.

Location.--Lat 45°57'31", long 88°15'57", in SE 1/4 SE 1/4 sec. 11, T. 41 N., R. 32 W., Michigan meridian, on left bank 40 ft upstream from highway bridge, 1 mile upstream from Paint River, 2 1/2 miles north of Florence, and 5 miles upstream from confluence with Michigamme River.

Drainage area.--389 sq mi.

Records available.--January 1914 to February 1916, June 1944 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,210 ft (from topographic map). Prior to Aug. 29, 1944, wire-weight or chain gages at bridge 40 ft downstream at same datum.

Average discharge.--22 years (1914-15, 1944-65), 343 cfs.

Extremes.--Maximum discharge during year, 2,320 cfs May 9 (gage height, 4.65 ft); maximum gage height, 5.09 ft Nov. 20 (ice jam); minimum discharge, 185 cfs Oct. 11, 12 (gage height, 1.95 ft).
1914-16, 1944-65: Maximum discharge, 4,700 cfs July 2, 1953 (gage height, 6.57 ft); maximum gage height, 8.01 ft Jan. 8, 1960 (ice jam); minimum discharge, 118 cfs Dec. 2, 1963 (discharge measurement); minimum gage height, 1.79 ft July 24, 1964.

Remarks.--Records excellent except those for period of ice effect, which are fair. Flow not adjusted for ground water pumped from mines into Iron River above station at Caspian, Mich.

Rating table, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 18 to Sept. 17)

1.7	141
2.0	219
2.5	440
3.5	1,120
5.0	2,710

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	194	*190	220	175	210	*150	1,220	574	295	339	275
2	213	*194	190	220	*175	210	155	1,110	610	295	317	*241
3	210	197	195	230	175	*210	160	984	522	291	*283	223
4	200	226	195	*240	170	210	180	864	468	287	283	219
5	197	275	195	240	170	210	210	731	435	317	271	230
6	*194	251	195	240	175	210	250	815	484	304	259	226
7	194	233	200	240	175	205	290	1,190	544	287	308	226
8	194	226	200	240	175	205	315	2,010	500	275	358	230
9	191	219	205	230	180	200	360	2,270	462	275	308	223
10	191	219	210	230	180	195	430	*2,200	440	275	275	226
11	188	255	215	220	180	185	500	2,120	414	263	259	226
12	185	335	220	220	180	180	560	1,740	382	255	244	216
13	188	403	225	210	180	180	610	1,260	368	267	241	226
14	188	358	230	210	185	180	650	960	*349	259	244	259
15	188	330	230	200	185	175	670	843	339	275	226	321
16	191	317	225	200	190	175	690	1,350	330	244	219	304
17	188	287	225	200	195	175	703	1,820	330	244	237	299
18	188	267	220	200	200	170	766	1,780	330	248	251	339
19	188	248	220	200	205	170	829	1,330	326	251	241	358
20	191	240	215	200	205	165	*938	1,410	335	283	233	419
21	191	225	215	200	210	165	1,060	794	358	267	226	528
22	194	210	215	200	210	160	1,200	703	353	259	299	534
23	197	220	215	200	210	160	1,410	630	387	255	279	419
24	197	225	215	200	215	155	1,580	580	358	248	287	353
25	194	230	215	200	215	155	1,470	544	326	241	255	326
26	191	225	215	190	215	155	1,320	550	308	230	248	308
27	191	210	210	190	215	150	1,290	544	304	219	237	295
28	194	200	210	190	210	150	1,260	500	353	219	233	344
29	194	190	210	180	-------	150	*1,160	478	339	216	230	429
30	191	190	210	180	-------	150	1,180	451	313	223	237	414
31	191	-------	210	180	-------	150	-------	435	-------	283	295	-------
Total	6,015	7,399	6,540	6,500	5,355	5,520	22,346	34,216	11,941	8,150	8,222	9,236
Mean	194	247	211	210	191	178	745	1,104	398	263	265	308
Cfsm	0.499	0.635	0.542	0.540	0.491	0.458	1.92	2.84	1.02	0.676	0.681	0.792
In.	0.58	0.71	0.62	0.62	0.51	0.53	2.14	3.27	1.14	0.78	0.79	0.88

Calendar year 1964: Max 1,000 Min 170 Mean 255 Cfsm 0.656 In. 8.92
Water year 1964-65: Max 2,270 Min 150 Mean 360 Cfsm 0.925 In. 12.57

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20 to Apr. 16.

4-630. Menominee River near Florence, Wis.

Location.--Lat 45°57'04", long 88°11'13", in NE 1/4 sec. 16, T. 41 N., R. 31 W., Michigan meridian, on left bank half a mile downstream from confluence of Brule and Michigamme Rivers, 3 1/2 miles northeast of Florence, and at mile 117.

Drainage area.--1,780 sq mi.

Records available.--January 1914 to September 1965. Published as "at Twin Falls near Iron Mountain, Mich." 1914-57. Records published for both sites July 1950 to September 1957.

Gage.--Digital water-stage recorder. Altitude of gage is 1,120 ft (from topographic map). Prior to July 1950, headwater and tailwater gages and generation data entered hourly in daily log sheets by company employees at the Twin Falls Powerplant of Wisconsin-Michigan Power Co., 10.4 miles downstream.

Average discharge.--51 years, 1,762 cfs.

Extremes.--Maximum discharge during year, 14,500 cfs May 11 (gage height, 11.86 ft); minimum, 51 cfs Feb. 8, 12 (gage height, 1.24 ft); minimum daily, 506 cfs Aug. 29.
1914-65: Maximum discharge, 19,500 cfs Apr. 26, 1960 (gage height, 14.15 ft); minimum daily, 154 cfs Aug. 9, 1925.

Remarks.--Records good except those for periods of ice effect, which are fair. Prior to July 1950 discharge determined from powerplant records computed on basis of load-discharge rating of hydroelectric units and rating for tailwater gage during periods of spill. Ratings developed by Geological Survey. Flow regulated by powerplants, and by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Pond (capacity, 33,860 acre-ft) on Michigamme River, and by many smaller reservoirs above station.

Rating table, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

2.5	485
3.0	790
4.0	1,590
6.0	3,850
8.0	6,880
12.0	14,800

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*1,100	818	*1,470	907	1,300	1,790	1,120	5,990	2,860	1,180	696	1,110
2	1,210	1,570	1,470	980	*1,300	1,490	901	5,310	3,420	1,430	1,030	*899
3	588	1,370	1,450	983	1,250	*1,620	1,050	5,120	3,640	741	1,180	1,160
4	811	1,110	1,400	1,390	1,200	1,590	665	4,730	3,310	1,060	1,120	541
5	1,600	1,280	1,310	1,570	1,200	1,640	1,670	4,150	2,200	733	1,240	577
6	1,200	1,560	1,190	1,370	900	1,340	1,740	4,250	1,580	1,110	1,250	632
7	1,180	839	1,430	1,280	695	1,270	1,730	5,100	2,930	1,300	1,050	1,080
8	1,260	642	1,400	1,540	1,400	1,700	1,780	7,590	3,010	1,470	522	928
9	1,370	1,470	1,470	1,390	1,100	1,630	1,850	10,400	2,670	1,180	1,250	1,190
10	696	1,410	1,380	801	1,200	1,670	1,230	12,800	2,720	792	1,110	892
11	846	1,220	1,390	1,710	1,200	1,340	2,100	*13,400	2,160	758	1,020	729
12	1,280	1,550	1,230	1,450	1,100	1,490	2,250	9,500	1,780	1,610	1,160	745
13	1,250	1,420	1,100	1,450	1,020	1,240	2,200	7,280	1,600	1,520	1,320	*1,120
14	1,350	1,530	1,610	1,480	798	1,260	1,760	6,930	*1,840	1,330	747	*1,090
15	1,000	1,610	1,550	1,400	1,050	1,420	1,970	8,160	1,840	1,480	661	995
16	1,260	1,840	1,530	1,050	1,050	1,370	1,770	9,260	1,540	1,500	1,470	811
17	702	1,570	1,630	827	1,200	1,210	2,120	10,400	1,590	531	1,000	976
18	540	1,390	1,520	1,860	1,410	1,320	2,090	9,510	1,440	801	975	609
19	1,490	1,530	1,070	1,480	1,060	1,310	2,100	5,810	1,140	1,530	1,060	638
20	1,370	1,310	856	1,360	919	944	2,780	5,270	929	1,280	979	1,030
21	1,280	1,180	1,450	1,410	941	783	3,240	6,180	1,680	1,340	638	871
22	1,200	811	1,360	1,390	1,610	1,520	3,900	4,660	1,400	1,430	559	1,700
23	1,220	1,310	1,460	1,110	1,310	1,330	3,860	3,340	1,460	1,540	1,200	997
24	762	1,250	969	715	1,150	1,440	5,520	3,910	1,490	750	1,060	767
25	818	1,350	1,050	1,530	1,200	1,360	5,550	3,220	1,260	661	1,120	654
26	1,370	1,240	1,170	1,350	1,170	1,170	5,090	3,350	1,070	1,210	1,080	729
27	1,230	1,410	1,090	1,500	990	807	4,990	3,150	1,040	1,480	1,110	986
28	1,140	1,440	1,400	1,560	1,080	706	4,970	2,900	1,610	990	622	1,420
29	1,160	1,090	1,260	1,500	-------	1,260	*4,740	2,730	1,440	1,100	506	1,750
30	1,290	1,660	1,380	900	---------	1,100	5,420	2,800	1,200	1,400	1,160	1,420
31	776	----------	1,090	720	---------	1,150	----------	1,430	----------	592	1,090	----------
Total	34,349	39,780	41,135	39,963	31,803	41,270	82,156	188,630	57,849	35,829	30,985	29,046
Mean	1,108	1,326	1,327	1,289	1,136	1,331	2,739	6,085	1,928	1,156	1,000	968

Calendar year 1964: Max 4,910 Min 349 Mean 1,271
Water year 1964-65: Max 13,400 Min 506 Mean 1,788

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 12-16, Jan. 26 to Feb. 6, Feb. 8-12, 15-17, 24, 25.

4-637. Popple River near Fence, Wis.

(Hydrologic bench-mark gaging station)

Location.--Lat 45°45'50", long 88°27'50", in NW 1/4 sec. 23, T. 38 N., R. 16 E., on left bank 20 ft upstream from U. S. Forest Servic Road 2159, 1.8 miles downstream from Mud Creek, 2.6 miles northwest of Fence, and 11 1/2 miles upstream from mouth.

Drainage area.--131 sq mi.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1406.16 ft above mean sea level, datum of 1929. Prior to June 18, 1964, wire-weight gage at present site and datum.

Extremes.--Maximum discharge during year, 1,100 cfs May 10 (gage height, 4.17 ft); minimum, 27 cfs Dec. 19 (gage height, 1.17 ft). 1963-65: Maximum discharge, that of May 10, 1965; minimum, 15 cfs July 19, 23, 24, 1964 (gage height, 1.04 ft).

Remarks.--Records excellent except those for periods of ice effect, which are fair. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1965 are published in Part 2 of this report. Hydrologic bench-mark stations are installed in specially selected areas where water resources have not yet been affected by works of man. Continuous records of natural hydrologic conditions, such as streamflow and water quality, will make possible assessment of changes which occur as a result of the vagaries of climate and other natural factors. These data will provide a frame of reference against which hydrologic changes wrought by man may be evaluated.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	20	2.0	173
1.5	63	3.0	550
1.7	95	4.2	1,110

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	164	51	60	45	34	37	41	622	243	97	93	53
2	138	51	*64	46	34	39	42	630	288	86	99	48
3	122	52	62	45	34	41	43	630	295	77	*79	42
4	102	74	61	45	34	42	44	622	269	74	59	40
5	91	122	57	45	34	43	46	594	232	77	57	46
6	86	130	54	*46	35	43	50	598	211	73	55	48
7	79	120	51	46	38	42	56	622	218	67	57	44
8	77	113	49	47	40	39	60	720	243	62	59	42
9	74	104	48	46	41	*38	62	1,000	262	61	53	42
10	70	95	49	45	40	38	70	1,090	258	57	48	52
11	67	115	55	43	*40	38	110	*1,060	236	52	46	49
12	66	158	55	40	38	38	145	*940	197	49	43	46
13	64	229	53	40	36	38	220	780	164	48	40	43
14	63	247	47	38	36	39	260	650	138	48	38	55
15	61	243	38	37	35	39	280	574	120	46	35	*95
16	58	232	35	36	34	39	290	654	106	42	32	99
17	57	207	33	34	33	38	310	746	99	46	32	99
18	55	173	32	34	32	36	320	840	91	51	33	104
19	57	143	29	34	33	35	350	825	86	55	33	138
20	55	105	37	34	36	35	380	760	81	52	32	170
21	*55	90	42	35	38	35	428	662	74	49	33	218
22	55	81	41	35	38	35	447	570	*73	48	38	262
23	53	73	45	34	38	35	498	510	77	46	38	262
24	53	71	42	35	37	35	538	451	76	50	35	239
25	51	73	40	36	36	35	566	405	70	46	33	204
26	51	67	38	37	36	34	594	356	63	37	33	167
27	51	62	36	37	35	34	622	341	62	33	33	138
28	50	58	40	36	35	34	622	262	110	32	33	155
29	49	56	42	36	------	33	*610	229	125	32	34	218
30	49	56	44	36	------	36	610	200	117	37	35	258
31	49	------	45	35	------	40	------	183	------	48	50	------
Total	2,172	3,451	1,424	1,218	1,010	1,163	8,714	19,126	4,684	1,678	1,418	3,476
Mean	70.1	115	45.9	39.3	36.1	37.5	290	617	156	54.1	45.7	116
Cfsm	0.535	0.878	0.350	0.300	0.276	0.286	2.21	4.71	1.19	0.413	0.349	0.885
In.	0.62	0.98	0.40	0.35	0.29	0.33	2.47	5.43	1.33	0.48	0.40	0.99

Calendar year 1964: Max 425 Min 18 Mean 95.8 Cfsm 0.731 In. 9.97
Water year 1964-65: Max 1,090 Min 29 Mean 136 Cfsm 1.04 In. 14.07

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
5-10	2000	4.17	1,100	5-18	1200	3.67	845

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20-21, Nov. 28 to Dec. 1, Dec. 6, 7, 16, 17, Dec. 23 to Jan. 22, Jan. 25 to Feb. 10, Feb. 13 to Apr. 20 (no gage-height record Nov. 29 to Dec. 1, Feb. 3-10, Feb. 13 to Mar. 8).

4-645. Pine River at Pine River powerplant, near Florence, Wis.

Location.--Lat 45°49'40", long 88°14'55", in sec. 28, T. 39 N., R. 18 E., at powerplant of Wisconsin-Michigan Power Co., 5.0 miles downstream from Popple River and 6.5 miles south of Florence.

Drainage area.--528 sq mi.

Records available.--October 1923 to September 1965.

Average discharge.--42 years, 418 cfs.

Extremes.--Maximum daily discharge during year, 4,300 cfs May 8; minimum daily, 106 cfs Dec. 10.
1923-65: Maximum daily discharge, 4,380 cfs Apr. 9, 1929; no flow at times during 1924, 1926-27, 1930-31, 1933, 1940.

Remarks.--Records good except those above 700 cfs and those below 100 cfs, which are fair. Daily discharge determined from powerplant records. Flow regulated by powerplant at station, but pondage is small and monthly discharge is very nearly natural flow.

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

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	468	201	197	175	163	152	155	2.020	939	416	274	200
2	416	201	197	197	152	152	155	2.110	1.020	355	364	229
3	364	201	220	175	163	175	155	2.140	984	330	364	229
4	312	324	220	197	152	163	143	2.020	844	326	290	177
5	260	351	220	197	152	175	177	1.870	744	312	200	200
6	286	416	197	197	129	148	200	1.950	744	345	265	177
7	208	364	220	197	175	152	226	2.980	824	333	352	207
8	312	364	197	197	152	175	195	4.300	864	281	312	229
9	260	364	220	175	152	175	247	4.010	804	330	229	177
10	234	301	106	197	175	177	247	3.810	744	281	229	205
11	208	376	243	197	140	177	330	3.400	724	229	229	200
12	234	520	197	175	175	155	468	*2.890	624	281	200	155
13	221	684	232	175	152	177	548	2.260	624	229	216	229
14	221	784	220	163	152	155	664	1.940	520	268	177	252
15	221	744	186	175	152	200	909	1.700	468	177	132	404
16	234	679	197	152	152	155	1.020	2.530	416	229	194	330
17	208	624	175	129	197	155	1.100	2.940	416	200	155	356
18	208	442	209	152	129	155	1.230	2.900	364	229	155	356
19	182	468	175	129	175	177	1.280	2.720	338	229	177	454
20	208	318	129	152	152	155	1.340	2.380	364	251	155	572
21	201	197	175	152	152	155	1.490	2.050	429	229	177	599
22	227	227	175	175	175	155	1.640	1.680	382	229	155	824
23	201	327	197	152	152	177	1.860	1.460	404	251	200	839
24	201	279	175	163	152	155	1.880	1.260	356	229	229	664
25	227	353	175	163	175	177	1.870	1.160	330	200	155	624
26	214	275	175	163	152	155	1.860	1.100	330	229	155	520
27	201	272	197	152	175	155	1.890	1.040	326	177	155	520
28	201	213	197	175	129	155	1.940	984	481	177	155	520
29	201	249	197	175	--------	177	1.920	924	468	155	155	644
30	201	166	175	152	--------	155	1.980	724	416	177	200	784
31	201	----------	197	152	----------	155	----------	684	----------	231	313	----------
Total	7,541	11,284	5,992	5,277	4,403	5,076	29,119	65,936	17,291	7,915	6,718	11,876
Mean	243	376	193	170	157	164	971	2,127	576	255	217	396
Cfsm	0.460	0.712	0.366	0.322	0.297	0.311	1.84	4.03	1.09	0.483	0.411	0.750
In.	0.53	0.79	0.42	0.37	0.31	0.36	2.05	4.64	1.22	0.56	0.47	0.84

Calendar year 1964: Max 1,280 Min 52 Mean 302 Cfsm 0.572 In. 7.77
Water year 1964-65: Max 4,300 Min 106 Mean 489 Cfsm 0.926 In. 12.57

*Discharge measurement made on this day.

4-660. Menominee River near Pembine, Wis.

Location.--Lat 45°35'25", long 87°46'35", in sec. 21, T. 37 N., R. 28 W., Michigan meridian, on left bank 700 ft upstream from Pemene Creek, 4 miles west of Nathan, Mich., 15 miles southeast of Pembine, and at mile 65.3.

Drainage area.--3,240 sq mi, approximately.

Records available.--October 1949 to September 1965. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder. Altitude of gage is 745 ft (from river-profile map).

Average discharge.--16 years, 2,888 cfs.

Extremes.--Maximum discharge during year, 21,500 cfs May 11 (gage height, 12.10 ft); minimum discharge 708 cfs Sept. 1 (gage height, 1.68 ft).
1949-65: Maximum discharge, 26,900 cfs May 8, 1960 (gage height, 13.90 ft); minimum, that of Sept. 1, 1965 (gage height, 1.68 ft).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by powerplants and by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Pond (capacity, 33,860 acre-ft) on the Michigamme River, and by many smaller reservoirs above station.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	970	6.0	6,550
3.0	2,110	7.0	8,500
4.0	3,380	9.0	12,800
5.0	4,900	12.0	21,200

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,600	1,390	2,000	1,820	1,620	1,720	1,700	10,400	4,010	2,400	1,480	1,000
2	2,110	1,400	2,060	1,780	1,640	1,920	1,700	10,300	5,880	1,880	1,500	1,260
3	2,310	1,790	2,080	1,700	1,640	1,980	1,700	9,860	6,350	1,940	1,670	1,590
4	1,790	1,830	2,100	1,840	1,620	2,000	1,600	9,560	6,410	1,870	*2,000	1,630
5	1,760	2,240	2,040	*2,060	1,580	2,040	1,700	8,840	5,410	1,730	1,750	1,300
6	2,010	2,460	1,700	2,100	1,460	2,020	2,000	8,580	3,800	1,630	1,790	1,300
7	1,940	2,490	1,900	2,100	1,440	1,940	2,500	9,960	3,950	1,920	1,800	1,230
8	2,390	2,150	2,000	2,040	1,460	2,040	2,700	14,200	4,900	1,920	1,690	1,000
9	2,130	1,600	1,860	1,860	1,460	2,040	3,000	17,800	4,950	2,230	1,530	1,340
10	1,790	2,460	2,040	1,880	*1,420	*2,030	3,200	19,700	4,680	1,680	2,120	1,590
11	1,650	2,310	2,100	1,900	1,580	2,000	3,400	21,000	4,500	1,510	1,880	1,330
12	1,520	2,470	1,900	1,920	1,640	2,000	3,900	20,000	3,950	1,520	1,530	1,320
13	1,630	3,250	1,940	1,940	1,580	2,000	4,600	*14,000	3,050	1,950	1,450	1,280
14	2,030	3,380	2,040	1,900	1,540	1,800	5,200	12,100	3,170	1,970	1,480	1,280
15	1,710	3,460	1,900	1,820	1,600	1,820	6,000	11,400	3,140	1,850	1,330	1,560
16	1,670	3,250	1,940	1,800	1,560	1,900	6,800	13,300	2,840	1,620	1,410	*1,770
17	1,770	3,130	2,000	1,840	1,520	1,840	7,260	15,800	2,390	1,860	1,500	1,730
18	1,580	2,850	2,040	1,820	1,560	1,780	6,680	16,700	2,210	1,340	1,440	1,460
19	1,510	2,740	2,040	1,780	1,600	1,820	6,880	14,400	2,110	1,390	1,370	1,530
20	*1,650	2,520	1,800	1,800	1,600	1,660	7,020	10,800	1,750	1,610	1,360	2,230
21	1,890	2,100	1,800	1,800	1,580	1,600	7,660	10,300	2,170	2,040	1,320	2,390
22	1,860	1,730	1,820	1,780	1,560	1,620	8,400	9,440	2,370	1,850	1,310	3,380
23	1,730	1,820	1,880	1,740	1,600	1,640	9,160	6,660	*2,420	1,790	1,330	3,310
24	1,730	1,830	1,900	1,600	1,700	1,720	9,480	6,510	2,250	1,810	1,390	2,390
25	1,590	1,890	1,800	1,700	1,660	1,780	10,600	5,880	2,160	1,500	1,330	2,460
26	1,440	2,050	1,500	1,600	1,620	1,760	10,400	5,730	2,210	1,450	1,310	1,850
27	1,640	1,970	1,600	1,700	1,620	1,740	10,000	5,780	1,640	1,520	1,280	1,920
28	1,920	2,030	1,740	1,720	1,640	1,640	9,580	5,670	1,920	1,490	1,220	2,220
29	1,750	1,950	1,900	1,720	----------	1,600	9,720	4,960	2,460	1,510	1,170	3,270
30	1,650	1,800	1,880	1,680	----------	1,660	9,440	4,850	2,460	1,500	1,240	3,480
31	1,850	----------	1,860	1,600	----------	1,620	----------	4,150	----------	1,520	1,170	----------
Total	56,600	68,340	59,160	56,340	44,100	56,730	173,980	338,630	101,510	53,800	46,150	55,400
Mean	1,826	2,278	1,908	1,817	1,575	1,830	5,799	10,920	3,384	1,735	1,489	1,847

Calendar year 1964: Max 7,600 Min 1,000 Mean 2,066
Water year 1964-65: Max 21,000 Min 1,000 Mean 3,043

* Discharge measurement made on this day
Note.--Stage-discharge relation affected by ice Nov. 29 to Apr. 16. (no gage-height record Dec. 20, 21, Jan. 22-25)

4-665. Pike River at Amberg, Wis.

Location.--Lat 45°29'50", long 87°59'40", in SW 1/4 sec. 15, T. 35 N., R. 20 E., on left bank 500 ft upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 0.2 mile south of Amberg, and 1.2 miles downstream from confluence of North and South Branches.

Drainage area.--253 sq mi.

Records available.--February 1914 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 865 ft above mean sea level (from survey level line along railroad). Prior to May 23, 1931, chain gage at railway bridge at datum 1 ft higher. May 23, 1931, to Aug. 4, 1934, chain gage at highway bridge three-quarters of a mile downstream at different datum. Aug. 5, 1934, to Oct. 6, 1946, staff gage, and Oct. 7, 1946, to June 8, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 216 cfs.

Extremes.--Maximum discharge during year, 1,240 cfs May 18 (gage height, 5.08 ft); minimum daily, 86 cfs Jan. 18, 19.
1914-65: Maximum discharge, 2,800 cfs Apr. 10, 1922 (gage height, 7.8 ft, from graph based on gage readings, site and datum then in use), from rating curve extended above 1,100 cfs; minimum observed, 26 cfs Dec. 27, 1925 (gage height, 1.30 ft, site and datum then in use).

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30			
1.8	105	2.3	220	1.7	90	3.0	438
1.9	123	2.7	339	2.0	144	5.0	1,200

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	204	115	140	120	90	105	100	622	428	185	185	129
2	186	116	*135	120	90	105	110	612	556	170	177	121
3	170	123	130	120	88	110	110	598	549	162	156	113
4	158	150	130	120	88	115	105	590	474	157	*143	111
5	150	279	125	120	90	115	110	566	402	174	136	127
6	142	317	125	*120	92	115	120	615	372	186	130	133
7	139	265	125	120	94	115	170	809	369	173	141	128
8	143	224	125	115	96	110	200	1,010	343	161	132	122
9	145	200	130	105	98	110	230	1,130	321	159	144	125
10	142	186	130	110	98	105	250	1,120	321	151	132	124
11	138	212	135	105	*98	*105	350	934	305	144	123	120
12	137	275	130	105	96	105	450	727	281	139	118	116
13	138	316	120	100	94	105	598	*612	258	137	113	117
14	136	315	115	98	92	105	*716	515	240	134	110	124
15	133	285	110	94	90	105	848	488	227	130	106	*142
16	130	272	110	90	90	100	828	743	216	126	104	151
17	130	251	115	88	90	98	809	1,070	209	131	102	158
18	127	222	115	86	92	96	805	1,140	202	133	101	160
19	123	201	115	86	94	94	774	840	193	136	102	196
20	121	188	110	88	96	94	758	650	188	134	101	322
21	*121	150	110	90	96	94	770	556	186	130	101	375
22	121	160	110	98	94	92	746	498	184	126	100	382
23	121	170	110	100	92	92	735	448	*202	124	98	346
24	121	180	110	98	90	92	698	412	194	124	96	290
25	120	190	110	98	92	92	615	382	179	120	97	242
26	119	180	110	96	96	90	556	382	169	114	97	218
27	118	170	110	94	100	90	626	415	164	109	102	205
28	118	150	110	96	100	92	698	382	203	107	103	284
29	118	145	110	94	------	98	665	356	224	105	99	431
30	116	140	110	92	------	100	633	334	204	106	106	468
31	115	------	115	92	------	98	------	321	------	133	125	------
TOTAL	4,200	6,147	3,685	3,158	2,616	3,142	15,183	19,877	8,363	4,320	3,700	6,080
MEAN	135	205	119	102	93.4	101	506	641	279	139	119	203
CFSM	.534	.810	.470	.403	.369	.399	2.00	2.53	1.10	.549	.470	.802
IN	.62	.90	.54	.46	.38	.46	2.23	2.92	1.23	.64	.54	.89

CALENDAR YEAR 1964 MAX 709 MIN 76 MEAN 166 CFSM .656 INCHES 8.95
WATER YEAR 1964-65 MAX 1,140 MIN 86 MEAN 220 CFSM .870 INCHES 11.83

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 12.

4-670. Menominee River below Koss, Mich.

Location.--Lat 45°21'50", long 87°39'20", in sec. 9, T. 34 N., R. 27 W., Michigan meridian, on left bank at powerplant of Wisconsin Public Service Corp., 0.5 mile upstream from Little Cedar River, 3.6 miles southeast of Koss, and at mile 24.7.

Drainage area.--3,790 sq mi, approximately.

Records available.--July 1907 to March 1909 (published as "at Koss"), July 1913 to September 1965.

Gage.--Headwater and tailwater gages and generation data entered hourly in daily log sheet by company employees. Prior to June 1913, chain gage on railroad bridge 4 miles upstream.

Average discharge.--53 years (1907-8, 1913-65), 3,098 cfs.

Extremes.--Maximum daily discharge during year, 26,600 cfs May 12; minimum daily, 1060 cfs Aug. 15.
1908, 1913-65: Maximum daily discharge, 33,000 cfs May 10, 1960; Minimum daily, 162 cfs Sept. 15, 1931.

Remarks.--Records fair. Daily discharge computed on basis of average daily load and load-discharge rating of combined hydroelectric units. Flow regulated by powerplants, and by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Pond (capacity 33,860 acre-ft) on Michigamme River, and by many smaller reservoirs above station.

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

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,870	1,920	1,760	1,620	1,460	1,520	1,660	9,340	3,290	2,400	1,950	1,210
2	2,610	1,600	1,920	1,710	1,540	1,730	1,700	10,800	3,990	2,280	1,820	1,190
3	2,440	1,680	2,120	1,710	1,560	1,950	1,620	10,800	5,000	2,000	1,680	1,250
4	2,240	1,840	1,920	1,540	1,540	1,940	1,580	10,400	4,920	1,870	1,910	1,550
5	1,840	2,350	2,070	1,950	1,540	1,980	1,470	9,870	5,190	2,110	2,160	1,690
6	1,980	2,600	2,110	1,710	1,600	2,020	2,050	9,560	3,550	1,580	1,890	1,440
7	2,170	3,000	1,660	2,030	1,340	2,020	2,040	9,360	2,990	1,840	2,120	1,450
8	2,480	2,680	1,850	2,090	1,420	1,800	2,480	10,500	3,120	2,100	1,870	1,520
9	2,500	2,310	1,910	1,990	1,620	1,680	2,850	16,600	3,020	2,070	1,960	1,320
10	2,180	2,000	1,950	1,680	1,410	2,210	3,240	19,700	3,310	2,310	1,630	1,420
11	1,800	2,580	2,160	1,840	1,530	2,090	3,590	25,300	3,120	1,940	2,080	1,500
12	1,840	2,640	2,200	1,740	1,820	1,950	3,840	26,600	3,240	1,780	1,950	1,300
13	1,720	3,120	1,960	1,670	1,710	1,940	5,100	24,900	2,970	1,850	1,680	1,500
14	1,760	3,400	1,900	1,820	1,660	2,080	5,320	18,600	2,970	1,750	1,660	1,680
15	2,020	3,360	2,200	1,790	1,440	1,750	6,300	16,600	3,200	1,880	1,060	1,520
16	1,870	3,470	1,820	1,800	1,720	1,590	6,620	17,100	2,950	1,880	1,570	1,610
17	1,660	3,360	1,980	1,730	1,370	1,980	7,260	18,900	2,930	1,680	1,520	1,940
18	1,800	3,160	1,840	1,380	1,540	1,880	10,600	20,900	2,570	1,710	1,370	1,780
19	1,660	3,170	1,980	1,920	1,580	1,720	9,570	19,300	2,150	1,620	1,460	1,600
20	1,540	2,900	2,050	1,480	1,550	1,830	7,840	14,800	2,180	1,520	1,510	2,320
21	1,780	2,560	1,840	1,710	1,680	1,710	7,860	11,500	1,940	1,610	1,500	2,940
22	1,890	1,890	1,760	1,810	1,560	1,540	8,470	11,900	2,290	2,080	1,200	3,300
23	1,890	1,840	1,730	1,730	1,400	1,640	8,820	10,000	2,340	2,060	1,420	3,050
24	1,850	2,190	2,050	1,780	1,400	1,420	8,960	7,490	2,310	1,850	1,430	3,120
25	1,760	2,090	2,010	1,440	1,830	1,720	8,810	6,480	2,300	1,540	1,220	2,590
26	1,750	2,090	1,780	1,810	1,620	1,800	10,700	4,450	2,350	1,420	1,360	2,520
27	1,680	2,230	1,760	1,520	1,620	1,800	10,700	5,280	2,110	1,620	1,620	2,270
28	1,700	2,210	1,420	1,720	1,540	1,710	10,300	5,260	1,870	1,510	1,420	2,570
29	1,920	2,050	1,800	1,900	----------	1,570	11,300	5,220	2,120	1,440	1,150	3,120
30	1,830	1,610	1,860	1,680	----------	1,650	10,400	3,560	2,260	1,610	1,150	3,300
31	1,790	----------	1,940	1,650	----------	1,520	----------	3,570	----------	1,630	1,540	----------
Total	60,820	73,900	59,310	53,950	43,600	55,740	183,050	394,640	88,550	56,540	49,860	59,570
Mean	1,962	2,463	1,913	1,740	1,557	1,798	6,102	12,730	2,952	1,824	1,608	1,986

Calendar year 1964: Max 5,640 Min 960 Mean 2,123
Water year 1964-65: Max 26,600 Min 1,060 Mean 3,230

4-695. Peshtigo River at Peshtigo, Wis.

Location.--Lat 45°02'50", long 87°44'40", in NE 1/4 sec. 30, T. 30 N., R. 22 E., on left bank 75 ft downstream from Chicago and Northwestern Railway bridge, 0.5 mile downstream from Wisconsin Public Service Corp. powerplant in Peshtigo, and 11 1/2 miles upstream from mouth.

Drainage area.--1,124 sq mi.

Records available.--June 1953 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 584.64 ft above mean sea level, datum of 1929. Prior to Aug. 21, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--12 years, 832 cfs.

Extremes.--Maximum discharge during year, 6,440 cfs Apr. 13 (gage height, 10.04 ft); minimum, 92 cfs Oct. 5, 10; minimum daily, 179 cfs Aug. 23.

1953-65: Maximum discharge, 9,790 cfs May 9, 1960 (gage height, 11.59 ft), from rating curve extended above 5,000 cfs on basis of computation of peak flow through dam gates; minimum, 32 cfs Aug. 28, 1953 (gage height, 1.46 ft); minimum daily, 84 cfs Aug. 5, 1957.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplant upstream.

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1,180	550	465	336	230	274	721	2,290	1,570	747	341	415
2	984	380	353	189	290	332	783	2,350	2,340	614	375	380
3	778	511	*375	353	300	332	604	2,510	2,430	644	545	460
4	664	511	332	267	300	362	685	2,770	2,200	664	550	384
5	397	639	415	*278	250	516	555	2,720	2,170	328	*479	492
6	690	521	402	402	210	878	862	2,690	2,060	507	411	303
7	424	856	290	488	360	804	1,760	2,730	1,700	479	540	205
8	497	904	332	570	300	731	2,510	2,660	1,540	507	492	380
9	614	433	393	624	230	757	2,450	2,770	1,190	644	521	345
10	429	675	570	402	*388	680	2,150	2,910	1,090	604	579	433
11	619	634	456	280	492	*511	2,630	3,010	1,130	531	388	570
12	286	711	531	340	370	492	5,060	2,800	1,240	341	451	502
13	358	716	384	390	400	474	5,650	2,540	893	550	424	384
14	604	1,040	255	410	440	488	4,150	2,310	654	584	589	251
15	550	1,080	497	310	267	388	*3,620	2,410	742	345	323	550
16	424	962	406	360	330	415	3,500	5,120	716	540	294	*460
17	545	1,110	280	330	320	469	3,280	5,370	737	415	397	560
18	415	1,020	250	240	410	460	3,010	4,550	773	384	349	978
19	336	946	220	330	360	531	2,890	*3,980	659	230	226	915
20	*483	856	270	310	350	521	2,720	3,610	502	415	286	1,630
21	465	675	323	280	340	540	2,650	3,170	570	388	189	2,280
22	362	507	438	260	360	397	2,590	2,980	545	429	406	2,350
23	479	474	393	330	330	402	2,500	2,650	700	594	179	2,040
24	433	700	319	320	400	479	2,510	1,930	* 535	555	311	1,950
25	460	888	345	280	430	451	2,470	1,850	483	349	375	1,610
26	282	726	294	320	280	560	2,530	1,330	521	307	375	1,560
27	599	402	240	260	320	531	2,870	1,510	507	397	358	1,100
28	497	609	210	310	411	438	2,710	1,720	429	456	230	1,270
29	670	299	388	260	------	315	2,600	1,620	716	202	230	1,730
30	526	424	507	320	------	433	2,410	1,340	420	353	248	2,200
31	502	------	511	400	------	614	------	1,040	------	560	366	------
TOTAL	16,552	20,759	11,444	10,549	9,468	15,575	75,430	83,240	31,762	14,663	11,827	28,687
MEAN	534	692	369	340	338	502	2,514	2,685	1,059	473	382	956
CFSM	.475	.616	.328	.303	.301	.447	2.24	2.39	.942	.421	.340	.851
IN	.55	.69	.38	.35	.31	.52	2.50	2.75	1.05	.49	.39	.95

CALENDAR YEAR 1964	MAX 2,950	MIN 168	MEAN 631	CFSM .561	INCHES 7.65
WATER YEAR 1964-65	MAX 5,650	MIN 179	MEAN 904	CFSM .804	INCHES 10.92

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 17-20, 27, 28, Jan. 11 to Feb. 9, Feb. 12-14, 16-27.

4-700. Wheeler Lake near Lakewood, Wis.

Location.--Lat 45°19'05", long 88°29'00", in NW 1/4 sec. 27, T. 33 N., R. 16 E., on west shore of lake at Arthur Anderken's cottage, 2 1/4 miles northeast of Lakewood.

Drainage area.--2 sq mi, approximately.

Records available.--August 1936 to September 1965 (fragmentary).

Gage.--Staff gage. Prior to Apr. 19, 1939, gage was located at Chas. J. Voigt's on east shore of lake. Apr. 20, 1939, to June 13, 1960, gage was located on southwest shore of lake.

Extremes.--Maximum elevation observed during year, 95.32 ft June 1; minimum observed, 94.31 ft Nov. 10, Aug. 31.
1936-65: Maximum elevation observed, 96.50 ft Oct. 5, Nov. 9, 1943; minimum observed, 93.45 ft Feb. 5, 1950.

Remarks.--Gage heights have been reduced to elevations above datum assumed for this lake by Public Service Commission of Wisconsin. No outlet.

Elevation, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			4.40						5.32			
2												
3		4.33									4.47	
4												
5				4.42								
6	4.45									4.69		
7												4.36
8			4.37						5.07			
9					4.34							
10		4.31									4.87	
11												
12												
13	4.40									4.67		
14												4.39
15			4.35						4.92			
16												
17		4.42									4.47	
18												
19								5.12				
20	4.38									4.61		
21												4.66
22			4.36						4.84			
23												
24		4.39									4.32	
25								5.08				
26												
27	4.35									4.92		
28												4.69
29			4.38						4.81			
30					---							
31		---			---		---		---		4.31	---

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

4-710. Oconto River near Gillett, Wis.

Location.--Lat 44°51'55", long 88°18'00", in NW 1/4 sec. 34, T. 28 N., R. 18 E., on left bank just upstream from highway bridge, 2 miles upstream from Christy Brook, 2 miles south of Gillett, and at mile 29.

Drainage area.--678 sq mi.

Records available.--June 1906 to March 1909, October 1913 to September 1965. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder. Altitude of gage is 735 ft (from river-profile map). Prior to March 1909, chain gage on bridge at datum 4.0 ft lower. Jan. 6, 1914, to Aug. 24, 1938, chain gage on bridge at present datum.

Average discharge.--54 years (1906-8, 1913-65), 569 cfs.

Extremes.--Maximum discharge during year, 4,200 cfs Apr. 13 (gage height, 8.37 ft, backwater from ice); minimum, 125 cfs Nov. 21 (gage height, 0.26 ft) result of freezeup.
1906-9, 1913-65: Maximum discharge, 8,400 cfs Apr. 10, 1922 (gage height, 11.2 ft from floodmarks), caused by failure of dam at Pulcifer 4 miles above station; minimum, 93 cfs Nov. 26, 1941 (gage height, 0.13 ft), flow retarded by anchor ice above station.

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 10		Apr. 11 to Sept. 30			
0.9	310	0.7	224	2.0	820
1.3	476	1.0	330	3.0	1,440
1.8	723	1.5	559	5.0	2,920

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	692	326	345	275	220	245	320	1,390	892	375	281	300
2	622	342	340	275	220	250	340	1,330	1,000	359	300	292
3	542	362	*335	280	215	275	360	1,290	1,220	338	303	281
4	499	386	330	280	215	300	420	1,280	1,390	330	303	271
5	467	411	320	285	215	420	500	1,280	1,310	322	*303	276
6	432	445	315	285	220	490	600	1,400	1,160	319	288	338
7	411	485	305	290	225	500	800	1,360	1,030	326	285	384
8	403	441	300	305	235	450	960	1,360	984	350	319	338
9	390	463	285	300	245	430	1,160	1,440	932	359	338	406
10	390	419	280	285	*250	410	1,500	1,560	886	319	334	443
11	390	411	290	275	270	370	1,900	1,660	826	311	307	429
12	382	432	300	270	275	*325	2,600	1,590	732	296	288	389
13	390	485	295	*255	270	300	3,800	1,450	648	292	274	371
14	382	547	290	250	265	290	*3,200	*1,290	608	292	260	384
15	370	582	280	245	260	285	2,540	1,180	579	292	250	397
16	350	547	275	240	255	280	*2,090	1,360	520	285	240	402
17	350	557	265	230	250	280	1,920	2,190	505	281	240	*530
18	342	567	260	225	250	280	1,770	2,850	486	300	244	500
19	*338	450	250	220	250	280	1,660	2,680	466	319	250	817
20	330	432	245	220	260	280	1,620	2,210	443	303	257	978
21	334	368	240	220	260	280	1,570	1,850	424	292	244	978
22	342	330	245	220	260	280	1,500	1,660	433	285	240	1,030
23	330	380	255	220	255	280	1,460	1,540	438	285	240	1,100
24	314	420	260	220	250	280	1,430	1,390	*447	292	231	1,140
25	314	400	260	220	245	280	1,400	1,230	420	303	227	1,090
26	314	380	260	225	240	280	1,440	1,150	416	292	224	955
27	310	380	260	225	240	280	1,440	1,150	375	271	234	804
28	314	380	255	230	240	280	1,500	1,090	375	257	240	732
29	330	360	260	230	-----	280	1,520	1,060	380	244	240	898
30	350	350	265	230	-----	285	1,480	1,000	393	240	254	984
31	342	-----	270	225	-----	300	-----	909	-----	250	278	-----
Total	12,066	12,838	8,735	7,755	6,855	9,845	44,800	46,179	20,718	9,379	8,316	18,337
Mean	389	428	282	250	245	318	1,493	1,490	691	303	268	611
Cfsm	0.574	0.631	0.416	0.369	0.361	0.469	2.20	2.20	1.02	0.447	0.395	0.901
In.	0.66	0.70	0.48	0.43	0.38	0.54	2.46	2.53	1.14	0.51	0.46	1.01

Calendar year 1964: Max 1,770 Min 205 Mean 408 Cfsm 0.602 In. 8.18
Water year 1964-65: Max 3,800 Min 215 Mean 564 Cfsm 0.832 In. 11.30

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-13	-	-	4,200	9-19	1730	3.33	1,670
5-18	1600	5.00	2,920				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Apr. 14.

4-734.05. West Branch White River near Wautoma, Wis.

Location.--Lat 44°02'55", long 89°17'40", in NE 1/4 sec. 10, T. 18 N., R. 10 E., on right bank at upstream side of bridge on State Highway 22, 1/4 mile upstream from White River and 1 1/2 miles south of Wautoma.

Drainage area.--43 sq mi (approximately).

Records available.--October 1963 to September 1965 (discontinued).

Gage.--Staff gage and crest-stage indicator; gage read about five times weekly. Altitude of gage is 840 ft (from topographic map).

Extremes.--Maximum discharge during the year, 75 cfs Mar. 2 (gage height, 2.35 ft); minimum observed, 16 cfs Nov. 30.
1963-65: Maximum discharge, that of Mar. 2, 1965; minimum observed, that of Nov. 30, 1964.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.98	19	1.8	51
1.1	23	2.0	59
1.5	39	2.1	63.5

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	21	20	21	19	21	22	25	23	20	21	21
2	21	21	20	21	19	*61	22	25	24	20	*20	21
3	21	22	20	21	19	40	22	25	23	20	20	21
4	21	22	20	21	19	24	23	25	23	20	20	22
5	21	22	20	21	20	54	26	26	27	20	20	25
6	21	21	20	20	22	50	31	25	24	20	20	23
7	21	21	20	21	25	35	43	25	23	22	20	26
8	21	21	20	21	23	*27	43	25	23	21	28	23
9	21	22	20	20	24	25	33	25	22	22	22	33
10	21	22	21	19	25	23	25	24	22	21	20	26
11	21	21	21	19	22	23	30	24	22	20	20	24
12	21	21	21	*19	*22	23	39	23	22	20	19	*23
13	21	21	21	19	19	23	29	23	22	20	19	*22
14	21	21	21	19	19	22	27	23	22	20	19	23
15	21	23	20	19	20	22	31	23	21	20	19	27
16	21	22	20	20	23	22	29	30	21	24	19	25
17	21	21	20	20	20	22	28	24	21	23	21	26
18	21	21	20	20	20	22	28	25	21	22	24	25
19	21	21	20	20	20	21	26	25	21	21	23	35
20	21	20	21	20	20	21	26	*24	23	20	21	45
21	21	20	21	21	21	21	26	24	22	20	20	37
22	21	20	21	20	20	22	25	24	22	20	20	29
23	*21	21	21	20	20	22	25	24	27	20	20	27
24	21	21	21	20	20	22	25	24	21	21	20	26
25	21	21	20	20	20	22	27	24	*22	20	20	25
26	21	21	20	20	20	22	31	25	21	20	20	24
27	21	21	20	20	21	22	26	29	20	20	20	24
28	21	21	21	19	21	22	26	24	20	20	20	28
29	21	20	21	19	------	22	25	24	20	20	20	35
30	21	*16	21	19	------	22	25	24	20	20	25	30
31	21	------	21	19	------	22	------	24	------	20	22	------
Total	652	629	634	618	583	822	844	764	665	637	642	801
Mean	21.0	21.0	20.5	19.9	20.8	26.5	28.1	24.6	22.2	20.5	20.7	26.7
Cfsm	0.488	0.488	0.477	0.463	0.484	0.616	0.653	0.572	0.516	0.477	0.481	0.621
In.	0.56	0.54	0.55	0.53	0.50	0.71	0.73	0.66	0.58	0.55	0.56	0.69

Calendar year 1964: Max 37 Min 16 Mean 21.2 Cfsm 0.493 In. 6.73
Water year 1964-65: Max 61 Min 16 Mean 22.7 Cfsm 0.528 In. 7.16

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 9, Dec. 15-19, 25-27, Jan. 9-20, Jan. 28 to Feb. 5, Feb. 13, 14, 16, 22-27, Mar. 19-21. No gage-height record most week ends and Dec. 19-27, Jan. 20 to Feb. 11, July 20-25, and Sept. 14, 16, 17, 21, 22, 25-30.

4-735. Fox River at Berlin, Wis.

Location.--Lat 43°57'15", long 88°57'10", in NE 1/4 sec. 16, T. 17 N., R. 13 E., on left bank, 0.4 mile downstream from government dam, 1 mile south of Huron Street bridge in Berlin, 2.5 miles upstream from Barnes Creek, and at mile 89.0.

Drainage area.--1,430 sq mi, approximately.

Records available.--January 1898 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 744.52 ft above mean tide at New York City (by Corps of Engineers). Prior to Oct. 27, 1954, staff gage at site 0.3 mile upstream at same datum. Oct. 28, 1954, to June 7, 1964, graphic water-stage recorder, at present site and datum.

Average discharge.--67 years, 1,084 cfs.

Extremes.--Maximum discharge during year, 2,760 cfs at 2400 Sept. 30, stage rising; maximum peak discharge during year 2,700 cfs Apr. 17 (gage-height 11.86 ft); maximum gage height, 12.05 ft Mar. 14, (backwater from ice); minimum, 318 cfs Oct. 9, 10 (gage height, 7.37 ft).
1898-1965: Maximum discharge observed, 6,900 cfs Mar. 17, 18, 1946 (gage height, 15.5 ft); minimum observed, 248 cfs Sept. 16, 1948 (gage height, 6.1 ft).

Remarks.--Records good except those for period of ice effect, which are fair. An average of about 10 to 15 cfs was diverted into the basin from the Wisconsin River at Portage Canal throughout the year.

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

7.2	305	10.0	1,560
8.0	560	11.0	2,160
9.0	1,020	12.0	2,800

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	395	406	390	390	350	600	820	2,040	785	419	403	492
2	431	407	380	400	360	860	700	1,990	784	*442	*382	505
3	419	413	370	400	360	860	740	1,930	745	399	389	483
4	439	421	360	410	360	900	880	1,860	762	380	409	482
5	*376	422	360	420	360	1,140	1,100	1,780	823	396	399	498
6	381	417	350	420	360	1,240	1,400	1,720	675	381	422	512
7	372	426	340	430	410	1,400	1,600	1,680	931	414	438	594
8	386	422	360	450	440	1,600	1,800	1,640	919	439	445	644
9	327	*421	370	420	420	1,800	2,000	1,580	880	477	429	777
10	335	431	380	390	450	2,000	2,210	*1,500	842	460	440	936
11	363	413	400	400	*470	2,100	2,380	1,420	781	447	474	996
12	376	436	410	*400	460	2,200	2,550	1,340	759	420	475	1,050
13	373	475	420	400	450	2,300	2,630	1,210	718	429	459	1,090
14	377	428	*420	400	450	2,300	2,630	934	680	388	439	1,130
15	381	442	390	400	450	2,200	2,680	752	648	379	424	1,200
16	378	409	380	390	460	2,200	2,680	743	618	422	416	*1,270
17	390	403	380	390	470	2,100	2,690	709	578	444	461	1,330
18	360	410	370	390	480	2,000	2,680	706	575	463	509	1,390
19	348	401	360	400	490	2,000	2,630	710	568	461	506	1,470
20	356	395	350	400	520	1,900	2,560	694	565	448	509	1,660
21	371	390	350	410	540	1,800	2,490	710	568	456	523	1,820
22	342	370	350	420	530	1,800	2,410	740	560	468	497	1,950
23	360	360	360	410	520	1,700	2,350	697	546	452	472	2,090
24	389	390	360	370	510	1,600	2,320	691	510	449	469	2,230
25	407	430	370	380	500	1,500	2,290	715	518	417	464	2,370
26	409	470	370	380	490	1,400	2,290	729	516	415	464	2,470
27	402	460	360	370	490	1,300	2,250	791	496	414	461	2,520
28	404	440	360	360	500	1,250	2,200	852	508	388	441	2,600
29	382	420	360	360	------	*1,180	2,150	823	468	394	435	2,680
30	394	400	370	350	------	1,040	2,090	817	443	385	455	2,730
31	409	------	380	350	------	940	------	787	------	397	475	------
TOTAL	11,832	12,528	11,530	12,260	12,670	49,210	62,200	35,290	19,969	13,143	13,984	41,969
MEAN	382	418	372	395	453	1,587	2,073	1,138	666	424	451	1,399
CFSM	0.267	0.292	0.260	0.276	0.317	1.11	1.45	0.796	0.466	0.297	0.315	0.978
IN.	0.31	0.33	0.30	0.32	0.33	1.28	1.62	0.92	0.52	0.34	0.36	1.09

CALENDAR YEAR 1964	MAX	1,420	MIN	321	MEAN	523	CFSM	0.366	IN.	4.97
WATER YEAR 1964-65	MAX	2,730	MIN	327	MEAN	813	CFSM	0.569	IN.	7.72

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 9.

4-770. Wolf River at Keshena Falls, Wis.

Location.--Lat 44°53'30", long 88°39'20", in E. 1/2 sec. 22, T. 28 N., R. 15 E., on right bank 500 ft downstream from Keshena Falls, 1.7 miles upstream from Keshena, 3.1 miles downstream from West Branch Wolf River, and at mile 136.4.

Drainage area.--812 sq mi.

Records available.--May 1907 to March 1909, October 1910 to September 1965. Monthly discharge only for some periods, published in WSP 1307. Published as "at Keshena" prior to April 1928.

Gage.--Water-stage recorder. Datum of gage is 820.0 ft above mean sea level (levels by Wisconsin Power and Light Co.). Prior to March 1909, staff gage, and February 1911 to March 1928, chain gage, at bridge in Keshena 1.7 miles downstream at datum 4.03 ft lower.

Average discharge.--56 years (1907-8, 1910-65), 753 cfs.

Extremes.--Maximum discharge during year, 3,400 cfs May 17 (gage height, 8.50 ft); minimum discharge, 266 cfs Oct. 22 (gage height, 5.08 ft).

1907-9, 1910-65: Maximum discharge, 4,830 cfs May 7, 1960 (gage height, 9.67 ft) from rating curve extended above 3,300 cfs; instantaneous peak caused when earthfill wall near powerplant was dynamited to relieve pressure on dam; maximum discharge after flow stabilized, 4,430 cfs May 8 (gage height, 9.36 ft) from rating curve extended above 3,300 cfs; maximum gage height, 13.83 ft Nov. 17, 1943 (backwater from ice); minimum discharge, 91 cfs Dec. 22, 1939 (gage height, 4.67 ft), result of ice storage.

Remarks.--Records good except those for period of ice effect, which are fair. Diurnal fluctuation caused by powerplant upstream.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

5.2	325	7.0	1,740
5.6	549	8.0	2,800
6.0	842	9.0	4,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	842	442	*427	510	350	440	430	1,870	1,270	608	494	494
2	826	471	430	520	350	470	440	1,820	1,470	568	488	482
3	809	494	440	520	360	520	460	1,820	1,470	549	488	465
4	768	512	450	*532	360	540	480	1,880	1,310	543	500	465
5	722	649	460	530	370	560	560	1,820	1,200	537	488	608
6	663	730	450	520	370	580	700	1,780	1,130	531	*477	730
7	588	707	440	510	380	600	860	1,780	1,280	537	494	649
8	549	656	430	490	390	590	940	1,760	1,240	537	568	512
9	537	594	420	460	*403	580	1,000	1,800	1,190	594	621	745
10	525	575	410	440	410	570	1,080	1,830	1,130	601	512	776
11	512	642	400	420	420	560	1,500	1,730	1,060	575	488	670
12	506	699	390	410	420	*542	2,000	1,590	1,000	549	477	614
13	518	834	380	400	420	530	*2,700	1,450	911	512	460	568
14	518	965	370	390	410	520	2,200	1,380	809	525	448	562
15	512	946	360	380	400	510	2,140	1,400	722	512	426	588
16	506	911	360	380	390	500	2,080	2,420	677	500	415	628
17	500	817	350	370	390	490	2,040	3,220	663	543	415	*737
18	494	760	350	360	380	470	2,000	*2,490	656	621	420	817
19	494	700	360	360	380	460	1,920	2,140	642	568	420	992
20	494	600	370	360	370	460	1,920	1,940	601	512	420	1,620
21	488	560	380	350	370	450	1,840	1,780	601	471	409	1,910
22	*482	540	390	350	370	450	1,870	1,700	614	471	426	1,810
23	477	560	410	350	370	440	1,870	1,460	663	460	454	1,650
24	471	640	420	350	370	440	1,860	1,390	*670	531	388	1,440
25	471	660	440	350	380	440	1,870	1,410	628	568	346	1,270
26	465	560	450	350	380	430	1,940	1,410	588	525	399	1,160
27	448	500	460	350	390	430	2,020	1,420	575	465	420	1,000
28	426	470	470	350	410	430	2,010	1,340	621	431	426	1,060
29	477	440	480	350	------	430	1,940	1,240	670	426	420	1,500
30	482	430	490	350	------	420	1,880	1,160	656	426	448	1,680
31	471	------	500	350	------	420	------	1,090	------	465	477	------
Total	17,041	19,064	12,937	12,712	10,763	15,272	46,550	53,320	26,717	16,261	14,132	28,202
Mean	550	635	417	410	384	493	1,552	1,720	891	525	456	940
Cfsm	0.677	0.782	0.514	0.505	0.473	0.607	1.91	2.12	1.10	0.647	0.562	1.16
In.	0.78	0.87	0.59	0.58	0.49	0.70	2.13	2.44	1.22	0.74	0.65	1.29

Calendar year 1964: Max 1,860 Min 335 Mean 575 Cfsm 0.708 In. 9.62
Water year 1964-65: Max 3,220 Min 346 Mean 748 Cfsm 0.921 In. 12.48

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-12	-	-	2,800	9-21	1800	7.21	1,950
5-17	0600	8.50	3,400	9-30	1800	6.95	1,700
6- 3	0400	6.74	1,510				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 18 to Apr. 17.

GPO 826-538-3

4-785. Embarrass River near Embarrass, Wis.

Location.--Lat 44°43'30", long 88°44'10", in SW 1/4 sec. 18, T. 26 N., R. 15 E., on left bank 10 ft downstream from highway bridge, 1 1/4 mile downstream from Mill Creek, and 4 miles northwest of Embarrass.

Drainage area.--395 sq mi.

Records available.--June 1919 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from survey level line in vicinity). Prior to Aug. 23, 1938, chain gage on downstream side of bridge at same datum.

Average discharge.--46 years, 281 cfs.

Extremes.--Maximum discharge during year, 7,080 cfs Apr. 12 (gage height, 12.13 ft); minimum discharge, 64 cfs July 29 (gage height, 2.62 ft).
1919-65: Maximum discharge, that of Apr. 12, 1965; minimum observed, 23 cfs Aug. 3, 6, 7, 1931.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 10				Apr. 11 to Sept. 30			
2.8	108	4.2	686	2.6	60	5.0	1,140
3.0	158	4.6	892	3.0	151	7.0	2,340
3.4	302	5.0	1,110	3.5	334	9.0	3,760
3.8	484			4.0	589	11.0	5,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	286	140	116	100	92	122	130	732	325	*151	111	141
2	254	145	110	102	92	200	132	711	395	139	120	139
3	217	153	108	104	92	480	136	679	462	132	*137	137
4	196	206	106	*108	90	660	137	759	446	127	141	132
5	183	302	106	108	90	1,000	160	748	390	118	134	201
6	*174	350	110	106	90	1,600	210	748	405	116	127	456
7	158	332	112	106	90	1,500	360	700	445	127	134	357
8	164	277	114	104	92	1,300	600	658	405	139	151	249
9	174	242	116	104	*95	1,000	760	700	366	137	157	299
10	167	220	118	104	100	780	1,050	737	303	139	198	616
11	161	*206	120	102	102	560	2,360	695	270	134	205	797
12	161	217	118	98	104	460	*5,340	*616	241	127	179	653
13	158	269	116	*94	106	340	*5,000	483	219	137	149	446
14	150	319	114	94	106	280	3,120	385	189	134	120	274
15	155	345	112	94	108	230	*2,290	375	182	127	116	*270
16	150	332	*105	92	108	210	1,850	899	173	122	109	274
17	150	306	104	92	108	190	1,510	1,820	165	120	118	282
18	142	265	100	90	108	180	1,340	1,680	149	122	111	325
19	140	235	96	90	108	170	1,190	1,310	144	127	113	573
20	140	196	92	88	108	164	1,060	867	139	127	116	1,130
21	135	155	92	88	106	158	954	695	139	120	111	1,630
22	130	140	90	86	106	156	938	541	139	120	111	1,640
23	127	132	90	86	106	154	921	467	159	122	109	1,400
24	137	128	90	86	106	156	840	405	171	132	104	1,100
25	150	132	92	86	106	154	786	366	179	144	106	856
26	125	134	94	86	108	150	894	405	168	137	116	695
27	120	134	96	88	110	150	1,100	605	149	116	118	472
28	132	132	98	88	114	148	1,030	637	137	89	116	467
29	145	128	100	90	------	142	894	536	137	67	111	658
30	145	122	100	90	------	*139	818	410	149	78	120	867
31	140	------	100	90	------	130	------	343	------	93	134	------
Total	4,966	6,394	3,235	2,944	2,851	13,063	37,910	21,712	7,341	3,820	4,002	17,536
Mean	160	213	104	95.0	102	421	1,264	700	245	123	129	585
Cfsm	0.405	0.539	0.263	0.241	0.258	1.07	3.20	1.77	0.620	0.311	0.327	1.48
In.	0.47	0.60	0.30	0.28	0.27	1.23	3.57	2.04	0.69	0.36	0.38	1.65

Calendar year 1964: Max 903 Min 52 Mean 182 Cfsm 0.461 In. 6.27
Water year 1964-65: Max 5,340 Min 67 Mean 345 Cfsm 0.873 In. 11.84

Peak discharge (base, 1,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 6	-	-	1,800	5-17	1100	6.28	1,910
4-12	2300	12.13	7,080	9-21	1600	6.20	1,860
4-28	0100	4.98	1,130				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Apr. 3, Apr. 5-9.

4-790. Wolf River at New London, Wis.

Location.--Lat 44°23'30", long 88°44'25", in SE 1/4 sec. 12, T. 22 N., R. 14 E., on right bank 100 ft downstream from Pearl Street bridge in New London, 0.2 mile downstream from Embarrass River, and at mile 56.3.

Drainage area.--2,240 sq mi, approximately.

Records available.--March 1896 to September 1965. Prior to October 1913 monthly discharge only, published in WSP 1307.

Gage.--Digital water-stage recorder. Datum of gage is 749.37 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 4, 1951, staff gage, and Oct. 5, 1951, to June 7, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--69 years, 1,698 cfs.

Extremes.--Maximum discharge during year, 9,990 cfs Apr. 16 (gage height, 9.68 ft); minimum 628 cfs Aug. 29 (gage height, 0.72 ft).
1896-1965: Maximum daily discharge, 15,500 cfs Apr. 13, 1922; minimum daily, 150 cfs Mar. 1, 1900.
Maximum stage known, 11.6 ft Apr. 16, 1888, from information by Corps of Engineers.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	623	6.0	3,080
2.0	1,020	8.0	5,270
4.0	1,940	10.0	11,200

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,770	829	900	780	630	780	1,060	4,690	3,170	984	716	710
2	1,710	854	880	800	630	1,400	1,120	4,610	3,010	*1,040	693	728
3	1,610	901	860	800	630	1,900	1,180	4,530	2,890	1,000	*726	770
4	1,480	931	840	810	630	2,200	1,300	4,490	2,810	941	733	787
5	1,370	965	800	820	630	2,400	1,700	4,380	2,760	903	750	794
6	*1,280	1,060	780	830	640	2,600	2,300	4,330	2,730	881	766	808
7	1,190	1,160	760	840	660	2,700	2,700	4,270	2,700	874	778	979
8	1,150	1,280	740	880	690	2,800	2,900	4,180	2,680	867	802	1,200
9	1,100	1,340	720	920	720	2,900	3,100	4,110	2,640	880	810	1,330
10	1,030	*1,310	710	900	760	3,000	3,700	4,010	2,570	885	906	1,280
11	996	1,250	720	880	* 800	3,000	4,270	*3,930	2,440	870	980	1,290
12	961	1,190	740	860	850	2,900	5,020	3,860	2,310	873	1,010	1,500
13	909	1,140	800	* 830	860	2,800	6,060	3,750	2,190	896	908	1,640
14	876	1,140	820	790	850	2,700	7,470	3,680	2,060	914	829	1,640
15	860	1,270	* 800	760	840	2,600	*9,020	3,580	1,890	899	774	1,540
16	852	1,460	780	750	830	2,500	9,680	3,510	1,690	868	731	*1,390
17	850	1,570	780	730	820	2,300	9,590	3,460	1,530	860	723	1,300
18	844	1,590	740	720	810	2,100	9,320	3,470	1,400	871	718	1,330
19	847	1,570	700	710	800	1,900	8,510	3,540	1,300	879	725	1,490
20	843	1,480	680	700	800	1,700	7,700	3,600	1,220	873	726	2,180
21	820	1,250	660	690	810	1,500	6,970	3,850	1,150	873	726	2,510
22	794	943	640	690	790	1,350	6,390	4,170	1,090	862	721	2,720
23	788	820	640	680	780	1,250	5,960	4,380	1,160	833	700	2,910
24	795	900	660	680	770	1,100	5,570	4,470	1,180	820	684	3,040
25	784	940	700	670	760	1,050	5,320	4,370	1,200	779	671	3,170
26	768	1,000	730	660	760	1,020	5,240	4,140	1,220	777	681	3,290
27	765	1,060	740	650	760	1,000	5,120	3,920	1,220	799	682	3,450
28	750	1,040	740	640	760	1,000	5,000	3,760	1,150	793	644	3,620
29	764	980	750	640	---	1,000	4,890	3,630	1,040	760	641	3,770
30	799	920	760	630	---	1,000	4,770	3,460	968	757	675	3,850
31	809	---	770	630	---	1,020	---	3,310	---	768	706	---
Total	31,164	34,143	23,340	23,370	21,070	59,470	152,930	123,440	57,368	26,870	23,335	57,016
Mean	1,005	1,138	753	754	752	1,918	5,098	3,982	1,912	867	753	1,901
Cfsm	.449	.508	.336	.337	.336	.856	2.28	1.78	.854	.387	.336	.849
In.	.52	.57	.39	.39	.35	.99	2.54	2.05	.95	.45	.39	.95

Calendar year 1964 : Max 3,440 Min 483 Mean 1,035 Cfsm 0.462 In. 6.29
Water year 1964-65 : Max 9,680 Min 640 Mean 1,736 Cfsm 0.775 In. 10.54

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 23 to Apr. 10.

4-800. Little Wolf River at Royalton, Wis.

Location.--Lat 44°24'45", long 88°51'55", in NW 1/4 sec. 1, T. 22 N., R. 13 E., on right bank 50 ft upstream from highway bridge in Royalton and 6 miles upstream from mouth.

Drainage area.--514 sq mi.

Records available.--January 1914 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 774.00 ft above mean sea level, datum of 1929. Prior to Aug. 20, 1915, chain gage at highway bridge at datum 0.75 ft lower. Aug. 20, 1915, to Apr. 23, 1934, staff gage, and Apr. 24, 1934, to July 27, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 394 cfs.

Extremes.--Maximum discharge during year, 4,680 cfs Apr. 13 (gage height, 6.03 ft); minimum daily, 135 cfs Jan. 18, 24-31.
1914-65: Maximum discharge, 6,950 cfs Mar. 30, 1943 (gage height, 8.00 ft), from rating curve extended above 3,500 cfs; maximum gage height, 11.95 ft, Mar. 28, 1950 (backwater from ice); minimum discharge, 52 cfs Nov. 26, 1958 (gage height, 0.75 ft), result of freezeup.

Remarks.--Records good except those for periods of ice effect, which are fair. Occasional fluctuation caused by recreation dam 6 miles upstream.

Rating table, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	119	3.0	1,450
1.5	285	4.0	2,410
2.0	584	5.0	3,510
2.5	1,000	6.0	4,640

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	309	225	180	165	140	210	220	869	300	*163	172	187
2	292	234	190	170	145	460	230	694	360	159	188	186
3	276	270	210	165	150	520	240	722	347	157	*197	166
4	261	286	210	160	155	580	260	820	332	154	190	190
5	*251	308	200	165	160	800	400	774	337	152	186	210
6	242	328	190	165	170	1,500	1,000	763	300	160	183	460
7	222	332	180	165	180	1,600	1,500	727	425	166	209	610
8	222	310	175	170	190	1,700	1,400	683	422	172	246	425
9	234	303	170	170	200	1,400	1,600	623	391	174	246	290
10	234	*288	170	165	200	1,000	1,720	497	344	172	350	347
11	232	279	160	160	*210	800	2,320	*696	309	165	306	535
12	230	275	200	*150	210	600	4,070	450	282	160	233	479
13	228	273	180	145	210	450	*4,600	392	263	165	185	336
14	225	281	170	145	200	340	3,710	472	247	188	179	320
15	222	300	*165	140	200	300	2,570	426	214	188	173	323
16	226	325	160	140	195	280	1,950	475	209	187	174	*313
17	225	329	150	140	195	260	1,510	637	208	206	183	307
18	221	335	140	135	190	250	1,440	902	209	237	184	453
19	218	311	140	140	195	240	1,290	912	203	242	192	638
20	215	290	140	140	200	230	1,100	834	171	211	191	1,080
21	214	260	140	140	200	220	987	708	179	183	182	1,190
22	213	230	145	140	195	220	954	655	199	176	177	1,490
23	212	220	145	140	190	210	921	630	244	160	174	1,380
24	211	230	150	135	190	210	884	469	228	173	169	1,240
25	211	234	150	135	185	200	916	440	219	186	165	845
26	211	233	150	135	185	200	1,070	406	201	185	164	746
27	210	220	155	135	185	200	1,140	578	188	178	169	547
28	211	210	155	135	190	200	1,160	768	176	169	171	572
29	214	200	160	135	------	200	1,090	503	171	162	173	656
30	219	180	160	135	------	*200	982	408	166	160	177	733
31	221	------	165	135	------	210	------	404	------	163	186	------
TOTAL	7,132	8,118	5,175	4,595	5,215	15,790	43,234	19,337	7,984	5,473	6,074	17,276
MEAN	230	271	167	148	186	509	1,441	624	266	177	196	576
CFSM	.448	.527	.325	.288	.362	.990	2.80	1.21	.518	.344	.381	1.12
IN	.52	.59	.37	.33	.38	1.14	3.13	1.40	.58	.40	.44	1.25

CALENDAR YEAR 1964 MAX 1,190 MIN 123 MEAN 247 CFSM .481 INCHES 6.53
WATER YEAR 1964-65 MAX 4,600 MIN 135 MEAN 398 CFSM .774 INCHES 10.52

Peak discharge (base, 1600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-6	-	-	1,800	4-13	0130	6.03	4,680

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21-24, Nov. 27 to Apr. 9.

4-825. Lake Winnebago at Oshkosh, Wis.

Location.--Lat 44°00'40", long 88°32'00", in sec. 24, T. 18 N., R. 17 E., in mouth of the Upper Fox River at Chicago and North Western Railway bridge, 0.2 mile downstream from Main Street Bridge in Oshkosh and 18 miles up the lake from Menasha Dam and outlet.

Drainage area.--6,030 sq mi, approximately, at lake outlet at Menasha Dam.

Records available.--October 1938 to September 1965 in reports of Geological Survey. Records from 1857 to 1938 in files of Corps of Engineers. A report on Fox River by Corps of Engineers, published as House Document No. 146, 67th Congress, 2nd session, contains semi-monthly records of inflow to Lake Winnebago for the period 1896-1917.

Gage.--Staff gage read once daily. Datum of gage is 745.05 ft above mean tide at New York City (levels by Corps of Engineers). Prior to 1882, lake levels were referred to Deuchman gage at lake outlet of Menasha Dam. Datum of Deuchman gage, which is still in existence, is 745.00 ft above mean tide at New York City.

Extremes.--Maximum gage height observed during year 3.23 ft Apr. 29; minimum observed, 1.23 ft Mar. 1.
1857-65: Maximum gage height observed, 5.33 ft (Deuchman gage) Nov. 8, 1881; minimum observed, -2.00 ft (Deuchman gage) Nov. 28, 1891.

Remarks.--Lake elevations controlled by dams at Menasha and Neenah, which are operated in the interest of navigation. Crests of both dams are at elevation 746.73 ft. Present limits of regulation are from 21 1/4 in. above the crest of Menasha Dam down to crest during navigation season, plus additional 18 in. below crest during winter. Oshkosh staff gage gives true level of lake, while Deuchman gage readings are affected by loss of head in the channel between lake and dam.

Cooperation.--Records furnished by Corps of Engineers.

Gage height, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.35	2.06	2.10	1.91	1.82	1.23	1.38	3.08	3.00	2.68	2.23	2.09
2	2.34	2.05	2.12	1.91	1.81	1.37	1.39	3.06	3.00	2.59	2.22	2.02
3	2.34	2.10	2.13	1.91	1.79	1.36	1.42	3.05	2.96	2.60	2.20	2.04
4	2.35	2.12	2.10	1.91	1.78	1.35	1.45	3.03	2.99	2.61	2.22	2.03
5	2.36	2.11	2.10	1.91	1.74	1.55	1.49	2.99	2.97	2.62	2.21	2.03
6	2.35	2.12	2.11	1.90	1.72	1.59	1.56	2.97	2.94	2.64	2.15	2.04
7	2.36	2.11	2.11	1.89	1.71	1.63	1.62	2.93	2.92	2.48	2.18	2.05
8	2.35	2.11	2.10	1.93	1.70	1.68	1.72	2.87	2.98	2.58	2.22	2.15
9	2.33	2.11	2.08	1.93	1.71	1.68	1.84	2.81	2.98	2.47	2.26	2.17
10	2.30	2.11	2.09	1.93	1.71	1.69	1.99	2.75	2.98	2.47	2.29	2.25
11	2.27	2.12	2.08	1.92	1.70	1.70	2.15	2.85	2.99	2.47	2.30	2.28
12	2.24	2.12	2.08	1.92	1.71	1.69	2.31	2.90	2.96	2.47	2.20	2.31
13	2.26	2.12	2.08	1.92	1.69	1.70	2.41	2.92	2.93	2.40	2.22	2.35
14	2.25	2.13	2.08	1.91	1.66	1.71	2.56	2.93	2.90	2.46	2.22	2.32
15	2.22	2.14	2.08	1.90	1.64	1.72	2.68	2.93	2.85	2.43	2.21	2.28
16	2.22	2.15	2.04	1.89	1.60	1.73	2.76	2.94	2.85	2.37	2.20	2.30
17	2.22	2.14	2.02	1.88	1.59	1.70	2.84	2.95	2.82	2.38	2.25	2.36
18	2.22	2.14	2.02	1.88	1.58	1.68	2.92	2.96	2.80	2.39	2.30	2.46
19	2.22	2.13	2.02	1.88	1.55	1.70	3.01	2.92	2.77	2.40	2.29	2.56
20	2.20	2.14	2.02	1.88	1.53	1.70	3.05	2.92	2.74	2.40	2.25	2.68
21	2.12	2.13	2.01	1.87	1.50	1.69	3.18	2.89	2.70	2.30	2.24	2.76
22	2.17	2.12	2.00	1.90	1.48	1.68	3.18	2.88	2.70	2.31	2.22	2.78
23	2.12	2.10	1.99	1.90	1.42	1.62	3.10	2.89	2.78	2.30	2.20	2.76
24	2.12	2.09	1.99	1.90	1.40	1.60	3.13	2.90	2.77	2.32	2.19	2.80
25	2.11	2.10	1.98	1.90	1.39	1.58	3.16	2.85	2.90	2.34	2.20	2.84
26	2.10	2.12	1.98	1.90	1.35	1.56	3.20	2.85	2.70	2.35	2.12	2.87
27	2.09	2.15	1.97	1.90	1.31	1.54	3.20	2.83	2.50	2.35	2.12	2.90
28	2.08	2.13	1.96	1.89	1.27	1.52	3.20	2.90	2.33	2.30	2.14	2.80
29	2.07	2.11	1.95	1.89	--------	1.49	3.23	2.92	2.61	2.29	2.16	3.02
30	2.07	2.10	1.92	1.87	---------	1.36	3.10	2.94	2.68	2.25	2.17	2.95
31	2.07	----------	1.91	1.84	---------	1.32	----------	2.97	----------	2.24	2.11	----------

4-845. Fox River at Rapide Croche Dam, near Wrightstown, Wis.

Location.--Lat 44°19'00", long 88°11'50", in SE 1/4 sec. 4, T. 21 N., R. 19 E., at Rapide Croche Dam, 2 miles upstream from Wrightstown, and 18 miles upstream from mouth.

Drainage area.--6,150 sq mi, approximately.

Records available.--March 1896 to September 1917 (monthly discharge only), October 1917 to September 1965.

Gage.--Recording headwater and tailwater gages and electric generation data taken each half hour are used to compute the discharge records.

Average discharge.--69 years, 4,140 cfs.

Extremes.--Maximum daily discharge during year, 12,400 cfs Apr. 30, May 1; minimum daily, 1,260 cfs Aug. 6.
1918-65: Maximum daily discharge, 24,000 cfs Apr. 18, 1952; minimum daily, 138 cfs Aug. 2, 1936.

Remarks.--Records good. Flow regulated by storage in Lake Winnebago (see p. 40). Daily discharge determined from records of flow through turbines, head, gate openings, and lockages through navigation canal. An average of about 10 to 15 cfs diverted into basin from Wisconsin River at Portage Canal throughout the year.

Cooperation.--Figures of daily discharge furnished by Corps of Engineers. Records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,070	2,100	2,450	2,100	2,460	3,990	1,940	12,400	4,930	2,330	1,520	1,430
2	1,970	2,270	2,280	2,140	3,280	5,100	2,100	12,300	4,450	1,790	1,560	1,530
3	2,250	2,400	2,280	1,590	3,330	4,680	2,540	12,200	4,550	2,030	1,670	1,650
4	2,220	2,510	2,340	2,180	3,110	4,560	2,640	12,200	4,570	2,040	1,630	1,680
5	2,180	2,470	2,230	2,110	3,150	6,880	2,800	12,100	4,600	1,950	1,670	1,390
6	2,210	2,340	2,220	2,140	3,250	6,370	2,670	12,000	4,750	2,170	1,260	1,480
7	3,120	2,290	2,360	2,260	3,410	5,230	2,600	12,100	4,830	1,920	1,850	2,130
8	2,530	2,360	2,440	2,160	3,200	6,240	2,680	11,100	4,840	1,780	1,650	1,710
9	1,980	2,600	2,370	2,130	3,160	6,830	2,500	10,900	4,770	1,810	1,480	2,060
10	2,320	2,290	2,250	2,110	3,710	6,830	2,800	10,300	4,710	1,480	1,700	1,920
11	2,630	2,440	2,400	2,140	3,050	6,950	3,440	6,260	4,700	1,500	1,840	1,720
12	2,430	2,700	2,260	2,090	3,400	6,900	4,040	4,470	4,610	2,380	1,820	1,820
13	2,340	2,380	2,310	2,110	4,120	6,980	4,270	4,260	4,650	2,380	1,740	1,930
14	2,340	1,990	2,100	2,120	4,190	7,060	4,020	4,320	4,170	1,820	1,670	1,990
15	2,830	2,210	2,200	2,080	3,880	7,080	6,140	4,680	2,460	1,920	1,630	2,050
16	2,200	2,330	2,170	1,940	4,120	7,000	6,830	4,680	2,870	2,090	1,690	1,950
17	2,170	2,220	2,280	2,060	3,860	7,200	6,960	4,590	2,750	2,040	1,920	2,170
18	2,190	2,290	2,170	2,110	3,780	7,360	7,170	4,610	3,040	1,900	1,810	2,160
19	2,250	2,300	2,050	2,060	3,740	7,140	8,000	4,460	2,910	1,920	1,700	2,350
20	2,340	2,030	2,050	2,030	3,630	7,140	10,700	4,640	2,870	1,740	1,800	3,960
21	2,340	2,110	2,290	2,040	3,130	7,000	11,300	4,750	3,060	1,920	1,670	4,760
22	2,150	2,340	2,270	2,000	3,520	7,020	11,800	4,480	3,030	1,850	1,640	4,490
23	2,150	2,510	2,110	2,020	3,900	7,020	11,900	4,780	3,360	1,740	1,660	4,460
24	2,230	2,250	2,180	1,970	3,680	7,050	11,900	4,460	2,760	1,720	1,730	4,280
25	2,290	2,410	2,200	2,210	3,690	6,680	12,000	4,610	3,000	1,860	1,760	4,360
26	2,300	2,090	1,920	2,020	3,650	6,710	12,100	4,760	2,960	1,740	1,620	3,980
27	2,090	2,260	2,150	2,010	3,640	6,230	12,300	4,830	2,590	1,720	1,550	4,660
28	2,020	2,160	2,330	1,950	3,540	6,310	11,700	4,760	3,110	1,620	1,430	5,430
29	2,130	1,590	2,270	2,020	-------	6,320	12,300	4,680	2,480	1,740	1,560	5,860
30	2,200	2,230	2,110	2,120	---------	6,100	12,400	4,670	2,320	1,700	1,800	7,830
31	2,040	----------	2,080	2,130	---------	4,800	----------	4,730	----------	1,940	1,730	----------
Total	70,510	68,470	69,120	64,150	98,580	198,760	206,540	216,080	110,700	58,540	51,760	89,190
Mean	2,275	2,282	2,230	2,069	3,521	6,412	6,885	6,970	3,690	1,888	1,670	2,973

Calendar year 1964: Max 4,070 Min 876 Mean 2,249
Water year 1964-65: Max 12,400 Min 1,260 Mean 3,568

4-855. Cedar Lake near Kiel, Wis.

Location.--Lat 43°55'35", long 87°56'25", in SW 1/4 sec. 24, T. 17 N., R. 21 E., at Cedar Lake Resort on narrows of lake, 5.8 miles east of Kiel.

Drainage area.--1.33 sq mi.

Records available.--August 1936 to September 1942; April 1945 to September 1965 (fragmentary).

Gage.--Staff gage. Altitude of gage is 890 ft (from topographic map).

Extremes.--Maximum elevation observed during year, 96.93 ft May 13; minimum observed, 95.31 ft Jan. 14.
1936-42, 1945-65: Maximum elevation observed, 98.72 ft Mar. 9, 1946; minimum observed, 93.34 ft Oct. 4, Nov. 1, 1958, Jan. 17, 1959.
An elevation of 100.37 ft was observed May 20, 1929, by Public Service Commission of Wisconsin.

Remarks.--Gage heights have been reduced to elevations above datum assumed for this lake by Public Service Commission of Wisconsin. Lake ice covered about Nov. 20 to about April 15.

Elevations, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												
2												
3							6.12			6.36		
4									6.74		6.09	5.98
5												
6												
7		5.40									6.04	
8								6.85				
9	5.58				5.41							
10							6.43			6.32		
11		5.42										6.24
12									6.64			
13								6.93				
14		5.38		5.31							6.04	6.20
15								6.90				
16	5.50		5.35									
17							6.75			6.22		
18												6.22
19									6.54			
20											6.02	
21		5.34										
22							6.75	6.84				
23												
24	5.38						6.83			6.09		
25												6.40
26									6.52			
27						6.09						
28		5.40									6.02	
29							6.85	6.80				
30					---				6.41			6.34
31	5.36	---			---	6.03	---		---	6.09		---

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

GPO 826-538-4

4-860. Sheboygan River at Sheboygan, Wis.

Location.--Lat 43°44'25", long 87°45'35", in E 1/2 sec. 29, T. 15 N., R. 23 E., on left bank 0.7 mile upstream from bridge on State Highway 28, near west city limits of Sheboygan, and 4.2 miles upstream from mouth.

Drainage area.--432 sq mi.

Records available.--June 1916 to September 1924 (published as "near Sheboygan"), September 1950 to September 1965. Monthly discharge only for some periods, published in WSP 1307, 1727.

Gage.--Digital water-stage recorder. Datum of gage is 584.00 ft above mean sea level, datum of 1929. June 1916 to June 1924 chain gage at site 0.7 mile downstream at different datum. November 1950 to June 1951 staff gage at site 0.3 mile downstream at datum 3.15 ft lower. June 1951 to June 9, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--23 years (1916-24, 1950-65), 232 cfs.

Extremes.--Maximum discharge during year, 4,880 cfs Apr. 7 (gage height, 9.55 ft); minimum, 22 cfs July 31, Aug. 1 (gage height, 1.53 ft).

1916-24, 1950-65: Maximum discharge observed, 7,140 cfs Mar. 26, 1920 (gage height, 9.40 ft, datum then in use); minimum observed, about 1 cfs Aug. 27, 1922 (gage height, 1.48 ft, datum then in use), caused by shutdown of powerplants.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation caused by numerous powerplants above station.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	19	3.5	371
1.7	32	4.0	550
2.0	63	5.0	1,000
2.5	143	7.0	2,340
3.0	241	9.0	4,210

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	108	42	150	48	37	273	316	395	86	33	24	50
2	95	44	120	80	36	885	335	340	92	36	30	64
3	89	69	96	90	35	892	588	308	85	32	40	36
4	81	92	82	100	34	1,110	874	304	76	30	41	30
5	78	93	74	84	35	3,360	1,090	280	74	30	*45	44
6	73	74	68	76	38	3,090	2,020	251	79	29	44	65
7	*64	64	64	70	48	2,380	4,040	256	78	33	39	118
8	75	62	60	90	70	2,200	3,500	303	72	46	45	181
9	55	68	58	100	*140	3,000	2,820	319	68	46	62	1,020
10	67	79	56	110	210	2,400	2,540	244	64	41	65	2,000
11	60	81	62	82	273	1,900	3,190	231	59	40	56	1,750
12	54	*80	68	60	349	1,600	3,310	254	54	37	44	1,030
13	55	81	74	50	350	1,300	2,740	*240	50	32	38	612
14	51	87	76	*43	364	1,500	2,210	216	50	32	33	*371
15	47	82	72	39	293	2,000	2,220	197	45	30	30	278
16	50	78	*66	37	250	1,400	1,960	193	47	35	30	259
17	50	85	56	36	201	900	1,750	191	48	37	42	224
18	50	76	52	36	180	600	1,690	181	47	40	58	207
19	49	73	48	35	160	420	1,410	165	45	39	58	211
20	46	56	45	36	143	340	1,180	145	54	33	56	1,150
21	46	49	43	37	140	260	1,020	121	56	32	44	2,350
22	47	60	42	40	130	200	863	149	107	31	39	1,850
23	45	58	41	66	120	170	811	143	201	31	39	1,330
24	44	56	40	70	100	150	693	131	149	35	39	901
25	44	54	40	56	90	140	620	130	99	33	37	629
26	41	56	39	46	86	130	809	119	65	34	33	517
27	38	81	39	52	80	120	708	115	49	28	33	435
28	40	223	39	46	90	120	589	111	42	27	31	458
29	42	230	39	42	------	500	498	110	*36	28	32	533
30	41	200	40	40	------	400	414	103	36	26	36	620
31	41	------	41	38	------	*290	------	90	------	23	39	------
TOTAL	1,766	2,533	1,890	1,835	4,082	34,030	46,808	6,335	2,113	1,039	1,282	19,323
MEAN	57.0	84.4	61.0	59.2	146	1,098	1,560	204	70.4	33.5	41.4	644
CFSM	.132	.195	.141	.137	.338	2.54	3.61	.472	.163	.078	.096	1.49
IN	.15	.22	.16	.16	.35	2.93	4.03	.55	.18	.09	.11	1.66

CALENDAR YEAR	1964	MAX	769	MIN	21	MEAN	115	CFSM	.266	INCHES 3.61
WATER YEAR	1964-65	MAX	4,040	MIN	23	MEAN	337	CFSM	.780	INCHES 10.59

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2- 5	0600	8.90	4,100	9-10	0100	6.74	2,140
3- 7	1900	9.55	4,880	9-21	0300	7.34	2,610
3-11	1300	8.32	3,470				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 22-26, Nov. 30 to Dec. 15, Dec. 17-31, Jan. 2 to Feb. 10, Feb. 16, 18, 19, 21-28, Mar. 18-30. No gage-height record Mar. 9-17.

4-865. Cedar Creek near Cedarburg, Wis.

Location.--Lat 43°19'25", long 87°58'50", on line between secs. 14 and 23, T. 10 N., R. 21 E., on upstream side of highway bridge, 2 miles north of Cedarburg and 6 miles upstream from mouth.

Drainage area.--121 sq mi.

Records available.--August 1930 to September 1965.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 795.33 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 11, 1958, chain gage at same site and datum.

Average discharge.--35 years, 62.3 cfs.

Extremes.--Maximum discharge during year, about 2,000 cfs Apr. 7 (gage height, 10.4 ft, from graph based on gage readings, backwater from ice); minimum observed, 4.6 cfs July 28-30 (gage height, 5.12 ft).
1930-65: Maximum discharge observed, about 3,600 cfs Mar. 30, 1960 (gage height, 12.25 ft, from graph based on gage readings, backwater from ice); minimum observed, 0.2 cfs Aug. 9-12, 1936.

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

Rating table, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 9-30)

5.1	4.0	5.6	46
5.2	7.0	6.0	152
5.3	11	6.5	314
5.4	18	7.0	500
5.5	28	8.0	1,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	12.4	30	10	7.0	140	200	91	32	6.7	5.8	9.8
2	22	18.0	20	13	6.8	260	300	83	24	6.4	6.4	9.4
3	20	18.0	15	20	6.6	400	400	78	24	5.8	6.4	8.2
4	16.6	15.9	14	18	6.4	500	800	73	22	5.8	6.4	9.0
5	15.9	15.2	13	15	6.2	1,000	1,400	70	20	6.1	*5.8	15.2
6	15.9	15.2	12	13	40	1,200	1,870	68	24	10.2	5.8	18.0
7	15.9	14.5	11	13	50	1,000	1,710	65	30	15.9	7.8	28
8	*15.9	14.5	10	14	*60	600	573	60	26	14.5	11.0	35
9	16.6	14.5	10	13	90	400	609	60	20	11.7	12.4	46
10	17.3	14.5	10	11	110	250	437	60	18.0	10.6	14.5	339
11	16.6	14.5	14	9.0	150	190	484	58	16.6	9.8	11.0	488
12	15.9	*14.5	16	7.8	170	150	793	56	15.9	8.6	9.0	468
13	15.2	13.8	17	6.8	180	130	551	53	14.5	7.4	7.0	260
14	14.5	13.8	18	*6.4	150	110	400	*48	13.8	6.4	6.4	*182
15	14.5	13.8	17	6.0	120	90	332	46	13.1	5.8	5.5	88
16	13.8	16.6	15	5.8	94	74	287	48	12.4	8.6	4.9	65
17	13.8	15.2	*14	5.6	88	66	260	46	11.0	17.3	11.0	51
18	12.4	14.5	12	5.6	86	58	240	46	10.2	24	20	42
19	12.4	11.7	10	6.0	84	52	208	42	9.4	15.2	12.4	46
20	11.0	9.0	9.2	7.0	88	48	179	37	8.2	11.0	11.0	201
21	11.0	8.6	8.6	10	86	45	170	33	7.4	9.8	9.8	787
22	11.0	8.2	9.0	15	70	42	146	32	7.8	8.6	9.0	852
23	12.4	10.0	9.2	19	56	40	113	32	16.6	7.8	8.6	618
24	12.4	12.4	9.6	20	46	38	118	41	16.6	7.0	8.6	408
25	12.4	13.8	10	19	38	36	173	41	12.4	6.1	8.2	266
26	12.4	14.5	9.8	16	34	35	246	35	10.2	5.5	8.6	149
27	12.4	15.2	9.2	13	30	34	220	32	8.6	5.2	8.6	113
28	11.7	40	9.0	11	70	33	170	28	7.8	4.6	7.8	104
29	12.4	60	9.0	9.0	-------	32	124	27	*7.4	4.6	6.4	152
30	12.4	50	9.2	8.2	---------	40	104	26	7.0	4.6	6.4	167
31	12.4	----------	9.2	7.6	---------	80	----------	30	----------	4.9	9.0	----------
Total	453.1	522.8	389.2	353.8	2,023	7,173	13,617	1,545	466.9	276.5	271.5	6,024.6
Mean	14.6	17.4	12.6	11.4	72.2	231	454	49.8	15.6	8.92	8.76	201
Cfsm	0.121	0.144	0.104	0.094	0.597	1.91	3.75	0.412	0.129	0.074	0.072	1.66
In.	0.14	0.16	0.12	0.11	0.62	2.20	4.19	0.47	0.14	0.08	0.08	1.85

Calendar year 1964 : Max 901 Min 2.9 Mean 37.9 Cfsm 0.313 In. 4.27
Water year 1964-65 : Max 1,870 Min 4.6 Mean 90.7 Cfsm 0.750 In. 10.16

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20-23, Nov. 28 to Apr. 7.

4-870. Milwaukee River at Milwaukee, Wis.

Location.--Lat 43°06'00", long 87°54'30", in NE 1/4 sec. 5, T. 7 N., R. 22 E., on left bank near northeast limits of Milwaukee in Estabrook Park, 2,000 ft downstream from Port Washington Road Bridge and 6 miles upstream from mouth.

Drainage area.--686 sq mi.

Records available.--April 1914 to September 1965. Published as "near Milwaukee" prior to 1936.

Gage.--Water-stage recorder. Datum of gage is 607.23 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 6, 1929, staff or chain gage near present site at different datum. Apr. 6, 1929, to Jan. 8, 1934, chain gage at bridge half a mile upstream at different datum.

Average discharge.--51 years, 381 cfs.

Extremes.--Maximum discharge during year, 5,740 cfs Apr. 8 (gage height, 6.45 ft); minimum 4.5 cfs Sept. 6, 7 (gage height, 1.52 ft). 1914-65: Maximum discharge, 15,100 cfs Mar. 20, 1918, Aug. 6, 1924 (gage height, 9.00 ft, datum then in use, from floodmark for 1918, from graph based on gage readings for 1924); no flow Sept. 8, 1943.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	2.0	3.0	631
1.6	7.0	3.5	1,080
1.8	31	4.0	1,630
2.0	75	4.5	2,280
2.2	144	5.0	3,040
2.6	353	7.0	6,920

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	110	*270	110	95	350	768	556	208	72	84	75
2	188	153	240	140	95	900	768	492	213	75	65	78
3	179	*135	200	162	100	1,200	1,120	459	188	65	84	84
4	162	133	160	170	120	1,800	1,400	417	208	62	84	326
5	157	144	150	170	300	2,900	1,790	317	254	65	75	184
6	153	157	140	148	478	3,100	2,630	347	311	*106	75	5.0
7	144	153	130	140	768	3,300	4,230	341	170	90	164	746
8	148	144	120	160	*420	3,300	5,600	353	175	84	281	249
9	144	148	120	170	330	2,540	4,960	353	*170	114	238	1,460
10	140	140	120	160	828	2,200	3,860	465	153	106	106	2,500
11	136	136	130	140	768	1,780	3,720	465	144	97	*110	2,850
12	136	153	140	120	855	1,370	3,770	335	125	97	103	2,690
13	*133	144	150	100	700	928	3,520	335	106	117	100	2,280
14	133	140	160	*95	540	802	2,990	311	106	84	87	1,520
15	129	193	150	90	460	694	2,440	293	106	75	103	*1,290
16	129	153	130	90	400	556	1,960	311	100	329	75	995
17	129	136	110	90	350	366	1,730	210	97	238	208	739
18	121	136	100	90	320	288	1,570	115	100	117	201	624
19	121	136	100	95	310	271	1,400	271	87	100	117	594
20	121	133	100	100	350	299	1,090	385	84	106	121	909
21	121	106	100	117	400	299	1,000	114	75	108	110	2,150
22	121	78	100	223	320	299	872	21	81	94	100	2,640
23	121	117	100	129	260	*276	819	317	84	87	97	2,460
24	121	121	100	136	220	260	752	238	94	75	94	2,150
25	114	121	100	140	180	198	890	266	125	72	121	1,870
26	358	117	97	157	160	233	995	271	144	72	166	1,630
27	129	140	97	150	150	223	*1,000	254	121	68	117	1,140
28	117	438	103	140	160	244	855	233	114	65	84	1,040
29	117	213	114	130	------	288	760	208	97	62	87	1,060
30	114	250	110	110	------	335	608	188	75	68	110	1,120
31	114	------	97	100	------	535	------	213	------	90	84	------
Total	4,438	4,579	4,038	4,072	10,437	32,134	59,867	9,453	4,115	3,060	3,651	37,458
Mean	143	153	130	131	373	1,037	1,996	305	137	98.7	118	1,249
Cfsm	0.208	0.223	0.190	0.191	0.544	1.51	2.91	0.445	0.200	0.144	0.172	1.82
In.	0.24	0.25	0.22	0.22	0.57	1.74	3.25	0.51	0.22	0.17	0.20	2.03

Calendar year 1964 : Max 2,220 Min 25 Mean 222 Cfsm 0.324 In. 4.40
Water year 1964-65 : Max 5,600 Min 5.0 Mean 486 Cfsm 0.708 In. 9.62

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-6	1600	6.32	5,100	9- 9	0430	5.69	4,250
4-8	1230	6.45	5,740	9-22	0630	5.47	3,850

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 30 to Dec. 20, Dec. 23-25, Jan. 1, 2, 8-15, 17-20, Jan. 27 to Feb. 5, Feb. 8, 9, Feb. 13 to Mar. 7.

4-871.2 Menomonee River at Wauwatosa, Wis.

Location.--Lat 43°02'44", long 87°59'59", in NW 1/4 sec. 27, T. 7 N., R. 21 E., near left bank on downstream side of 70th Street bridge in Wauwatosa, 800 ft downstream from Honey Creek, and 6 1/4 miles upstream from mouth.

Drainage area.--123 sq mi.

Records available.--October 1961 to September 1965.

Gage.--Wire-weight gage and crest-stage indicator; gage read about five times weekly. Datum of gage is 630.86 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 2,190 cfs Mar. 5 (gage height 5.59 ft); minimum daily, 6.2 cfs Jan. 20.
1961-65: Maximum discharge, 6,010 cfs July 18, 1964 (gage height, 9.03 ft) from rating curve extended above 3,200 cfs on the basis of slope conveyance study; minimum daily, 2.8 cfs Jan. 18, 1964.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge in cubic feet per second)

0.8	5.3	1.2	19	2.0	224
.9	6.8	1.3	30	3.0	663
1.0	9.0	1.5	67	4.0	1,210
1.1	13	1.7	117	5.0	1,810

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.4	11	*21	15	7.8	394	446	76	26	7.6	13	11
2	8.1	33	15	190	7.2	808	*334	65	26	7.4	11	9.0
3	8.8	*23	13	90	6.8	494	310	55	23	7.4	10	8.8
4	8.3	18	12	35	6.8	428	390	44	20	7.4	14	8.8
5	7.5	15	11	15	8.0	*1,610	495	36	20	7.8	11	14
6	7.5	13	10	15	35	1,190	686	32	66	74	12	16
7	6.6	12	9.4	17	500	748	839	27	38	*61	12	634
8	9.8	11	9.0	29	*305	364	686	26	27	45	244	291
9	8.6	9.4	8.2	50	260	249	576	28	*22	32	*428	1,480
10	8.3	8.8	8.6	15	330	188	520	29	18	24	49	1,480
11	8.2	10	9.4	11	210	196	882	24	15	16	30	400
12	8.3	15	13	9.0	160	126	680	21	14	11	20	253
13	*8.6	12	21	8.0	130	142	360	19	13	8.8	12	159
14	11	11	18	7.4	110	115	200	18	12	12	10	114
15	9.8	49	15	*6.9	90	92	372	17	11	8.6	7.0	*85
16	9.8	27	13	6.6	80	76	173	17	10	106	11	59
17	9.2	12	12	6.4	64	68	160	17	9.8	98	258	49
18	8.4	9.8	11	6.4	58	62	188	29	10	69	289	44
19	7.9	8.8	10	6.4	54	60	140	27	11	23	53	90
20	7.6	8.0	9.6	6.2	504	56	112	23	10	12	19	208
21	7.7	7.6	9.4	8.0	224	52	85	20	9.4	11	18	347
22	9.0	7.2	9.2	11	170	50	72	18	10	10	14	571
23	10	7.4	9.2	62	110	*47	67	88	17	9.4	11	274
24	9.8	9.0	9.6	45	76	42	70	51	14	9.0	11	188
25	9.8	11	10	25	61	32	120	32	12	8.4	22	150
26	9.4	12	10	16	44	35	245	29	10	7.9	48	100
27	13	14	9.6	13	40	29	*166	23	9.2	8.1	25	69
28	11	100	9.0	11	61	28	106	20	8.6	8.1	11	208
29	11	80	9.0	10	------	27	85	18	8.2	7.7	9.8	129
30	10	40	9.2	9.0	------	126	67	19	7.8	7.9	10	291
31	12	------	11.0	8.2	------	245	------	28	------	8.4	11	------
Total	284.4	605	354.4	763.5	3,712.6	8,179	9,632	976	508.0	733.9	1,703.8	7,740.6
Mean	9.17	20.2	11.4	24.6	133	264	321	31.5	16.9	23.7	55.0	258
Cfsm	0.075	0.164	0.093	0.200	1.08	2.15	2.61	0.256	0.137	0.193	0.447	2.10
In.	0.09	0.18	0.11	0.23	1.12	2.47	2.91	0.30	0.15	0.22	0.52	2.34

Calendar year 1964: Max 2,870 Min 2.8 Mean 51.9 Cfsm 0.422 In. 5.75
Water year 1964-65: Max 1,610 Min 6.2 Mean 96.4 Cfsm 0.784 In. 10.64

Peak discharge (base, 700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-28	2300	3.27	793	4-11	1800	3.93	1,170
2- 7	2200	5.04	1,830	8- 9	0100	4.90	1,750
3- 5	1200	5.59	2,190	9- 7	1600	4.50	1,510
4- 7	1100	3.36	839	9- 9	2000	5.54	2,160

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19-24, 28-30, Dec. 2-31, Jan. 10 to Feb. 19. No gage-height record most Sundays, many Saturdays, and Dec. 2 to Jan. 3, Jan. 23-31, Mar. 14-22, and June 20 to July 12.

4-872.04 Oak Creek at South Milwaukee, Wis.

Location.--Lat 42°55'30", long 87°52'15", in NW 1/4 sec. 2, T. 5 N., R. 22 E., on left bank 25 ft downstream from 15th Avenue bridge in South Milwaukee and 2 3/4 miles upstream from mouth.

Drainage area.--25.0 sq mi.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder and crest-stage indicator. Altitude of gage is 630 ft (from topographic map).

Extremes.--Maximum discharge during year, 480 cfs Mar. 5 (gage height, 6.20 ft); minimum, 2.2 cfs July 13 (gage height, 2.43 ft).
1963-65: Maximum discharge, that of Mar. 5, 1965; minimum, 0.4 cfs Jan. 3, 1964 (gage height, 2.33 ft).

Remarks.--Records good except those for periods of ice effect, no gage-height record, or shifting-control adjustment, which are fair. Low flows may occasionally be affected by activity of gravel pit upstream.

Rating tables, except periods of ice effect, shifting-control, or no gage height
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 28		Mar. 1 to Sept. 30			
2.5	2.4	2.4	2.2	3.5	40
2.7	5.6	2.6	6.0	4.0	76
2.9	10	2.8	11	5.0	205
3.2	20	3.0	17	6.0	430

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	4.0	4.9	10	3.4	70	218	12	4.2	3.1	3.6	5.4
2	3.7	7.0	*4.7	60	3.3	242	180	11	4.4	3.1	2.9	5.0
3	3.7	5.0	4.5	21	3.3	150	219	9.5	4.6	3.1	4.6	4.4
4	3.5	*3.7	4.1	12	3.2	153	166	8.2	4.6	3.1	4.8	7.9
5	3.7	3.8	3.8	9.7	3.2	380	140	7.9	7.2	3.3	3.6	9.0
6	3.5	3.7	3.6	8.4	5.0	200	232	7.9	10	4.0	4.6	7.4
7	3.7	3.7	3.4	8.4	30	130	182	7.4	7.9	*3.6	4.6	47
8	*4.2	3.7	3.3	10	*72	103	108	7.4	6.0	3.1	14	30
9	4.0	3.7	3.2	9.0	90	117	90	8.4	4.6	3.5	18	70
10	4.0	3.7	3.3	8.0	130	59	63	7.2	4.0	2.9	10	156
11	4.5	4.0	5.0	7.2	120	38	118	6.5	*3.8	2.7	*8.2	88
12	4.7	4.5	5.4	6.8	100	29	105	6.0	3.6	2.7	6.0	42
13	5.1	3.7	5.6	6.4	70	27	53	6.0	3.6	4.2	4.4	21
14	5.1	3.7	5.0	5.6	36	32	34	5.6	3.6	3.8	3.8	16
15	5.4	8.2	4.5	*5.0	20	27	78	5.4	3.6	2.9	4.6	*12
16	5.2	7.2	5.0	4.6	25	26	53	5.8	3.6	16	5.6	9.0
17	4.9	4.3	4.4	4.2	19	22	44	5.2	3.6	7.2	21	7.9
18	4.3	3.8	3.8	3.8	21	16	41	5.2	3.6	4.6	25	8.6
19	4.0	3.8	3.4	3.5	16	13	27	5.2	3.5	3.6	21	9.2
20	3.8	3.7	3.2	3.3	35	11	21	5.2	3.3	3.3	13	27
21	3.6	3.5	3.4	3.5	80	10	17	5.6	3.5	3.3	9.2	56
22	3.5	3.6	3.8	10	30	9.2	14	5.6	4.0	3.3	5.8	62
23	3.9	4.0	4.0	24	20	8.8	12	19	3.6	2.9	4.8	*56
24	4.2	4.2	4.0	12	15	*8.4	13	13	3.5	2.9	4.4	30
25	4.1	4.0	3.7	7.0	11	8.0	46	8.7	3.3	2.7	6.2	20
26	3.9	3.8	3.4	6.6	9.0	78	102	8.7	3.3	2.6	*12	12
27	4.2	4.2	3.2	5.4	8.0	7.6	*45	6.2	3.3	*2.6	10	9.8
28	4.0	23	3.1	4.6	7.0	8.0	27	5.4	3.1	2.7	8.4	10
29	3.8	12	3.0	4.0	------	20	19	5.0	3.3	2.7	6.2	9.5
30	3.7	7.0	3.0	3.7	------	67	14	4.2	3.5	2.9	5.2	17
31	4.3	------	3.4	3.5	------	203	------	4.2	------	4.0	5.6	------
Total	127.6	158.2	122.1	291.2	985.4	2,202.8	2,481	228.6	127.7	116.4	261.1	864.7
Mean	4.12	5.27	3.94	9.39	35.2	71.1	82.7	7.37	4.26	3.75	8.42	28.8
Cfsm	0.165	0.211	0.158	0.376	1.41	2.84	3.31	0.295	0.170	0.150	0.337	1.15
In.	0.19	0.24	0.18	0.43	1.47	3.28	3.69	0.34	0.19	0.17	0.39	1.29

Calendar year 1964: Max 215 Min 0.5 Mean 8.03 Cfsm 0.321 In. 4.37
Water year 1964-65: Max 380 Min 2.6 Mean 21.8 Cfsm 0.872 In. 11.86

Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 2	0200	5.60	332	4-2	2100	5.55	320
3- 5	0100	6.20	480	4-6	2100	5.37	278
3-31	2000	5.70	356	9-9	2000	5.81	207

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21, 22, 30, Dec. 4 to Mar. 1, Mar. 17-28. No gage-height record Oct. 19 to Nov. 3. Shifting-control method used Oct. 1-18, Nov. 4-20, 23-29, Dec. 1-3, July 6 to Sept. 13, Sept. 20-30.

4-872.2 Root River near Franklin, Wis.

Location.--Lat 42°52'25", long 87°59'45", in SE 1/4 sec. 22, T. 5 N., R. 21 E., on right bank 400 ft upstream from State Highway 100, 2.1 miles upstream from Root River Canal, 2.4 miles southeast of Franklin, 5 1/2 miles southeast of Hales Corners and about 24 miles upstream from mouth.

Drainage area.--49.3 sq mi.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 674.5 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 1,600 cfs Mar. 5 (gage height, 8.43 ft backwater from ice); minimum, 1.7 cfs July 11 (gage height 1.76 ft).

1963-65: Maximum discharge that of Mar. 5, 1965; minimum daily, 1.4 cfs Dec. 30, 31, 1963.

Flood of Mar. 30, 1960, reached a stage of 9.57 ft (discharge, 5,130 cfs, from rating curve extended above 1,400 cfs on basis of contracted-opening measurement of peak-flow).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge in cubic feet per second) (Shifting-control method used Oct. 16 to Nov. 12, Aug. 4-19, Sept. 7-12, 20-30)

1.7	1.8	2.0	13	6.0	350
1.8	3.4	5.0	212	6.5	498
1.9	7.2	5.5	267	7.0	760

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	3.2	6.0	90	7.2	150	520	29	12	2.8	3.4	10
2	4.2	3.4	*5.0	120	6.4	*550	360	27	18	2.4	3.4	7.8
3	2.4	7.8	4.5	60	5.8	280	420	23	14	2.6	2.6	7.2
4	2.4	*6.4	4.1	26	5.4	200	228	20	12	2.8	11	7.2
5	2.6	4.5	3.8	18	5.0	*1,100	194	20	11	2.6	9.5	56
6	2.8	3.8	3.6	15	10	400	373	20	59	2.6	2.8	30
7	2.9	3.8	3.4	12	60	200	340	20	30	*3.4	2.6	79
8	*2.9	3.8	3.2	25	*230	150	170	20	17	4.2	132	231
9	3.1	4.2	3.1	32	200	180	151	20	10	2.9	*224	167
10	2.9	7.2	3.1	16	160	100	105	20	* 7.2	2.6	161	364
11	2.8	7.2	4.5	8.0	320	60	184	17	7.2	2.1	52	292
12	2.9	7.2	11	5.0	180	40	174	16	7.8	2.3	25	116
13	2.8	6.1	12	4.0	100	34	93	15	7.2	2.4	15	64
14	2.8	6.1	10	*3.4	60	30	67	17	8.4	4.9	13	*40
15	2.9	9.5	8.0	3.2	30	26	117	17	10	2.9	7.8	31
16	3.1	22	6.4	3.0	40	23	93	19	11	33	7.2	26
17	3.2	10	5.4	2.9	50	20	75	20	11	28	46	22
18	2.9	4.9	4.5	2.9	30	18	87	20	8.9	12	69	20
19	3.2	3.8	3.8	28	20	17	56	20	8.9	4.9	80	61
20	3.2	3.3	3.5	28	40	16	47	18	6.4	2.9	33	64
21	2.9	3.0	3.3	3.0	24	15	40	18	6.4	2.6	20	159
22	3.1	3.0	3.2	30	18	14	36	18	6.1	2.6	15	141
23	3.2	3.2	3.1	80	14	13	30	67	8.9	3.1	13	*150
24	3.1	3.4	3.5	60	12	*13	33	67	5.3	3.8	9.5	71
25	3.1	3.4	3.5	40	11	12	69	28	3.4	3.2	11	39
26	3.1	3.2	3.1	30	10	11	137	22	3.2	3.1	*36	28
27	3.1	3.4	2.8	24	11	11	67	20	2.9	*2.3	28	23
28	2.9	55	2.8	18	20	12	*47	15	2.9	2.4	15	22
29	3.1	25	3.7	14	------	15	38	13	2.9	2.3	10	20
30	3.1	14	5.8	11	------	80	32	11	2.9	2.6	8.9	35
31	3.1	------	8.0	8.4	------	200	------	10	------	2.8	11	------
Total	94.0	244.8	151.7	689.4	1,679.8	3,990	4,383	687	321.9	155.1	1,077.7	2,383.2
Mean	3.03	8.16	4.89	22.2	60.0	129	146	22.2	10.7	5.00	34.8	79.4
Cfsm	0.061	0.166	0.099	0.450	1.22	2.62	2.96	0.450	0.217	0.101	0.706	1.61
In.	0.07	0.18	0.11	0.52	1.27	3.01	3.31	0.52	0.24	0.12	0.81	1.80

Calendar year 1964: Max 680 Min 1.5 Mean 16.5 Cfsm 0.335 In. 4.53
Water year 1964-65: Max 1,100 Min 2.1 Mean 43.4 Cfsm 0.880 In. 11.96

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-11	-	-	450	4-11	1700	5.29	241
3- 5	-	-	1,600	8- 9	0300	5.71	255
4- 1	-	-	700	9- 8	1000	5.74	259
4- 7	0100	6.63	550	9-10	1900	6.74	459

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19-22, Nov. 29 to Apr. 3 (no gage-height record Feb. 13-24, Mar. 25-28).

4-872.33 Root River Canal near Franklin, Wis.

Location.--Lat 42°48'55", long 87°59'40", in SE 1/4 sec. 10, T. 4 N., R. 21 E., on right bank 10 ft downstream from highway bridge, 3.5 miles upstream from Root River, 5.5 miles southeast of intersection U. S. 45 and State 100 in Franklin, and 8.7 miles southeast of Hales Corners

Drainage area.--57.2 sq mi.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 670 ft (from topographic map).

Extremes.--Maximum discharge during year, 500 cfs Mar. 6 (gage height, 9.35 ft, backwater from ice); minimum, 1.2 cfs Oct. 13, 14, 20, 21, 28, Aug. 3, 15, 24; minimum gage height, 2.08 ft Nov. 10, 11.
1964-65: Maximum discharge, that of Mar. 6, 1965; minimum daily, 0.4 cfs (revised) Dec. 19, 1963, result of freeze-up.

Remarks.--Records fair except those for periods of ice effect and those after June 1 which are poor.

Revisions.--Revised figures of discharge in cubic feet per second, for water year 1964, superseding those published in 1964 report Surface Water Records of Wisconsin are given herein.

Day	Dec	Jan	July	Day	Dec	Jan	July	Day	Dec	Jan	July	Day	Dec	Jan	July
1	1.1	0.7	-	9	-	1.2	-	17	0.7	1.2	0.7	25	0.6	-	-
2	1.1	.8	-	10	-	1.0	-	18	-	1.4	-	26	.6	-	-
3	.9	.8	-	11	.9	.8	-	19	-	1.5	-	27	.9	-	-
4	.9	.9	-	12	1.0	.9	-	20	.5	2.2	-	28	1.0	1.6	-
5	1.0	1.0	-	13	1.1	1.0	-	21	.6	2.4	-	29	.8	1.4	-
6	1.1	1.0	-	14	1.1	.9	-	22	.7	-	-	30	.8	1.2	-
7	1.2	1.1	-	15	1.0	1.0	-	23	.7	-	-	31	.7	1.2	-
8	1.3	1.2	-	16	.9	1.1	0.8	24	.6	-	-				

Month	Cfs-day	Maximum	Minimum	Mean	Per square mile	Runoff in inches
December 1963	26.8	1.3	0.4	0.86	0.015	0.02
January 1964	49.3	4.4	0.7	1.59	0.028	0.03
July 1964	1,178.3	289	0.7	38.0	0.664	0.77
Water year 1963-64	2,858.5	289	0.4	7.81	0.137	1.85

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.7	6.0	7.0	5.8	260	440	36	3.5	5.5	2.5	4.8
2	1.8	1.6	*3.0	7.0	5.4	350	*376	31	4.1	5.4	1.7	4.1
3	1.7	1.6	2.7	6.0	5.2	260	435	25	4.4	5.0	1.5	2.5
4	1.6	*1.7	2.4	35	5.1	220	292	21	38	4.4	4.0	2.2
5	1.5	2.4	2.2	19	5.0	*450	225	21	4.1	3.6	6.8	5.9
6	1.4	2.4	2.1	13	5.8	430	303	20	25	30	4.4	11
7	1.4	2.2	2.0	11	40	350	278	18	24	*4.2	4.4	14
8	1.8	2.7	2.0	18	*190	220	199	16	12	5.2	5.4	83
9	*2.0	1.8	1.9	25	*180	210	249	15	8.5	4.0	*10	94
10	1.8	1.5	1.9	14	200	130	141	14	7.5	4.4	17	198
11	1.8	1.5	2.5	9.4	300	80	190	13	*7.3	4.4	10	200
12	1.6	1.8	6.0	6.6	200	74	191	12	7.7	4.4	4.4	158
13	1.4	2.2	7.0	5.0	130	66	130	10	7.7	4.2	2.5	110
14	1.2	2.4	6.0	*38	90	62	95	9.5	8.2	4.6	1.8	*72
15	1.4	3.0	5.0	3.4	64	50	134	9.0	8.7	4.4	1.5	34
16	1.5	7.5	4.2	3.0	80	42	118	8.7	9.0	5.0	1.4	21
17	1.6	8.5	3.4	2.7	90	34	90	7.7	9.5	10	1.8	16
18	1.6	6.3	2.8	2.5	64	30	75	7.0	9.8	12	2.8	19
19	1.4	5.0	2.3	2.4	46	26	63	6.1	10	5.9	7.7	20
20	1.3	3.6	2.1	2.3	36	23	52	5.0	9.8	3.8	4.2	124
21	1.3	2.8	2.0	2.3	28	21	45	4.6	9.5	2.9	3.4	187
22	1.5	2.4	2.2	14	24	18	38	4.6	9.5	2.8	3.5	194
23	1.6	2.1	2.5	50	22	17	36	6.8	9.8	3.4	1.6	*192
24	2.0	2.5	2.8	40	21	*16	40	9.5	9.8	2.7	1.3	138
25	2.0	3.0	2.4	30	20	15	68	7.0	9.2	2.5	1.6	76
26	1.8	3.2	2.2	22	20	15	174	6.8	7.7	2.2	*13	49
27	1.4	3.4	2.0	16	23	15	111	7.3	6.8	1.9	14	32
28	1.3	19	1.9	12	60	14	*75	5.4	4.6	*1.8	9.5	29
29	1.5	24	2.4	9.0	-----	15	56	4.6	4.4	1.8	3.4	23
30	1.6	14	4.0	7.2	------	80	44	3.8	6.3	1.9	2.2	23
31	1.6	------	5.0	6.2	-----	280	-----	3.5	----	2.5	2.4	------
Total	49.2	137.8	96.9	521.8	1,960.3	3,873	4,763	369.9	262.2	129.8	151.7	2,136.5
Mean	1.59	4.59	3.13	16.8	70.0	125	159	11.9	8.74	4.19	4.89	71.2
Cfsm	0.028	0.080	0.055	0.294	1.22	2.19	2.78	0.208	0.153	0.073	0.085	1.24
In.	0.03	0.09	0.06	0.34	1.27	2.52	3.10	0.24	0.17	0.08	0.10	1.39

Calendar year 1964: Max 289 Min 0.7 Mean 8.32 Cfsm 0.145 In. 1.97
Water year 1964:65: Max 450 Min 1.2 Mean 39.6 Cfsm 0.692 In. 9.39

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-11	-	-	330	4-26	0700	6.18	197
3- 6	-	-	500	9-11	0130	7.13	208
4- 1	0700	8.46	473	9-22	1430	6.98	199

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 19-28, Dec. 1 to Mar. 31 (no gage-height record Feb. 12-25).

4-872.4 Root River at Racine, Wis.

Location.--Lat 42°45'05", long 87°49'25", in NE 1/4 sec. 6, T. 3 N., R. 23 E., on left bank 30 ft downstream from State Highway 38 bridge in Racine, 350 ft downstream from Horlick Dam, and 5.2 miles upstream from mouth.

Drainage area.--187 sq mi.

Records available.--August 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 610 ft (from topographic map). Prior to Feb. 5, 1964, wire-weight gage on bridge 30 ft upstream.

Extremes.--Maximum discharge during year, 1,610 cfs Mar. 6 (gage height, 5.61 ft); maximum gage height, 5.87 ft Feb. 10 (ice jam); minimum discharge 3.0 cfs July 30 (gage height, 2.02 ft).
1963-65: Maximum discharge, that of Mar. 6, 1965; minimum daily, 1.3 cfs Oct. 12, Dec. 31, 1963, Jan. 1, 2, 1964.

Remarks.--Records good except those for periods of ice effect, which are fair, and those below 10 cfs, which are poor.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 9				Feb. 10 to Sept. 30					
2.0	4.1	2.3	16	2.0	2.6	2.4	23	3.5	290
2.1	6.2	2.5	37	2.1	4.8	2.7	59	4.0	554
2.2	9.8	2.7	71	2.2	9.0	3.0	118	5.4	1,460

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	5.7	35	11	30	200	823	121	20	5.6	4.4	21
2	11	6.2	*22	80	24	500	*1,110	100	21	6.1	4.4	20
3	7.7	6.7	15	150	20	900	1,120	91	22	5.2	5.6	17
4	7.3	6.7	10	120	17	986	1,210	80	23	5.6	19	16
5	7.7	*10	8.0	84	15	1,090	1,050	69	21	6.1	17	25
6	7.3	11	7.2	62	14	1,270	966	69	35	6.1	21	100
7	6.4	8.8	6.8	50	50	1,380	1,080	66	87	6.9	16	80
8	5.9	7.3	6.6	38	100	953	972	62	66	*6.9	17	123
9	*5.5	7.0	6.6	70	*210	790	661	64	44	6.5	74	286
10	5.2	6.7	6.5	60	600	674	524	64	*32	7.7	*176	560
11	4.8	6.4	7.0	50	719	507	478	62	30	7.3	176	542
12	5.0	7.0	9.0	40	758	371	548	56	24	6.5	89	610
13	5.2	7.7	12	32	706	244	566	52	23	6.5	45	536
14	5.2	7.3	20	*24	554	207	376	52	21	5.6	30	*261
15	5.2	9.3	18	20	407	193	331	52	18	4.6	31	151
16	5.2	11	13	17	322	160	402	51	17	6.9	18	109
17	4.8	15	10	14	261	145	336	58	18	14	21	86
18	5.0	21	8.4	12	261	110	304	58	18	44	35	73
19	4.5	13	7.6	11	233	80	265	52	17	28	74	68
20	4.3	10	7.0	10	210	66	233	48	16	19	82	111
21	4.7	8.4	6.6	10	180	56	167	39	14	12	52	299
22	4.7	7.3	6.5	14	140	48	151	33	13	7.7	35	397
23	4.7	7.0	6.4	50	100	42	134	38	12	6.5	26	478
24	4.8	6.7	6.8	60	70	38	126	64	10	4.8	21	*450
25	4.7	6.7	7.6	130	50	34	151	78	9.6	4.1	19	351
26	5.0	6.7	8.6	110	40	32	371	44	11	4.1	29	203
27	5.2	7.0	8.0	90	35	31	461	37	8.2	4.4	*55	145
28	5.2	17	7.2	70	40	30	*313	32	7.7	*4.4	49	118
29	5.5	39	6.8	56	------	40	197	30	6.9	3.9	31	109
30	6.2	67	6.8	46	------	*120	148	22	6.5	3.5	23	111
31	5.9	------	8.2	36	------	519	------	21	------	4.4	21	------
Total	186.8	356.6	315.2	1,627	6,166	11,816	15,574	1,765	671.9	264.9	1,316.4	6,456
Mean	6.03	11.9	10.2	52.5	220	381	519	56.9	22.4	8.55	42.5	215
Cfsm	0.032	0.064	0.055	0.281	1.18	2.04	2.78	0.304	0.120	0.046	0.227	1.15
In.	0.04	0.07	0.06	0.32	1.23	2.35	3.10	0.35	0.13	0.05	0.26	1.28

Calendar year 1964: Max 893 Min 1.3 Mean 35.5 Cfsm 0.190 In. 2.59
Water year 1964-65: Max 1,380 Min 3.5 Mean 127 Cfsm 0.679 In. 9.24

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-12	1200	4.45	842	4-27	0900	3.86	473
3- 6	2400	5.61	1,610	9-12	2000	4.13	635
4- 4	1200	5.15	1,300	9-23	1000	3.90	495

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 4 to Feb. 10, Feb. 21 to Mar. 3, Mar. 18-30.

5-3325. Namekagon River near Trego, Wis.

Location.--Lat 45°56'50", long 91°53'15", in SW 1/4 sec. 17, T. 40 N., R. 12 W., at powerplant of the Northern States Power Co., 4 miles downstream from Potato Creek and 5 miles northwest of Trego.

Drainage area.--503 sq mi.

Records available.--October 1927 to September 1965.

Gage.--Headwater and tailwater gages read hourly.

Average discharge.--38 years, 464 cfs.

Extremes.--Maximum daily discharge during year, 1,640 cfs Apr. 13; minimum daily, 183 cfs Nov. 21.
1927-65: Maximum daily discharge, 5,200 cfs Sept. 2, 1941; minimum daily, 113 cfs Aug. 17, Sept. 7, 1930.

Remarks.--Records good. Discharge computed from powerplant records on basis of ratings developed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	446	323	249	260	253	359	281	825	692	400	390	364
2	405	323	294	277	261	328	290	749	688	434	415	332
3	385	311	289	284	268	347	307	712	631	372	393	322
4	342	366	271	284	271	308	328	740	604	392	368	320
5	385	366	256	284	272	304	334	684	614	392	376	340
6	291	311	240	307	285	351	400	691	590	402	380	332
7	406	337	228	311	275	352	436	1,040	604	426	487	337
8	424	309	249	298	271	320	552	1,120	609	444	471	342
9	409	314	264	296	271	327	503	1,130	676	489	491	325
10	360	310	272	276	275	336	556	1,200	682	563	467	305
11	*324	331	284	270	262	323	650	1,100	605	488	500	319
12	338	339	304	263	271	314	1,280	1,050	540	470	423	329
13	338	326	295	263	262	308	1,640	957	561	475	423	351
14	334	347	287	268	259	321	1,590	680	491	491	363	345
15	328	341	255	266	273	317	1,490	855	495	460	356	444
16	324	315	260	252	276	307	*1,560	965	511	458	370	411
17	353	335	273	255	275	282	1,500	956	475	525	353	438
18	332	328	263	258	275	290	1,430	967	439	497	340	516
19	332	346	277	267	275	288	1,350	990	439	505	338	590
20	313	205	252	264	276	278	1,240	937	423	405	335	606
21	316	183	283	262	281	278	1,230	940	471	446	369	624
22	320	241	275	274	296	297	949	903	405	435	299	394
23	327	358	252	282	287	287	1,150	974	405	421	336	591
24	323	312	264	272	296	294	1,230	956	428	377	340	512
25	333	321	270	264	287	303	1,160	847	413	366	355	493
26	316	303	265	252	274	291	1,110	854	451	366	371	490
27	318	298	273	280	258	299	1,010	840	446	391	373	528
28	314	305	289	274	254	306	935	807	446	377	344	546
29	285	276	288	250	----	284	849	788	417	372	343	533
30	327	258	284	277	----	291	830	810	417	367	399	607
31	327	----	273	270	----	337	----	704	----	408	374	----
Total	10,675	9,338	8,378	8,460	7,639	9,627	28,170	27,771	15,668	13,414	11,942	12,986
Mean	344	311	270	273	273	311	939	896	522	433	385	433
Cfsm	0.684	0.618	0.537	0.543	0.543	0.618	1.87	1.78	1.04	0.861	0.765	0.861
In.	0.79	0.69	0.62	0.63	0.56	0.71	2.08	2.05	1.16	0.99	0.88	0.96

Calendar year 1964: Max 1,280 Min 183 Mean 375 Cfsm 0.746 In. 10.16
Water year 1964-65: Max 1,640 Min 183 Mean 450 Cfsm 0.895 In. 12.12

*Discharge measurement made on this day.

5-3335. St. Croix River near Danbury, Wis.

Location.--Lat 46°04'30", long 92°14'50", in sec. 33, T. 42 N., R. 15 W., on left bank at downstream side of bridge on State Highway 35, 3.5 miles downstream from Namekagon River, 10 miles northeast of Danbury, and at mile 129.2.

Drainage area.--1,588 sq mi.

Records available.--March 1914 to September 1965. Prior to October 1933 published as "at Swiss".

Gage.--Water-stage recorder. Datum of gage is 882.21 ft above mean sea level, datum of 1929. Prior to Apr. 23, 1937, staff or chain gage at old highway bridge 40 ft downstream at same datum. Apr. 23, 1937, to Jan. 5, 1939; chain gage at present site and datum.

Average discharge.--51 years, 1,278 cfs.

Extremes.--Maximum discharge during year, 6,460 cfs Apr. 19 (gage height, 5.74 ft); maximum gage height, 6.92 ft Apr. 15 (backwater from ice); minimum daily discharge 540 cfs Nov. 22.
1914-65: Maximum discharge, 10,200 cfs May 6, 1950 (gage height, 8.22 ft); minimum observed, 393 cfs Aug. 6, 13, 1934 (gage height, -0.20 ft, site then in use).

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.2	530	3.0	3,010
.5	700	4.0	4,130
1.0	1,060	5.0	5,440
2.0	1,940	5.7	6,400

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,020	788	660	770	700	720	940	2,180	1,720	948	1,040	948
2	1,000	742	680	760	700	780	960	2,330	1,730	980	1,000	865
3	948	742	700	740	*710	840	1,000	2,210	1,690	1,110	948	809
4	932	748	700	720	710	860	1,040	1,840	1,570	1,080	916	858
5	879	754	660	*700	700	880	1,100	1,630	1,560	1,000	865	886
6	908	754	650	720	690	*890	1,180	*1,620	1,700	1,040	*908	767
7	851	*760	640	730	680	880	1,280	2,180	1,620	1,020	1,410	*767
8	900	774	630	740	680	860	1,380	3,000	1,770	1,200	1,500	*774
9	*886	767	640	720	680	840	1,400	3,640	1,690	1,380	1,260	*781
10	900	774	650	740	680	820	1,420	3,950	1,810	1,380	1,330	*781
11	837	816	700	730	*680	800	1,800	3,930	1,690	1,290	1,160	802
12	823	886	740	720	680	*790	2,400	3,750	1,580	1,110	1,050	823
13	865	1,040	750	730	670	780	3,800	3,430	1,450	1,420	1,020	872
14	872	996	720	730	660	770	4,500	3,030	1,290	1,330	980	956
15	767	988	*700	730	660	760	5,000	2,450	*1,200	1,160	908	1,170
16	754	996	680	730	670	750	5,600	2,690	1,130	1,180	879	1,210
17	754	972	660	740	680	740	6,000	2,800	1,070	1,260	886	1,260
18	767	900	660	*770	*690	740	6,160	2,540	1,020	1,290	858	1,360
19	742	851	670	750	700	750	*6,360	2,480	1,010	1,200	760	1,510
20	760	700	680	740	710	*770	6,350	2,590	1,010	1,140	760	1,620
21	837	600	*720	730	720	770	5,940	2,620	1,000	*1,070	823	1,540
22	781	540	720	720	730	780	5,600	2,490	1,010	1,110	795	1,720
23	767	660	720	720	740	790	5,070	2,440	964	1,010	795	1,570
24	795	840	730	710	*750	800	4,680	2,460	964	1,000	823	1,460
25	774	800	740	720	720	810	4,120	2,640	956	932	900	1,450
26	754	760	730	*740	690	820	3,870	2,600	972	886	996	1,480
27	788	740	720	720	680	840	3,680	2,450	1,040	893	1,000	1,280
28	748	700	720	700	680	860	3,300	2,160	1,120	844	1,020	*1,290
29	748	640	740	680	-------	900	2,720	1,930	1,200	781	1,000	1,440
30	736	640	*800	690	-------	*930	2,200	1,850	1,040	837	980	1,800
31	774	-------	780	700	-------	940	-------	1,800	-------	1,040	1,010	-------
Total	25,667	23,668	21,690	22,540	19,440	25,260	100,850	79,710	39,776	33,921	30,580	34,849
Mean	828	789	700	727	694	815	3,362	2,571	1,326	1,094	986	1,162
Cfsm	0.521	0.497	0.441	0.458	0.437	0.513	2.12	1.62	0.835	0.689	0.621	0.732
In.	0.60	0.55	0.51	0.53	0.46	0.59	2.36	1.87	0.93	0.79	0.72	0.82

Calendar year 1964: Max 4,500 Min 540 Mean 992 Cfsm 0.625 In. 8.51
Water year 1964-65: Max 6,360 Min 540 Mean 1,255 Cfsm 0.790 In. 10.73

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-19	1900-2400	5.74	6,460	5-10	1200	3.88	3,990

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20 to Apr. 17.

5-3340. Shell Lake at Shell Lake, Wis.

Location.--Lat 45°44'40", long 91°55'05", in NE 1/4 sec. 25, T. 38 N., R. 13 W., attached to post in bed of lake near Petersons Boat House in the village of Shell Lake.

Drainage area.--34 sq mi, approximately. Area of Shell Lake, 3,200 acres.

Records available.--August 1936 to September 1965 (fragmentary).

Gage.--Staff gage read weekly except during winter. Datum of gage is 1,215.88 ft above mean sea level, datum of 1929. May 3, 1952, to Apr. 21, 1961, staff gage 2.3 miles southeast of village of Shell Lake at same datum.

Extremes.--Maximum gage height observed during year, 1.92 ft May 29, June 8; minimum observed, -0.14 ft Dec. 20.
1936-65: Maximum gage height observed, 5.13 ft July 17, 1954; minimum observed, -0.92 ft Nov. 28, 1949.

Remarks.--Lake has no surface outlet. Lake free of ice May 5.

Gage height, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												
2												
3	0.16									1.64		
4											•	1.14
5							-0.04		1.86			
6		-0.06						1.52				
7											1.56	
8								1.66	1.92			
9												
10	.10									1.72		
11												1.06
12									1.88			
13												
14		- .04									1.46	
15								1.74				
16												
17	.00				-0.12					1.76		
18												1.20
19									1.74			
20				-0.14						1.70		
21											1.30	
22								1.90				
23												
24	- .06									1.66	1.25	
25												1.26
26									1.68			
27												
28											1.26	
29								1.92				1.26
30					---							
31	- .10	---			---		---		---	1.62		---

5-3360. St. Croix River near Grantsburg, Wis.

Location.--Lat 45°55'25", long 92°38'20", near center of sec. 30, T. 40 N., R. 18 W., on left bank at Norway Point, 0.5 mile downstream from Sand Creek, 10 miles north of Grantsburg, and at mile 102.4.

Drainage area.--2,820 sq mi, approximately.

Records available.--April 1923 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 848.98 ft above mean sea level, adjustment of 1912 (levels by Northern States Power Co.). Prior to Aug. 15, 1934, chain gage and Aug. 15, 1934, to Oct. 21, 1938, staff gage, in stilling well at same site and datum.

Average discharge.--42 years, 2,288 cfs.

Extremes.--Maximum discharge during year, 16,800 cfs Apr. 18 (gage height, 12.64 ft); maximum gage height, 13.01 ft Apr. 16 (backwater from ice); minimum daily discharge, 1,000 cfs Nov. 23 (backwater from ice).
1923-65: Maximum discharge, 26,300 cfs May 7, 1950 (gage height, 15.06 ft); minimum, 510 cfs Aug. 14, 17, 1934.

Remarks.--Records good except those for period of ice effect, which are fair. Diurnal fluctuation caused by powerplants above station.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-15)

3.7	1,120	7.0	4,840
4.0	1,360	8.0	6,310
5.0	2,280	10.0	9,670
6.0	3,460	12.5	16,400

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,760	1,320	1,120	1,220	1,100	1,120	1,420	4,830	3,210	1,660	1,730	1,610
2	1,550	1,350	1,140	1,220	1,100	1,180	1,460	4,490	3,260	1,660	1,610	1,500
3	1,530	1,300	1,160	1,200	1,100	1,240	1,500	4,340	3,260	1,700	1,590	1,360
4	1,380	1,330	1,140	1,200	1,100	1,300	1,600	4,010	3,170	1,870	1,520	1,350
5	1,380	1,420	1,100	1,180	1,100	1,340	1,700	*3,370	3,160	1,830	1,500	1,340
6	1,390	*1,420	1,080	1,180	1,080	1,360	1,760	3,830	3,170	1,770	1,520	1,310
7	1,400	1,400	1,060	1,160	1,080	1,380	1,800	5,080	3,340	1,760	1,640	1,270
8	1,380	1,360	1,080	1,160	1,080	1,380	2,000	6,310	3,520	1,870	2,020	1,320
9	*1,480	1,350	1,100	1,160	1,100	1,360	2,200	7,100	4,210	2,010	2,000	1,330
10	1,340	1,340	1,120	1,140	1,100	1,360	2,300	7,790	4,380	2,170	1,810	1,340
11	1,260	1,390	1,120	1,140	1,080	1,340	2,600	8,300	3,860	2,220	1,900	1,320
12	1,300	1,530	1,140	1,140	1,060	1,340	3,800	8,020	3,210	2,050	1,660	1,340
13	1,350	1,600	1,140	1,140	1,060	1,320	5,400	7,290	2,820	2,210	1,530	1,380
14	1,340	1,720	1,140	1,140	1,060	1,300	9,000	6,460	2,490	2,400	1,430	1,480
15	1,300	1,640	*1,140	1,140	1,060	1,300	11,600	5,620	*2,330	2,220	1,420	1,770
16	1,280	1,660	1,160	1,120	1,080	1,280	12,000	4,950	2,120	2,270	1,380	2,080
17	1,240	1,660	1,160	1,120	*1,090	1,280	14,000	4,640	1,950	2,260	1,340	2,110
18	1,230	1,580	1,140	1,120	1,090	1,260	16,400	4,840	1,810	2,270	1,320	2,170
19	1,290	1,530	1,140	1,120	1,090	1,260	15,700	4,730	1,680	2,210	1,260	2,310
20	1,280	1,400	1,160	*1,120	1,090	1,260	15,700	4,590	1,650	*2,100	1,180	2,530
21	1,310	1,240	1,180	1,120	1,100	1,260	15,200	4,550	1,680	2,010	1,220	2,580
22	1,330	1,100	1,180	1,120	1,120	1,260	14,200	4,480	1,650	1,870	1,250	2,690
23	1,320	1,000	1,160	1,120	1,120	1,260	12,900	4,170	1,600	1,730	1,200	2,830
24	1,310	1,200	1,140	1,120	1,120	1,260	11,500	4,070	1,540	1,660	*1,140	2,700
25	1,320	1,400	1,140	1,120	1,100	1,280	10,200	4,390	1,560	1,570	1,260	2,560
26	1,320	1,340	1,140	1,100	1,080	1,300	9,140	4,600	1,590	1,500	1,430	2,440
27	1,300	1,260	1,160	1,100	1,060	1,320	8,170	4,530	1,650	1,430	1,580	2,440
28	1,330	1,180	1,160	1,100	1,080	1,340	7,350	4,220	1,740	1,380	1,660	*2,290
29	1,310	1,140	1,180	1,100	----------	1,360	6,610	3,690	1,870	1,280	1,590	2,520
30	1,300	1,100	1,200	1,100	----------	1,380	5,680	3,260	1,850	1,320	1,640	3,420
31	1,330	----------	1,220	1,100	----------	1,400	----------	3,120	----------	1,550	1,710	----------
Total	41,940	41,260	35,400	35,320	30,480	40,380	224,890	155,670	75,330	57,810	47,040	58,690
Mean	1,353	1,375	1,142	1,139	1,089	1,303	7,496	5,022	2,511	1,865	1,517	1,956
Cfsm	0.480	0.488	0.405	0.404	0.386	0.462	2.66	1.78	0.890	0.661	0.538	0.694
In.	0.55	0.54	0.47	0.47	0.40	0.53	2.97	2.05	0.99	0.76	0.62	0.77

Calendar year 1964: Max 11,400 Min 768 Mean 1,759 Cfsm 0.624 In. 8.46
Water year 1964-65: Max 16,400 Min 1,000 Mean 2,313 Cfsm 0.820 In. 11.12

*Discharge measurement made on this day.
Note.--Stage-discharge relationship affected by ice Nov. 20 to Apr. 17.

5-3385. Snake River near Pine City, Minn.

Location.--Lat 45°50'30", long 92°56'00", in SE 1/4 NW 1/4 sec. 26, T. 39 N., R. 21 W., on left bank at site of former powerplant and dam, half a mile downstream from Cross Lake and 1 1/2 miles northeast of Pine City.

Drainage area.--958 sq mi.

Records available.--June 1913 to September 1917, July 1951 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 919.00 ft above mean sea level, datum of 1929. June 25, 1913, to Sept. 30, 1917, staff gage at site 500 ft downstream at different datum. July 1 to Oct. 28, 1951, staff gage at present site and datum.

Average discharge.--18 years, 541 cfs.

Extremes.--Maximum discharge during year, 11,500 cfs Apr. 18 (gage height, 9.56 ft); minimum, 5.5 cfs Oct. 1 (gage height, 2.57 ft). 1913-17, 1951-65: Maximum discharge, that of April 18, 1965; minimum discharge, 5.5 cfs Oct. 1, 1964 (gage height, 2.57 ft). A discharge measurement of 12,500 cfs was made May 9, 1950.

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

Rating table, water year 1964-65, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.9	34	5.0	1,870
3.0	56	6.0	3,290
3.2	133	7.0	5,160
3.4	239	9.0	10,000
3.6	369	9.6	11,600
4.0	729		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	171	99	*72	55	*88	63	60	3,740	1,300	200	205	200
2	40	107	71	54	88	63	60	3,190	1,180	289	*205	*183
3	63	112	70	54	86	62	65	2,720	1,180	251	211	183
4	70	124	68	54	80	62	65	2,330	1,250	228	222	168
5	73	112	67	*54	76	62	65	2,060	1,480	183	217	173
6	76	103	65	54	72	62	80	1,940	1,750	173	251	129
7	80	103	64	54	70	61	95	2,000	1,960	*183	245	133
8	*87	103	64	54	69	61	120	1,980	*2,310	194	239	124
9	87	103	63	54	68	61	160	2,270	2,460	217	222	129
10	90	99	64	55	67	61	250	2,420	2,660	200	194	124
11	99	133	65	55	66	61	630	2,460	2,880	183	178	94
12	116	158	65	55	66	61	1,350	2,420	2,990	205	158	103
13	124	148	64	56	66	61	*2,460	2,310	2,930	810	133	120
14	133	133	64	56	65	62	4,400	2,150	2,680	1,120	133	153
15	133	132	63	56	64	62	*6,680	1,980	2,340	1,140	107	239
16	138	138	61	57	64	*62	9,620	1,810	1,920	951	99	315
17	148	141	59	57	65	62	10,900	1,620	1,540	792	99	447
18	148	135	58	57	65	62	11,300	1,620	1,200	610	80	517
19	75	120	57	58	65	62	*11,200	1,500	940	482	73	563
20	48	102	56	58	65	62	10,900	1,390	750	408	66	573
21	77	95	56	60	66	62	10,700	1,300	582	342	56	573
22	80	91	55	61	65	61	10,500	1,160	456	301	56	591
23	90	88	54	62	65	61	10,200	1,090	392	264	56	591
24	87	86	54	64	65	61	9,550	1,110	315	239	51	582
25	99	83	54	67	65	61	8,660	1,210	282	200	124	544
26	87	82	54	68	65	61	7,670	1,370	245	168	153	509
27	94	80	54	72	64	61	6,580	1,530	251	153	178	465
28	94	78	55	74	64	61	5,680	1,590	264	129	158	439
29	*94	74	55	76	---	61	*4,940	1,600	205	116	158	439
30	90	73	55	80	---	60	4,320	1,540	189	138	189	936
31	90	---	55	85	---	60	---	1,410	---	194	217	---
Total	2,981	3,235	1,881	1,876	1,934	1,905	149,260	58,820	40,881	11,063	4,733	10,339
Mean	96.2	108	60.7	60.5	69.1	61.5	4,975	1,897	1,363	357	153	345
Cfsm	0.100	0.113	0.063	0.063	0.072	0.064	5.19	1.98	1.42	0.373	0.160	0.360
In.	0.12	0.13	0.07	0.07	0.08	0.07	5.79	2.28	1.59	0.43	0.18	0.40

Calendar year 1964: Max 6,680 Min 40 Mean 441 Cfsm 0.460 In. 6.27
Water year 1964-65: Max 11,300 Min 40 Mean 792 Cfsm 0.827 In. 11.21

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15 to April 11.

5-3405. St. Croix River at St. Croix Falls, Wis.

Location.--Lat 45°24'30", long 92°38'45", in NW 1/4 sec. 30, T. 34 N., R. 18 W., on left bank 1,800 ft downstream from powerplant of Northern States Power Co., in St. Croix Falls, and at mile 52.2.

Drainage area.--5,930 sq mi, approximately.

Records available.--January 1902 to September 1965 in reports of Geological Survey. Prior to January 1910, monthly discharge only, published in WSP 1308. Prior to October 1939, published as "near St. Croix Falls."

Gage.--Digital water-stage recorder. Datum of gage is 690.47 ft above mean sea level, adjustment of 1912. Prior to July 1905, gage heights and discharge measurements were used to determine flow. July 1905 to February 1940, records were computed from power generation at the St. Croix Falls powerplant 1,800 ft upstream. Mar. 16, 1940, to Nov. 30, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--63 years, 4,030 cfs.

Extremes.--Maximum discharge during year, 45,700 cfs Apr. 18 (gage height, 20.98 ft); minimum, daily 1,020 cfs Nov. 21.
1902-65: Maximum discharge 54,900 cfs May 8, 1950 (gage height, 25.19 ft); minimum daily, 75 cfs July 17, 1910.

Remarks.--Records good. Flow regulated by powerplant upstream.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	926	7.0	14,100
2.2	1,840	11.0	23,100
3.0	3,800	15.0	32,100
4.0	6,950	21.0	45,700

1790

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3,240	1,910	1,640	1,740	1,850	2,100	1,890	15,200	7,370	3,190	2,780	2,680
2	3,180	1,890	1,700	1,710	1,700	1,550	2,130	13,800	8,360	2,880	2,700	2,420
3	2,690	2,090	1,640	1,920	1,600	1,800	1,760	12,100	8,990	2,950	2,660	2,500
4	2,530	1,980	1,900	2,000	1,500	1,750	1,840	9,620	8,760	2,900	2,540	1,820
5	2,490	2,000	1,700	1,730	1,640	2,060	2,090	8,960	9,260	3,040	2,710	2,270
6	2,280	1,980	1,400	1,870	1,600	2,040	4,030	9,830	9,990	3,020	2,340	1,800
7	2,510	2,090	1,800	1,730	1,410	2,020	3,370	14,200	11,900	2,820	2,810	2,060
8	2,620	2,080	1,840	1,740	1,600	2,140	4,250	16,000	14,100	2,960	2,950	2,130
9	2,280	1,970	1,860	1,810	1,700	2,040	4,710	16,500	14,700	3,480	3,250	1,990
10	2,170	2,040	1,920	1,730	1,580	2,080	7,030	17,500	16,200	3,040	3,210	1,770
11	2,350	2,120	1,900	1,900	1,790	2,100	11,400	17,400	14,800	3,360	2,880	1,880
12	2,240	2,300	2,000	1,670	1,660	2,060	17,100	17,200	12,700	3,360	2,820	1,820
13	1,920	2,800	1,800	1,740	1,620	2,000	19,300	15,900	10,800	4,310	2,750	2,300
14	2,340	2,780	2,100	1,760	1,720	1,900	25,000	14,200	9,400	4,920	2,170	2,120
15	2,340	2,680	1,850	1,810	1,740	2,020	34,400	12,900	8,010	4,810	2,260	2,700
16	2,390	2,580	1,600	1,510	1,400	2,050	40,500	11,700	7,280	4,360	1,830	3,210
17	1,990	2,950	1,690	1,690	1,740	2,000	43,500	10,200	5,820	4,580	1,930	3,940
18	1,720	2,520	1,490	1,800	1,800	1,910	45,100	10,600	5,090	4,040	1,980	3,830
19	2,270	2,500	1,420	1,580	1,900	2,140	44,400	10,500	4,360	3,840	1,870	4,190
20	1,770	1,900	1,660	2,060	1,390	1,850	*43,400	9,600	3,840	3,710	1,840	4,360
21	1,900	1,020	2,080	1,440	1,850	1,870	42,900	9,110	3,980	3,470	1,700	4,710
22	1,980	1,200	1,580	1,740	1,820	1,870	41,100	8,970	3,330	3,380	1,810	3,950
23	2,060	1,800	1,750	1,650	1,780	1,930	38,400	8,760	3,520	2,780	1,710	4,910
24	1,730	2,400	1,740	1,730	1,760	1,910	35,500	8,570	3,360	2,840	1,720	4,850
25	1,380	2,800	1,700	1,580	1,770	1,850	32,400	8,980	3,100	2,690	1,870	4,700
26	2,090	2,400	1,690	1,820	1,790	1,960	29,700	9,430	2,640	2,280	2,070	4,210
27	1,960	2,000	1,810	1,760	1,660	1,850	26,300	9,640	2,690	2,420	2,410	4,140
28	2,590	1,800	1,500	1,740	1,660	2,080	23,100	9,160	3,110	2,330	2,450	4,010
29	2,040	1,300	1,640	1,490	------	2,000	20,300	8,510	3,060	2,020	2,480	4,030
30	1,780	2,000	1,780	1,720	------	1,880	17,800	7,780	3,110	1,870	2,560	5,190
31	2,140	------	1,810	1,600	------	1,860	------	7,300	------	2,510	2,770	------
TOTAL	69,470	63,380	54,490	53,320	47,050	60,670	664,700	360,120	223,810	100,160	73,830	96,490
MEAN	2,241	2,129	1,758	1,736	1,680	1,957	22,160	11,620	7,460	3,231	2,382	3,216
CFSM	.378	.359	.297	.293	.283	.330	3.74	1.96	1.26	.545	.402	.542
IN	.44	.40	.34	.34	.30	.38	4.17	2.26	1.40	.63	.46	.61

CALENDAR YEAR 1964 MAX 27,000 MIN 1,000 MEAN 3,383 CFSM .571 INCHES 7.77
WATER YEAR 1964-65 MAX 45,100 MIN 1,020 MEAN 5,119 CFSM .863 INCHES 11.72

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 19, 28, Jan. 28, Jan. 30 to Feb. 6, Feb. 9, 12-15, 17-19, 23, Mar. 30, 31.

5-3415. Apple River near Somerset, Wis.

Location.--Lat 45°09'30", long 92°43'00", in sec. 21, T. 31 N., R. 19 W., at powerplant of Northern States Power Co., 3.5 miles downstream from Somerset.

Drainage area.--555 sq mi.

Records available.--January 1901 to September 1914 (monthly discharge only), October 1914 to September 1965.

Gage.--Headwater and tailwater gages read hourly.

Average discharge.--64 years, 304 cfs.

Extremes.--Maximum daily discharge during year, 2,510 cfs Apr. 13; minimum daily, 85 cfs Oct. 26.
1901-65: Maximum daily discharge, that of Apr. 13, 1965; minimum daily, 7 cfs Aug. 21, 1927, Sept. 30, 1929, July 19, 1932, Aug. 2, 3, 1933.

Remarks.--Records good except those below 100 cfs, which are fair. Records of daily discharge computed on basis of gate openings, head, and plant efficiency. Flow regulated by many powerplants upstream.

Cooperation.--Records of daily discharge furnished by Northern States Power Co.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	340	275	160	230	155	160	290	967	390	260	325	160
2	295	110	210	225	130	255	288	665	595	391	235	200
3	310	210	240	240	135	310	341	455	649	327	355	228
4	275	200	254	150	175	325	445	320	700	320	330	219
5	215	220	240	235	185	323	470	565	581	315	265	230
6	150	242	145	230	220	310	395	530	480	275	279	200
7	215	210	190	255	200	325	740	537	510	295	240	200
8	210	275	230	240	145	235	1,060	644	485	270	370	190
9	239	105	185	180	160	265	1,220	710	465	384	160	185
10	255	145	210	185	160	315	1,470	870	475	315	345	179
11	245	200	243	160	160	295	1,590	645	349	470	280	205
12	115	190	215	175	155	287	2,040	650	380	460	240	195
13	275	242	255	155	175	320	2,510	635	430	340	203	178
14	115	295	155	170	215	370	2,500	521	360	305	200	222
15	225	295	140	175	150	310	2,470	387	480	295	200	220
16	228	120	180	215	150	300	2,450	530	345	263	210	205
17	235	190	195	225	160	260	2,480	685	410	255	225	229
18	250	290	195	165	190	275	2,480	470	250	395	220	233
19	125	275	210	140	180	267	2,480	490	315	320	205	340
20	175	265	200	170	215	260	1,540	505	300	400	241	455
21	220	200	155	165	250	325	1,280	478	335	220	220	420
22	205	180	185	195	140	225	1,250	650	260	265	250	490
23	230	210	165	215	200	280	1,260	690	330	244	210	481
24	275	195	225	240	200	265	1,120	485	350	250	205	475
25	295	200	205	130	265	305	1,020	340	508	295	190	430
26	85	280	200	140	190	266	1,050	475	377	210	205	430
27	210	185	180	145	200	300	1,040	635	315	300	204	415
28	210	195	140	135	220	295	1,040	635	235	255	205	460
29	200	225	160	160	-------	195	740	616	285	205	220	410
30	241	95	210	150	-------	255	984	518	250	218	190	375
31	235	-------	245	165	-------	285	-------	360	-------	230	225	-------
Total	6,899	6,319	6,122	5,760	5,080	8,763	40,043	17,663	12,190	9,347	7,452	8,859
Mean	223	211	197	186	181	283	1,335	570	406	302	240	295
Cfsm	0.402	0.380	0.355	0.335	0.326	0.510	2.41	1.03	0.732	0.544	0.432	0.532
In.	0.46	0.42	0.41	0.39	0.34	0.59	2.68	1.18	0.82	0.63	0.50	0.59

Calendar year 1964: Max 860 Min 80 Mean 249 Cfsm 0.449 In. 6.09
Water year 1964-65: Max 2,510 Min 85 Mean 368 Cfsm 0.663 In. 9.01

5-3445. Mississippi River at Prescott, Wis.

Location.--Lat 44°44'45", long 92°48'00", in sec. 9, T. 26 N., R. 20 W., on left bank at Prescott, 200 ft downstream from St. Croix River, 300 ft south of Chicago, Burlington & Quincy Railroad bridge, 800 ft south of bridge on U. S. Highway 10, and at mile 811.4 upstream from Ohio River.

Drainage area.--44,800 sq mi, approximately.

Records available.--June 1928 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 600.00 ft above mean sea level; adjustment of 1912 (levels by Corps of Engineers). Prior to Aug. 2, 1932, staff gage at railroad bridge 300 ft upstream at following datums: June 3, 1928, to Sept. 30, 1929, 69.27 ft higher; Oct. 1, 1929, to Sept. 30, 1930, 67.68 ft higher; Oct. 1, 1930, to Aug. 1, 1932, 69.28 ft higher. Aug. 2, 1932, to Oct. 30, 1938, water-stage recorder at present site at datum 69.28 ft higher. Auxiliary water-stage recorder 10.7 miles downstream from base gage.

Average discharge.--37 years, 15,020 cfs.

Extremes.--Maximum discharge during year, 228,000 cfs Apr. 18 (gage height, 93.11 ft); minimum daily, 3,600 cfs Dec. 1; minimum gage height, 74.45 ft Nov. 23.
1928-65: Maximum discharge, that of Apr. 18, 1965; minimum daily, 1,380 cfs July 13, 1940; minimum gage height, 65.08 ft Aug. 29, 1934, present datum.

Remarks.--Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17,000	9,310	3,600	6,400	6,000	13,500	9,100	91,500	54,300	29,800	13,100	11,600
2	17,200	9,410	4,600	6,600	5,700	12,000	8,670	84,300	54,700	29,700	12,900	11,200
3	16,500	9,390	4,800	6,600	5,500	6,700	10,000	78,400	57,400	28,800	13,900	11,700
4	15,700	10,500	5,400	6,500	5,500	6,100	11,800	73,400	58,200	26,300	14,500	12,000
5	11,300	10,400	4,800	6,600	5,500	8,100	16,600	68,700	58,500	24,700	13,700	10,700
6	11,500	9,700	5,500	6,300	5,600	7,400	22,600	65,700	58,600	23,300	14,500	10,200
7	12,800	9,000	6,000	6,700	5,700	7,500	28,600	*64,900	59,300	21,800	15,200	8,910
8	12,400	8,850	7,000	6,400	5,700	7,500	36,200	65,500	61,000	22,000	14,600	9,440
9	12,300	8,690	6,700	6,000	6,200	7,400	43,300	64,900	62,800	23,300	13,600	9,950
10	12,700	9,590	7,800	6,200	7,300	7,400	55,700	65,400	*64,800	23,800	14,500	9,490
11	12,400	9,370	7,900	6,400	5,800	8,900	75,900	65,400	66,100	24,300	14,100	10,600
12	11,800	8,940	6,900	6,300	6,300	8,900	108,000	65,400	66,500	24,300	14,000	10,500
13	11,600	9,650	7,300	6,100	6,000	7,600	143,000	64,800	66,300	*26,000	*14,100	9,740
14	11,400	10,100	6,500	6,200	5,900	7,800	172,000	63,900	65,500	26,600	12,800	10,600
15	11,100	9,590	6,300	5,700	5,800	7,000	199,000	62,600	64,100	26,100	11,700	10,900
16	10,400	9,310	6,600	5,600	5,800	7,700	214,000	61,700	61,900	25,700	11,400	13,200
17	9,430	*9,130	6,200	5,800	5,800	7,400	223,000	59,700	59,800	25,400	10,600	15,500
18	8,950	9,620	6,200	5,900	5,400	8,500	226,000	58,400	56,500	25,400	10,200	18,700
19	8,900	9,560	6,300	6,100	5,900	5,500	222,000	57,200	53,200	25,000	9,930	20,600
20	*9,740	9,330	6,200	6,000	5,500	5,900	214,000	56,200	50,900	24,200	9,540	20,100
21	8,840	8,640	6,100	6,300	6,000	6,300	206,000	55,200	47,000	22,700	10,300	19,900
22	9,330	7,670	6,600	6,200	5,900	6,600	192,000	54,200	44,800	21,800	10,500	20,100
23	9,380	5,100	6,500	6,100	6,100	6,900	180,000	53,500	42,800	20,700	9,630	20,000
24	9,170	6,400	6,600	6,100	5,600	6,700	167,000	53,100	40,700	19,600	9,280	19,900
25	9,050	7,000	6,500	6,300	5,600	6,900	154,000	52,500	38,900	18,900	10,200	20,100
26	9,040	7,300	6,500	6,300	5,800	7,000	140,000	53,500	37,000	17,500	10,800	20,200
27	9,030	7,800	6,500	6,000	5,800	6,600	128,000	53,700	35,200	16,300	10,700	19,900
28	9,080	5,900	6,500	6,100	6,100	6,600	116,000	54,500	34,800	14,800	10,600	19,900
29	9,360	6,100	6,500	6,100	--------	6,700	107,000	54,600	33,800	14,300	11,800	20,200
30	9,520	5,400	6,500	5,800	---------	6,600	99,100	54,500	31,700	13,500	12,000	21,000
31	9,530	----------	6,400	5,900	----------	6,800	----------	54,500	----------	13,300	11,400	----------
Total	346,450	256,750	193,800	191,600	163,800	232,500	3,528,570	1,931,800	1,587,100	699,900	376,080	446,830
Mean	11,180	8,558	6,252	6,181	5,850	7,500	117,600	62,320	52,900	22,580	12,130	14,890
Cfsm	0.250	0.191	0.140	0.138	0.131	0.167	2.62	1.39	1.18	0.504	0.271	0.332
In.	0.29	0.21	0.16	0.16	0.14	0.19	2.93	1.60	1.32	0.58	0.31	0.37

Calendar year 1964 : Max 57,000 Min 3,260 Mean 12,620 Cfsm 0.282 In. 3.84
Water year 1964-65 : Max 226,000 Min 3,600 Mean 27,270 Cfsm 0.609 In. 8.26

* Discharge measurement made on this day.
Note.--Stage-fall-discharge relation affected by ice Nov. 23 to Apr. 4.

GPO 826-538-5

5-3560. Chippewa River at Bishops Bridge, near Winter, Wis.

Location.--Lat 45°50'55", long 91°04'45", in sec. 23, T. 39 N., R. 6 W., on right bank 15 ft upstream from highway bridge, 3.2 miles downstream from Lake Chippewa Dam, and 3.7 miles northwest of Winter.

Drainage area.--787 sq mi.

Records available.--February 1912 to September 1965. Monthly discharge only for winter of 1913, published in WSP 1308.

Gage.--Water-stage recorder. Altitude of gage is 1,270 ft (from Lake Chippewa datum). Prior to Jan. 27, 1914, staff gage at same site at datum 3.44 ft higher. Jan. 27, 1914, to May 27, 1916, staff gage and May 28, 1916, to July 22, 1930, chain gaga at same site and datum.

Average discharge.--53 years, 700 cfs.

Extremes.--Maximum discharge during year, 2,890 cfs May 19 (gage height, 7.35 ft); minimum discharge, 103 cfs May 4, 5.
1912-65: Maximum discharge, 7,520 cfs Sept. 4, 5, 1941 (gage height, 11.05 ft); minimum, 14 cfs Apr. 17-20, 1925 (gage height, 3.25 ft).

Remarks.--Records good. Flow completely regulated by Moose Lake and Lake Chippewa (see p. 70).

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.8	90	5.0	576
4.0	144	5.5	951
4.3	236	6.0	1,420
4.6	352	7.5	3,080

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	908	1270	1160	978	564	874	108	1590	192	764	195
2	179	908	1270	1160	969	253	731	108	1440	195	810	192
3	173	908	1270	1150	969	253	260	108	969	192	810	192
4	170	900	1260	1150	951	343	246	103	726	195	622	192
5	170	900	1250	1140	942	457	246	106	539	188	387	192
6	167	892	1250	1140	934	457	253	116	469	188	392	192
7	164	892	1250	1130	926	457	253	133	469	192	402	192
8	161	892	1250	1130	926	457	253	192	718	198	392	192
9	161	892	1240	1130	917	457	223	188	874	430	387	192
10	161	883	1240	1130	908	457	144	153	866	413	387	188
11	161	*900	1230	1110	908	457	195	*141	866	339	382	188
12	161	917	1220	1110	892	457	214	124	866	339	382	185
13	161	908	1220	1110	892	452	223	173	786	548	382	188
14	*161	900	1220	1100	883	452	256	792	469	1160	382	188
15	161	900	1220	1090	866	452	297	1480	377	1410	382	188
16	161	900	1200	1080	858	452	267	2430	377	1540	382	188
17	161	892	1200	1080	850	446	250	2430	377	1570	382	217
18	161	900	1200	1070	842	452	250	2430	377	1250	334	214
19	161	1040	1200	1070	834	452	250	2710	267	987	357	214
20	161	1310	1200	1070	818	450	220	2880	207	718	339	482
21	161	1310	1190	1060	802	448	185	2870	204	457	300	1340
22	158	1300	1190	1060	800	440	161	2850	207	367	326	1640
23	158	1300	1190	1050	794	440	147	2440	*201	367	250	1640
24	158	1300	1180	1040	786	440	136	1740	195	469	201	1620
25	158	1290	1180	1030	778	440	127	1600	195	*521	195	1620
26	158	1290	1180	1020	771	641	122	1600	198	515	195	1520
27	158	1290	1180	1010	764	917	116	1600	198	515	195	1200
28	612	1280	1180	1010	748	934	113	1600	195	515	*192	1060
29	900	1280	1180	1000		908	111	1600	192	515	195	669
30	892	1280	1170	996		*892	108	1590	188	546	195	362
31	900		1170	987		883		1590		669	195	
Total	7,699	31,462	37,650	33,573	24,306	16,060	7,231	37,985	15,602	17,700	11,496	16,842
Mean	248	1,049	1,215	1,083	868	518	241	1,225	520	571	371	561

Calendar year 1964: Max 1,310 Min 158 Mean 466
Water year 1964-65: Max 2,880 Min 103 Mean 706

* Discharge measurement made on this day.

5-3565. Chippewa River near Bruce, Wis.

Location.--Lat 45°27'05", long 91°15'40", in SE 1/4 sec. 5, T. 34 N., R. 7 W., on right bank 1 mile east of Bruce and 1 mile downstream from Thornapple River.

Drainage area.--1,630 sq mi, approximately.

Records available.--December 1913 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 1,059.62 ft above mean sea level, datum of 1929. Prior to May 28, 1935, chain gage at railroad bridge 0.8 mile upstream at datum 2.30 ft higher. May 29, 1935 to May 7, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years (1914-65), 1,406 cfs.

Extremes.--Maximum discharge observed during year 12,300 cfs Apr. 15 (gage height, 15.19 ft, backwater from ice); minimum discharge 375 cfs Sept. 11 (gage height 1.53 ft).

1913-65: Maximum discharge, 25,800 cfs Sept. 1, 1941 (gage height, 20.46 ft, from floodmarks), from rating curve extended above 20,000 cfs; minimum, 155 cfs June 10, 1932 (gage height, 0.9 ft, site and datum then in use).

Remarks.--Records good except those for periods of ice effect, which are fair. Flow from 48 percent of the drainage area regulated by Moose Lake and Lake Chippewa (see p.70).

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 9 to Sept. 17)

1.4	370	7.0	4,950
2.0	728	9.0	7,150
3.0	1,420	11.0	9,600
5.0	3,040	13.0	12,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	716	1,140	1,720	1,350	1,140	1,000	1,420	1,610	2,640	463	1,060	504
2	828	1,160	1,700	1,340	1,130	900	1,450	1,460	2,640	515	1,140	480
3	1,030	1,170	1,640	1,300	1,120	640	1,300	1,360	2,280	540	1,130	456
4	918	1,190	1,640	1,300	1,110	620	800	1,280	1,760	512	1,070	452
5	817	*1,240	1,610	1,310	1,110	700	720	1,130	1,560	506	845	436
6	731	1,280	1,600	1,320	1,100	920	820	1,170	1,380	484	674	434
7	673	1,240	1,560	1,330	1,100	900	1,000	1,710	1,320	474	755	426
8	614	1,230	1,520	1,330	1,100	920	1,300	3,010	1,380	469	801	430
9	583	1,270	1,500	1,300	1,100	920	1,500	5,310	1,720	533	810	429
10	555	1,240	1,500	1,200	1,070	880	2,200	5,170	1,660	747	769	422
11	536	1,350	1,500	1,200	1,050	880	4,000	3,900	1,540	702	701	415
12	529	1,490	1,500	1,200	1,040	860	7,000	2,950	1,470	609	661	420
13	519	1,630	1,470	1,250	1,020	880	9,000	2,210	1,390	629	642	424
14	507	1,550	1,400	1,250	1,020	860	11,000	1,810	1,240	*937	635	421
15	491	1,510	*1,270	1,260	1,040	860	*11,700	2,520	926	1,330	620	446
16	488	1,500	1,260	1,280	*1,070	840	11,200	4,300	*864	1,590	620	451
17	467	1,430	1,270	1,300	1,050	860	*10,100	5,330	808	1,870	618	654
18	461	1,410	1,280	1,300	1,040	840	8,650	5,090	813	1,680	*618	1,020
19	461	1,390	1,300	*1,280	1,030	800	7,360	4,840	793	1,430	579	1,060
20	452	1,370	1,340	1,300	1,010	820	6,700	4,700	628	1,170	586	1,270
21	449	1,300	1,380	1,300	1,000	780	6,330	4,360	501	911	568	1,750
22	450	1,250	1,400	1,300	950	800	5,930	4,060	548	721	528	2,300
23	443	2,100	1,420	1,300	940	800	5,340	3,840	555	634	554	*2,250
24	440	2,100	1,440	1,280	960	*770	4,740	3,050	531	695	477	2,210
25	440	2,100	1,440	1,280	960	760	3,870	2,540	506	787	430	2,140
26	435	1,970	1,430	1,300	950	770	3,300	3,040	487	788	469	2,080
27	432	1,800	1,430	1,240	940	1,100	2,990	3,520	489	762	492	1,840
28	433	1,700	1,430	1,200	940	1,400	2,550	3,160	516	738	502	1,670
29	902	1,620	1,450	1,200	----------	1,450	2,150	2,870	493	740	459	1,940
30	1,120	1,620	1,460	1,200	----------	1,400	1,850	2,610	477	779	480	1,790
31	1,110	----------	1,440	1,210	----------	1,450	----------	2,520	----------	902	525	----------
Total	19,030	44,350	45,300	39,510	29,090	28,380	138,270	96,430	33,915	25,647	20,818	31,020
Mean	614	1,478	1,461	1,275	1,039	915	4,609	3,111	1,131	827	672	1,034

Calendar year 1964: Max 4,220 Min 324 Mean 972
Water year 1964-65: Max 11,700 Min 415 Mean 1,512

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20-25, Nov. 27 to Apr. 16.

5-3585. Flambeau River at Babbs Island, near Winter, Wis.

Location.--Lat 45°46'10", long 90°45'45", in SE 1/4 sec. 17, T. 38 N., R. 3 W., on right bank 3.6 miles upstream from Connors Creek, 11.5 miles upstream from South Fork Flambeau River, 13 miles east of Winter, and at mile 61.9.

Drainage area.--1,000 sq mi.

Records available.--August 1929 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Water-stage recorder. Altitude of gage is 1,330 ft (from river-profile map). Prior to Oct. 1, 1934, at bridge 300 ft upstream at datum 9.0 ft lower. Oct 1, 1934, to Sept. 8, 1938, at bridge 300 ft upstream at present datum.

Average discharge.--36 years, 962 cfs.

Extremes.--Maximum discharge during year, 5,360 cfs Apr. 17 (gage height, 6.03 ft); minimum discharge, 320 cfs Nov. 9 (gage height, 0.91 ft).
1929-65: Maximum discharge, 9,440 cfs June 25, 1946 (gage height, 9.45 ft); minimum, 86 cfs Oct. 21, 22, 1948 (gage height, 0.20 ft); minimum daily, 118 cfs Oct. 10, 1948.

Remarks.--Records good except those for periods of ice effect or backwater from vegetation, which are fair. Flow regulated by Rest Lake and Flambeau Flowage (see p. 70).

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	555	432	400	550	620	680	*870	1,210	1,550	897	897	863
2	571	414	410	570	620	720	900	1,230	1,580	904	582	815
3	634	442	410	570	620	720	960	1,030	1,680	973	789	796
4	566	428	410	570	640	680	1,060	939	1,530	925	815	789
5	456	456	410	570	650	680	1,020	890	1,440	856	829	763
6	*555	447	405	560	660	680	960	856	1,440	582	829	512
7	544	432	405	560	660	720	900	1,030	1,550	842	946	437
8	497	432	405	560	640	520	960	1,510	1,400	876	1,200	600
9	571	351	405	560	680	660	1,060	2,900	1,240	953	911	600
10	555	*442	405	550	700	660	1,300	3,880	1,200	1,020	1,030	588
11	522	492	420	540	710	640	1,700	*3,750	1,100	1,110	904	600
12	418	611	460	540	700	640	2,300	3,880	1,010	1,040	835	600
13	517	688	450	540	700	640	2,600	3,260	980	993	849	605
14	*544	688	360	540	720	640	3,000	3,330	1,030	904	815	652
15	471	617	400	540	720	640	3,870	3,340	876	869	815	707
16	486	588	400	540	720	640	4,910	4,410	911	876	782	763
17	486	549	380	560	730	640	5,270	4,880	973	973	789	1,020
18	461	533	*360	570	730	660	4,580	4,100	953	925	802	1,110
19	447	517	390	580	740	660	3,050	3,600	897	876	789	1,200
20	423	512	430	610	*750	640	2,650	3,220	849	815	744	1,240
21	432	500	410	620	750	640	*2,730	3,150	842	815	731	1,310
22	432	430	410	610	560	500	2,840	3,070	863	796	763	1,130
23	476	440	410	*590	700	700	2,730	2,800	*890	829	676	1,080
24	423	470	410	600	780	680	2,600	2,540	897	*802	731	1,080
25	447	450	410	630	770	660	2,450	2,170	808	782	725	1,010
26	359	440	440	640	700	700	1,980	1,750	829	744	738	890
27	409	410	510	640	690	780	1,800	1,690	869	776	796	815
28	432	400	520	620	650	800	1,560	1,720	932	782	*763	802
29	423	400	530	600	--------	800	1,440	1,400	1,030	770	750	1,090
30	423	380	530	620	---------	820	1,200	1,510	890	802	770	1,080
31	437	----------	530	620	---------	820	----------	1,460	----------	918	822	----------
Total	14,972	14,391	13,225	17,970	19,310	21,060	65,250	76,505	33,039	27,025	25,217	25,547
Mean	483	480	427	580	690	679	2,175	2,468	1,101	872	813	852

Calendar year 1964 : Max 2,130 Min 351 Mean 644
Water year 1964-65: Max 5,270 Min 351 Mean 969

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 14. Backwater from aquatic vegetation Oct. 1 to Nov. 20, June 7 to Sept. 30.

5-3595. South Fork Flambeau River near Phillips, Wis.

Location.--Lat 45°42'15", long 90°36'55", in NW 1/4 SW 1/4 sec. 10, T. 37 N., R. 2 W., on downstream side of bridge on left span, 0.4 mile downstream from Big Elk River and 12 miles west of Phillips.

Drainage area.--615 sq mi.

Records available.--August 1929 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Wire-weight gage and crest-stage indicator; gage read once daily. Altitude of gage is 1,360 ft (by barometer). Prior to Oct. 5, 1939, chain or staff gage and Oct. 5, 1939, to Jan. 11, 1954, wire-weight gage at site 600 ft downstream at same datum.

Average discharge.--36 years, 581 cfs.

Extremes.--Maximum discharge during year, 5,690 cfs Apr. 19 (gage height, 11.64 ft); minimum daily, 118 cfs Aug. 21-23.
1929-65: Maximum discharge, 10,200 cfs June 18, 1943 (gage height, 14.32 ft); minimum, 39 cfs Aug. 31, Sept. 3-5, 1933.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.7	104	8.0	1,820
5.0	189	9.0	2,650
5.5	364	11.0	4,820
6.0	580	12.0	6,230
7.0	1,120		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	494	236	200	205	155	240	300	1,940	1,700	288	180	163
2	481	223	200	200	155	250	310	1,770	1,650	292	186	166
3	477	220	200	200	155	270	330	1,720	1,550	295	174	172
4	439	236	200	200	155	280	350	1,700	1,400	299	172	177
5	418	223	200	200	155	300	380	1,620	1,300	303	160	183
6	325	230	200	200	160	300	400	1,750	1,250	288	157	177
7	306	227	205	200	165	310	410	2,280	1,180	270	146	166
8	278	284	215	195	165	300	430	2,600	1,150	264	154	152
9	214	341	220	195	165	280	450	3,020	1,070	256	157	152
10	204	*310	230	190	165	270	540	3,390	861	253	169	146
11	208	464	240	190	165	270	700	*3,490	829	250	177	152
12	204	580	250	185	160	280	1,000	3,510	808	227	160	154
13	198	798	250	180	160	290	1,700	3,610	557	220	157	166
14	*220	813	245	180	160	300	2,910	3,640	468	220	149	180
15	214	829	240	175	160	310	3,690	3,910	464	220	140	186
16	214	798	235	175	165	300	4,290	3,820	447	223	132	204
17	214	671	225	170	170	290	4,340	4,080	384	230	124	240
18	211	560	*220	170	175	270	4,800	3,930	376	236	126	292
19	204	460	215	165	185	260	5,150	3,740	426	227	124	344
20	201	350	215	165	*195	250	4,590	3,620	325	223	121	384
21	198	250	215	165	200	260	*4,300	2,560	310	233	118	413
22	195	220	215	165	205	270	4,140	1,980	*299	211	118	456
23	186	220	215	*165	205	270	4,090	1,940	292	204	118	534
24	180	227	215	160	210	270	3,920	1,900	284	*220	121	622
25	186	220	215	160	210	280	3,700	1,800	274	195	129	637
26	195	223	215	155	210	280	3,410	1,900	274	192	132	642
27	189	227	210	155	210	270	3,010	1,900	270	186	140	647
28	201	217	210	155	215	270	2,660	1,800	278	174	*140	671
29	208	210	210	155	----------	270	2,440	1,700	267	169	146	777
30	217	205	210	155	----------	270	2,320	1,600	274	174	154	905
31	223	----------	205	155	----------	290	----------	1,600	----------	177	157	----------
Total	7,902	11,072	6,740	5,485	4,955	8,620	71,060	79,820	21,017	7,219	4,538	10,260
Mean	255	369	217	177	177	278	2,369	2,575	701	233	146	342
Cfsm	.0415	.0600	0.353	0.288	0.288	0.452	3.85	4.19	1.14	0.379	0.237	0.556
In.	0.48	0.67	0.41	0.33	0.30	0.52	4.30	4.83	1.27	0.44	0.27	0.62

Calendar year 1964: Max 2,150 Min 96 Mean 354 Cfsm 0.576 In. 7.84
Water year 1964-65: Max 5,150 Min 118 Mean 654 Cfsm 1.06 In. 14.44

*Discharge measurements made on this day
Note.--Stage-discharge relation affected by ice Nov. 18-23, Nov. 29 to Apr. 13. No gage-height record May 24 to June 6.

5-3605. Flambeau River near Bruce, Wis.

Location.--Lat 45°22'20", long 91°12'35", in lot 7 of NW 1/4 sec. 2, T. 33 N., R. 7 W., on right bank 2.5 miles downstream from Thornapple powerplant, 6 miles upstream from mouth, and 7 miles southeast of Bruce.

Drainage area.--1,897 sq mi.

Records available.--August 1951 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage 1,060 ft (by river survey, WSP 417). Prior to May 6, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--14 years, 1,735 cfs.

Extremes.--Maximum discharge during year, 10,500 cfs Apr. 20 (gage height, 8.19 ft); minimum discharge, 326 cfs Oct. 24, 27 (gage height, 2.35 ft).
1951-65: Maximum discharge, 17,400 cfs May 1, 1954 (gage height, 10.90 ft); minimum, about 100 cfs Aug. 7, 9, 1957 (gage height, 2.06 ft).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by several powerplants above station and by Rest Lake and Flambeau Flowage (see p. 70).

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 14 to Sept. 30)

2.3	315	5.0	3,480
2.8	643	6.0	5,420
3.3	1,100	8.0	10,000
4.0	1,930	9.0	12,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1,540	558	600	770	760	1,100	1,500	4,230	2,460	1,200	1,290	1,000
2	1,130	430	630	760	780	1,080	1,700	3,930	3,090	1,250	1,110	1,190
3	937	446	660	780	800	1,000	1,680	3,920	3,230	1,280	1,160	1,150
4	1,500	654	650	800	840	1,040	1,840	3,350	3,200	1,450	1,110	1,040
5	1,140	*618	670	790	840	1,120	2,000	3,440	2,900	1,350	1,090	883
6	1,000	572	660	800	840	1,080	1,900	3,050	2,560	1,120	1,150	1,060
7	1,130	601	640	810	840	1,060	1,860	2,730	2,910	1,120	1,250	816
8	1,120	569	700	810	840	1,080	1,940	4,010	3,090	1,250	1,510	987
9	972	560	730	820	840	1,060	2,100	7,660	3,050	1,250	1,600	1,060
10	700	605	760	820	840	1,000	2,800	8,270	2,850	1,340	1,290	774
11	617	659	790	800	860	1,020	3,200	7,760	2,870	1,340	1,230	844
12	699	540	830	760	870	1,060	3,800	7,730	2,200	1,360	1,290	788
13	596	539	870	800	880	980	4,660	6,550	1,630	1,590	1,170	771
14	553	548	850	780	900	1,040	*5,840	6,210	1,130	*1,430	1,120	767
15	392	585	810	800	900	940	6,520	5,450	845	1,140	850	743
16	365	587	770	810	*866	1,200	10,000	7,670	*1,090	1,260	1,100	766
17	368	693	760	820	860	1,500	9,980	9,360	1,320	1,540	773	777
18	463	560	750	820	830	1,540	10,100	9,410	1,560	1,460	*1,060	943
19	469	515	720	*826	920	1,540	10,100	8,110	1,490	1,470	1,140	1,300
20	433	547	700	820	970	1,620	9,580	6,950	1,190	1,350	1,010	1,640
21	472	579	710	800	950	1,600	* 8,240	5,530	1,220	1,300	959	2,210
22	515	617	710	800	900	1,620	8,120	5,420	1,290	1,490	744	*1,490
23	398	532	720	800	860	1,640	8,110	4,850	1,330	1,370	799	1,010
24	375	567	720	800	910	*1,690	7,990	4,350	1,250	1,320	838	1,520
25	377	549	740	800	900	1,680	7,510	4,160	1,010	1,320	1,060	1,850
26	428	532	740	830	900	1,600	6,700	4,130	1,170	1,200	850	1,780
27	466	554	740	850	940	1,560	5,700	4,070	1,120	1,120	1,140	1,530
28	607	592	740	850	920	1,660	5,080	3,210	1,420	985	829	1,650
29	571	580	740	850	------	1,700	4,800	2,740	1,600	1,250	1,150	1,930
30	556	560	760	900	------	1,660	4,430	2,650	1,440	1,170	818	2,830
31	559	------	780	760	------	1,640	------	2,610	------	1,530	1,170	------
TOTAL	21,448	17,048	22,650	24,936	24,356	41,110	159,780	163,510	57,615	40,605	33,670	37,099
MEAN	692	568	731	804	870	1,326	5,326	5,275	1,921	1,310	1,086	1,237

CALENDAR YEAR 1964 MAX 4,820 MIN 365 MEAN 1,139
WATER YEAR 1964-65 MAX 10,100 MIN 365 MEAN 1,764

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 1 to Apr. 12 (no gage-height record Dec. 1-14).

5-3620. Jump River at Sheldon, Wis.

Location.--Lat 45°18'30", long 90°57'20", in sec. 26, T. 33 N., R. 5 W., on right bank just downstream from highway bridge in Sheldon, 1,500 ft upstream from Shoulder Creek and 11 miles upstream from mouth.

Drainage area.--574 sq mi.

Records available.--July 1915 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,092.75 ft above mean sea level, datum of 1929. Prior to Feb. 9, 1939, and Sept. 1, 1941, to Apr. 1, 1953, chain gage, and Feb. 9, 1939, to Aug. 31, 1941, water-stage recorder, at same site and datum. Apr. 2, 1953, to Feb. 18, 1954, tape gage in creamery wellhouse 400 ft upstream at same datum, Feb. 19, 1954 to Sept. 27, 1964, wire-weight gage at same datum.

Average discharge.--50 years, 504 cfs.

Extremes.--Maximum discharge during year, 11,400 cfs Apr. 13 (gage height, 11.59 ft); minimum 35 cfs Aug. 25 (gage height 3.50 ft).
1915-65: Maximum discharge observed, 46,000 cfs Aug. 31, 1941 (gage height, 18.8 ft, floodmarks), from rating curve extended above 13,000 cfs on basis of contracted-opening measurement of peak flow; minimum observed, 11 cfs Dec. 18, 1943 (gage height, 3.99 ft).

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.5	28	6.0	1,170
3.7	55	7.0	2,100
4.0	114	8.0	3,300
4.4	222	9.0	4,900
4.8	384	10.0	6,810
5.4	732	11.0	9,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	540	119	130	120	36	50	62	1,720	1,260	137	84	110
2	472	121	135	115	36	60	66	1,470	2,580	128	101	130
3	434	126	140	110	36	120	68	1,300	2,300	123	101	121
4	379	173	150	110	36	110	70	*1,160	1,590	121	86	105
5	317	*477	170	110	36	130	74	1,010	1,270	126	72	90
6	292	732	190	110	38	260	100	973	1,740	119	69	74
7	257	668	215	105	42	230	200	1,260	1,590	119	84	70
8	246	546	240	95	46	160	300	1,560	1,270	121	123	64
9	229	461	265	80	47	280	700	2,220	1,020	126	140	64
10	206	414	285	75	47	240	1,400	2,730	726	107	114	60
11	187	419	290	65	46	180	4,000	2,240	564	101	92	57
12	187	812	280	60	44	150	9,670	1,600	424	92	80	58
13	187	2,450	270	56	43	120	*8,940	1,150	330	84	70	62
14	184	2,680	*254	53	41	100	9,090	859	269	78	64	64
15	*176	2,250	255	52	* 39	92	9,570	785	219	72	54	62
16	173	1,890	245	52	39	88	7,960	3,700	173	76	48	62
17	162	1,530	230	54	40	84	6,260	5,970	150	84	* 43	67
18	154	1,180	210	55	41	82	5,560	4,540	125	74	42	72
19	147	908	200	*55	41	78	4,920	2,930	112	*74	40	101
20	137	719	190	54	40	76	4,350	1,870	105	74	39	147
21	135	450	180	52	41	72	4,200	1,250	99	67	43	330
22	130	310	170	51	41	70	4,120	1,150	96	64	46	505
23	126	300	170	*51	40	68	3,790	706	*116	69	43	445
24	123	280	165	50	40	66	3,290	546	150	69	40	379
25	123	250	165	50	40	64	2,720	472	154	112	39	330
26	121	210	165	48	42	63	2,680	505	126	112	39	280
27	121	180	160	45	44	62	3,440	1,370	105	92	44	229
28	121	155	160	42	46	62	2,800	1,290	105	74	78	273
29	119	140	155	39	------	*61	2,560	1,040	126	65	132	915
30	119	130	145	36	------	60	2,040	805	142	65	116	1,310
31	119	------	135	36	------	60	------	631	------	74	112	------
Total	6,423	21,080	6,114	2,086	1,148	3,398	105,000	50,812	19,037	2,899	2,278	6,636
Mean	207	703	197	67.3	41.0	110	3,500	1,639	635	93.5	73.5	221
Cfsm	0.361	1.22	0.343	0.117	0.071	0.192	6.10	2.86	1.11	0.163	0.128	0.385
In.	0.42	1.37	0.40	0.14	0.07	0.22	6.80	3.29	1.23	0.19	0.15	0.43

Calendar year 1964: Max 2,680 Min 17 Mean 315 Cfsm 0.549 In. 7.48
Water year 1964-65: Max 9,670 Min 36 Mean 622 Cfsm 1.08 In. 14.71

Peak discharge (base, 3,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-13	2000	11.50	11,400	5-17	0930	9.75	6,300

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 11.

5-3655. Chippewa River at Chippewa Falls, Wis.

Location.--Lat 44°55'35", long 91°24'40", in lot 1, sec. 12. T. 28 N., R. 9 W., on right bank at Chippewa Falls, 1 mile downstream from Duncan Creek.

Drainage area.--5,600 sq mi, approximately.

Records available.--June 1888 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Digital water-stage recorder. Datum of gage is 798.46 ft above mean sea level, datum of 1929. Prior to January 1914, staff gage, and January 1914 to June 1932, graphic water-stage recorder, at site 1 mile upstream at different datum. June 19, 1932, to Aug. 22, 1963 graphic water-stage recorder at present site and datum.

Average discharge.--77 years, 5,042 cfs.

Extremes.--Maximum discharge during year, 44,700 cfs Apr. 16 (gage height, 16.47 ft); minimum, 107 cfs Jan. 22 (gage height, 1.02 ft); minimum daily, 333 cfs Aug. 21.

1888-1965: Maximum discharge, 102,000 cfs Sept. 1, 1941 (gage height, 24.8 ft); minimum, 22 cfs Apr. 2, 1934 (gage height, 0.63 ft); minimum daily, 40 cfs Feb. 4, 1917.

Maximum stage known, 26.94 ft Sept. 10, 1884, site and datum in use to June 1932.

Remarks.--Records good. Flow completely regulated by many powerplants above station, especially Chippewa Falls hydroelectric plant, which is just upstream, and by Moose Lake, Lake Chippewa, Rest Lake, Flambeau Flowage, and Lake Wissota (see p. 70).

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.6	314	7.0	8,610
2.0	575	10.0	17,200
3.0	1,440	14.0	32,500
5.0	4,440	17.0	47,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	4,290	1,050	3,450	720	4,350	4,420	3,210	11,200	10,100	2,450	494	2,390
2	3,160	3,220	3,660	2,060	3,900	4,530	2,260	9,870	13,100	2,750	2,880	2,580
3	1,480	3,450	3,410	1,960	3,600	6,450	1,340	8,430	14,100	1,770	4,060	2,430
4	3,580	2,250	3,350	3,330	3,100	6,080	1,710	9,010	12,300	779	3,050	1,050
5	5,880	*2,780	998	2,860	2,370	5,390	3,970	8,400	9,950	2,240	2,890	598
6	3,610	3,400	450	3,460	885	5,940	6,050	8,260	9,960	2,640	2,710	919
7	2,790	3,250	3,120	3,270	598	5,770	8,240	8,350	10,200	2,760	1,320	3,010
8	3,420	3,100	3,150	3,900	1,990	5,880	10,200	8,940	9,900	3,020	2,820	3,150
9	2,940	3,900	2,360	1,160	2,370	5,790	9,850	14,800	9,130	2,930	3,570	2,630
10	471	4,150	2,340	531	2,340	5,150	11,100	21,400	7,740	1,410	3,390	1,680
11	458	3,200	2,540	3,650	2,470	4,790	12,300	20,300	6,440	1,530	3,280	813
12	2,810	4,000	1,580	3,600	3,540	4,960	16,400	16,300	5,090	2,550	2,960	513
13	2,480	6,000	3,150	3,730	1,530	4,640	36,200	13,800	3,150	*3,080	3,000	2,020
14	3,040	9,070	4,330	3,630	862	3,910	40,100	11,200	4,090	2,740	798	2,590
15	3,010	8,820	3,780	2,150	3,190	3,630	41,800	9,890	3,670	3,350	718	335
16	1,350	6,800	4,320	1,310	4,070	3,610	43,900	10,400	3,080	3,010	2,690	1,910
17	506	8,070	4,170	538	3,470	3,300	43,000	27,800	2,730	3,860	*3,050	1,620
18	646	5,940	3,090	3,040	3,170	3,620	39,200	28,100	2,640	4,180	3,170	597
19	2,370	5,220	1,130	2,180	3,670	4,390	33,100	20,900	467	3,660	2,190	499
20	2,260	2,800	615	3,000	1,610	3,060	31,200	17,400	2,050	4,080	1,490	4,650
21	1,130	1,360	3,360	1,650	2,640	2,900	27,500	15,200	2,550	3,820	333	5,600
22	1,430	2,780	2,850	2,210	4,560	4,230	25,500	12,600	2,760	3,300	510	*5,760
23	1,520	3,280	3,390	1,240	4,700	4,180	24,200	11,800	3,320	3,040	1,770	5,470
24	386	3,200	1,490	396	4,410	3,770	22,900	9,950	3,410	971	1,960	5,300
25	613	3,780	535	3,070	4,380	4,080	21,500	9,950	3,050	563	2,470	5,130
26	1,440	1,220	756	2,830	4,350	4,190	17,300	10,100	904	3,230	2,260	3,170
27	1,730	3,510	2,020	3,010	2,760	2,750	22,900	9,990	1,120	3,210	1,980	5,850
28	1,280	2,160	3,460	3,810	3,060	1,700	15,200	10,300	3,370	2,950	691	5,640
29	1,050	1,170	3,550	3,700	------	3,440	*15,800	10,000	3,350	2,840	788	5,030
30	1,450	4,050	3,820	1,640	------	4,210	13,900	8,680	2,550	3,200	1,990	6,940
31	821	------	2,180	741	------	4,270	------	8,260	------	647	2,720	------
TOTAL	63,401	116,980	82,904	74,486	83,945	134,130	601,830	410,730	166,071	82,560	68,002	91,294
MEAN	2,045	3,899	2,674	2,403	2,998	4,327	20,060	13,250	5,536	2,663	2,194	3,043

CALENDAR YEAR 1964 MAX 12,400 MIN 244 MEAN 3,154
WATER YEAR 1964-65 MAX 43,900 MIN 333 MEAN 5,415

* Discharge measurement made on this day.

5-3680. Hay River at Wheeler, Wis.

Location.--Lat 45°02'50", long 91°54'40", in SW 1/4 sec. 25, T. 30 N., R. 13 W., on right bank 25 ft downstream from highway bridge in Wheeler, 1.8 miles upstream from Otter Creek, and 2.4 miles downstream from South Fork Hay River.

Drainage area.--426 sq mi.

Records available.--October 1950 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 893.66 ft above mean sea level, datum of 1929. Prior to Mar. 25, 1951, wire-weight gage on bridge at same datum.

Average discharge.--15 years, 265 cfs.

Extremes.--Maximum discharge during year, 10,900 cfs Apr. 11 (gage height, 14.65 ft) from rating curve extended above 5,000 cfs; minimum daily, 115 cfs Jan. 13-22.
1950-65: Maximum discharge, that of Apr. 11, 1965; minimum, 55 cfs Mar. 13, 1954 (gage height, 2.32 ft), result of freezeup. Maximum stage known since at least 1915, 16.6 ft in April 1934, from floodmarks.

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 15-17, June 29 to Sept. 30)

Oct. 1 to Apr. 6				Apr. 7 to Sept. 30			
2.6	117	6.0	1,130	2.8	146	8.0	2,160
3.2	213	7.0	1,650	3.6	300	10.0	3,730
4.0	399			5.0	694	12.0	6,340
5.0	695			6.0	1,080	14.0	9,640

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	164	156	130	125	120	300	176	376	427	181	255	17
2	*183	156	130	125	120	500	180	379	791	224	183	16
3	186	157	135	125	120	1,000	186	366	406	213	176	16
4	175	157	135	125	125	900	200	349	307	188	181	15
5	168	157	140	125	125	780	232	334	286	185	175	154
6	167	156	150	120	125	700	895	332	283	185	175	162
7	165	154	155	120	125	620	3,930	334	288	199	192	157
8	164	154	160	120	130	570	*4,990	485	262	206	219	156
9	162	154	160	120	130	520	*3,460	776	247	329	190	156
10	160	*154	160	120	130	480	5,740	469	236	295	185	154
11	160	159	160	120	135	440	9,490	376	224	222	178	151
12	162	168	155	120	135	360	7,720	342	215	206	173	149
13	164	173	150	115	140	320	5,470	310	208	209	168	152
14	164	170	150	115	140	290	*3,950	293	202	202	165	158
15	162	170	145	115	135	270	*2,950	281	195	*199	160	157
16	160	170	*140	115	135	240	2,340	334	186	199	162	157
17	159	165	135	115	*136	220	1,520	349	*183	206	164	167
18	159	164	135	115	130	210	1,100	314	178	209	*162	206
19	159	162	135	115	130	200	881	293	175	199	159	262
20	159	146	140	115	130	190	722	267	180	192	159	366
21	159	140	140	115	130	180	660	255	176	186	160	300
22	157	140	140	115	130	170	595	258	208	185	165	258
23	157	140	135	120	135	166	558	251	307	188	160	228
24	157	150	135	120	135	164	528	249	209	228	157	209
25	157	150	130	120	140	164	505	247	190	208	162	199
26	156	155	130	*125	145	*166	573	281	181	226	173	190
27	156	150	130	125	150	164	627	293	185	185	168	185
28	156	140	130	125	190	162	549	255	247	181	164	199
29	156	130	130	120	------	166	*466	240	206	178	162	*232
30	156	130	125	120	------	170	424	232	185	195	170	245
31	156	------	125	120	------	172	------	228	------	234	180	------
Total	5,025	4,627	4,350	3,710	3,751	10,954	61,617	10,148	7,573	6,442	5,402	5,761
Mean	162	154	140	120	134	353	2,054	327	252	208	174	192
Cfsm	0.380	0.361	0.329	0.282	0.315	0.829	4.82	0.768	0.592	0.488	0.408	0.451
In.	0.44	0.40	0.38	0.32	0.33	0.96	5.38	0.89	0.66	0.56	0.47	0.50

Calendar year 1964: Max 953 Min 117 Mean 192 Cfsm 0.451 In. 6.13
Water year 1964-65: Max 9,490 Min 115 Mean 354 Cfsm 0.831 In. 11.29

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-3	-	-	1,200	4-11	0700	14.65	10,900

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 4.

5-3690. Red Cedar River at Menomonie, Wis.

Location.--Lat 44°53'00", long 91°55'55", in NW 1/4 sec. 26, T. 28 N., R. 13 W., on right bank at Menomonie, 900 ft downstream from powerplant of Northern States Power Co., and 1,000 ft downstream from Wilson Creek.

Drainage area.--1,760 sq mi, approximately.

Records available.--June 1907 to September 1908; May 1913 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Digital water-stage recorder. Datum of gage is 780 ft above mean sea level (Northern States Power Co. bench mark). Prior to Sept. 3, 1908, chain gage at site 1 mile downstream at different datum. May 9, 1913, to Sept. 30, 1923, graphic water-stage recorder at same site at datum 0.42 ft lower than present datum. Oct. 1, 1923 to Aug. 13, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--53 years (1907-8, 1913-65), 1,190 cfs.

Extremes.--Maximum discharge, 28,700 cfs Apr. 12 (gage height, 11.56 ft); minimum, 129 cfs, Aug. 10 (gage height, 0.80 ft).
1907-8, 1913-23, 1925-65: Maximum discharge, 40,000 cfs Apr. 4, 1934 (gage height, 16.0 ft, from floodmarks), from rating curve extended above 13,000 cfs on basis of computed flow over Cedar Falls Dam 6 miles upstream; minimum, 21 cfs Dec. 9, 1923 (gage height, 0.65 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by powerplants at Menomonie and Cedar Falls and by Birch, Cedar, Long, and Bear Lakes (see p. 70).

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 27				Mar. 28 to Sept. 30			
1.4	381	2.5	1,380	1.6	497	5.0	5,650
1.7	565	3.0	2,010	2.0	830	7.0	11,800
2.0	830	3.5	2,740	3.0	2,010	9.0	19,200
				4.0	3,560	12.0	30,300

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	700	683	820	750	490	1,240	1,010	1,870	2,400	675	1,070	783
2	894	795	640	706	672	2,220	1,380	1,500	2,540	786	987	785
3	839	872	680	608	567	1,920	1,430	1,510	1,780	824	835	634
4	991	1,020	600	731	622	2,190	1,370	1,180	1,620	658	768	632
5	759	817	560	796	763	2,020	1,730	677	1,550	676	738	638
6	833	754	640	817	537	1,840	3,280	1,020	1,380	833	987	635
7	799	752	640	708	533	1,580	6,250	1,360	1,500	698	813	651
8	710	599	720	837	749	1,820	11,200	1,620	1,490	1,000	987	561
9	690	*805	800	730	914	1,560	*11,500	2,400	1,350	1,030	1,060	636
10	745	845	880	634	682	1,510	13,300	2,650	1,500	1,220	940	669
11	672	728	920	803	732	1,250	22,200	2,080	1,740	982	739	600
12	719	920	1,000	561	881	1,170	27,900	2,080	1,790	974	819	578
13	790	1,090	720	738	518	1,080	*22,600	2,110	1,560	876	658	677
14	784	842	620	680	653	1,100	*16,000	1,610	721	825	634	778
15	783	920	720	620	842	852	11,200	1,920	509	*721	577	543
16	689	955	700	540	726	1,210	8,290	1,840	522	1,090	736	799
17	598	916	540	553	776	1,000	6,300	1,550	*585	1,010	712	743
18	722	1,040	500	680	729	1,010	4,560	1,620	735	974	625	708
19	802	1,030	560	660	733	802	4,270	1,610	669	1,040	*634	1,240
20	650	693	560	680	722	884	3,300	1,430	661	834	604	1,500
21	739	474	773	700	596	777	3,000	1,420	767	751	677	1,560
22	730	471	660	570	808	962	2,660	1,340	1,010	741	525	1,310
23	739	660	740	724	781	856	2,580	1,370	922	786	682	1,120
24	767	875	647	654	885	855	2,520	1,320	674	969	549	1,140
25	568	700	760	798	930	892	2,620	1,350	793	1,260	765	906
26	807	540	740	608	1,150	949	2,540	1,520	742	867	855	924
27	686	780	552	686	767	873	2,540	1,680	676	784	634	1,040
28	801	480	620	674	897	786	2,560	1,790	865	668	693	1,240
29	777	430	740	591	------	1,100	2,420	1,700	902	818	640	*1,200
30	791	540	849	814	------	1,010	2,050	1,340	821	836	796	1,310
31	577	------	735	762	------	1,090	------	1,290	------	939	690	------
TOTAL	23,151	23,026	21,636	21,413	20,655	38,408	204,560	49,757	34,774	27,145	23,429	26,540
MEAN	747	768	698	691	738	1,239	6,819	1,605	1,159	876	756	885

CALENDAR YEAR 1964 MAX 2,370 MIN 385 MEAN 870
WATER YEAR 1964-65 MAX 27,900 MIN 430 MEAN 1,410

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 25 to Dec. 19, Dec. 22, 23, 25, 26, 28, 29, Jan. 14-16, 18-21 (no gage-height record Nov. 25 to Dec. 17).

5-3695. Chippewa River at Durand, Wis.

Location.--Lat 44°37'45", long 91°58'10", in SW 1/4 sec. 21, T. 25 N., R. 13 W., on left bank at Durand, 75 ft downstream from highway bridge and 9.5 miles downstream from Red Cedar River.

Drainage area.--9,010 sq mi, approximately.

Records available.--July 1928 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 694.59 ft above mean sea level, datum of 1929. Prior to Dec. 9, 1930, chain or staff gage at bridge 400 ft downstream at same datum. Dec. 10, 1930, to May 5, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--37 years, 7,206 cfs.

Extremes.--Maximum discharge during year, 66,200 cfs Apr. 14 (gage height, 13.36 ft); maximum gage height 13.68 ft Apr. 9 (backwater from ice); minimum discharge, 2,110 cfs Nov. 1, 2 (gage height 0.98 ft).
1928-65: Maximum discharge, 101,000 cfs May 3, 1954 (gage height, 15.40 ft); minimum observed, 1,020 cfs Nov. 24, 1950 (gage height, 0.12 ft).
Maximum stage known, 18.4 ft September 12, 1884.

Remarks.--Records good except those for period of ice effect, which are fair. Flow partly regulated by powerplants, Moose Lake, Lake Chippewa, Rest Lake, Flambeau Flowage, and Lake Wissota, and by Birch, Cedar Bear, and Long Lakes on upper Red Cedar River (see p. 70).

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 14				Apr. 15 to Sept. 30			
1.0	2,150	8.0	23,700	0.8	2,620	7.0	19,700
2.0	3,980	10.0	34,300	1.6	4,030	9.0	28,700
4.0	8,420	12.0	49,000	3.0	7,070	11.0	40,700
6.0	14,900	14.0	76,300	5.0	12,700	13.0	61,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	*7,440	2,280	6,000	3,800	3,000	6,600	6,400	18,400	12,700	4,460	3,390	3,660
2	3,770	2,460	5,800	3,000	3,800	8,000	6,000	14,600	15,600	4,500	2,330	3,930
3	5,020	4,150	5,400	3,000	4,400	9,200	5,600	13,400	17,400	4,390	4,180	3,860
4	3,810	4,780	5,000	3,000	4,400	9,600	5,400	11,900	18,400	3,770	4,630	3,660
5	5,020	4,300	4,400	4,000	4,000	9,400	6,200	11,800	14,700	2,350	4,560	2,880
6	6,270	4,110	3,800	4,100	3,900	9,400	12,000	11,600	13,800	3,840	4,670	2,880
7	5,280	4,760	3,000	4,100	3,200	9,400	18,000	11,800	13,000	4,640	4,380	2,890
8	4,700	4,680	4,000	4,200	2,900	9,400	27,000	12,600	12,600	4,540	3,700	3,640
9	4,460	4,740	5,000	3,800	3,300	9,200	30,000	14,200	12,600	5,280	4,360	4,160
10	4,260	5,340	5,200	3,000	3,600	9,000	37,000	21,100	11,900	4,840	5,280	3,920
11	3,010	*5,660	5,400	2,700	3,700	8,400	44,300	23,700	10,000	4,180	4,750	3,220
12	2,650	5,090	5,400	3,700	3,900	7,400	51,000	22,900	9,620	3,780	4,870	2,890
13	4,040	5,750	4,200	3,900	4,500	6,800	57,400	19,500	7,520	5,200	4,660	2,910
14	3,750	7,660	3,500	4,200	4,000	6,200	65,200	16,300	5,490	4,860	4,430	3,550
15	4,060	10,200	4,100	4,400	3,500	5,600	*62,400	13,900	5,210	4,820	2,950	3,910
16	4,550	11,000	4,300	4,000	4,000	5,400	57,800	16,100	5,110	*5,230	2,870	2,900
17	2,980	9,630	*4,100	3,400	*4,800	5,600	57,200	22,900	4,670	5,380	3,850	2,920
18	2,650	9,860	4,200	2,800	4,900	5,400	54,000	29,200	4,140	6,010	3,920	3,190
19	2,600	7,860	3,500	3,400	4,800	5,300	49,000	29,800	*4,250	6,170	4,200	3,110
20	3,180	6,940	3,200	3,700	4,900	5,600	42,700	22,900	2,940	6,350	*3,620	3,420
21	3,520	4,960	3,000	4,000	4,400	5,300	39,200	20,200	2,740	5,640	3,050	6,370
22	2,920	4,080	3,800	3,700	4,300	5,200	35,000	16,900	4,570	5,600	2,910	7,760
23	3,120	4,370	4,500	3,600	5,000	5,600	32,100	15,000	4,980	5,080	2,900	8,010
24	2,580	5,040	4,900	3,400	5,800	5,800	30,300	13,700	4,590	5,140	2,900	*7,890
25	2,580	4,920	3,800	2,800	6,400	5,700	29,300	12,700	4,910	3,590	3,260	7,440
26	2,350	5,090	2,800	3,800	6,400	5,700	28,400	13,100	4,920	3,010	3,770	6,640
27	2,530	3,440	2,700	4,000	6,400	6,000	23,800	12,900	2,890	4,700	3,740	5,760
28	3,070	5,010	3,800	4,100	6,500	5,200	*28,800	13,200	2,880	4,550	3,290	7,570
29	2,910	3,830	4,400	4,300	------	4,800	23,900	13,800	5,250	4,010	2,900	8,080
30	2,800	5,160	4,600	4,500	------	5,800	22,000	12,800	5,040	4,500	2,890	8,340
31	2,530	------	4,600	3,500	------	6,200	------	11,300	------	4,600	3,900	------
TOTAL	114,410	167,150	132,500	113,900	124,700	212,200	987,400	514,200	244,620	145,510	117,610	141,360
MEAN	3,691	5,572	4,274	3,674	4,454	6,845	32,910	16,590	8,154	4,694	3,794	4,712

CALENDAR YEAR 1964 MAX 15,100 MIN 1,600 MEAN 4,751
WATER YEAR 1964-65 MAX 65,200 MIN 2,280 MEAN 8,262

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 1 to Apr. 10.

5-3700. Eau Galle River at Spring Valley, Wis.

Location.--Lat 44°51'00", long 92°14'15", between secs. 5 and 6, T. 27 N., R. 15 W., on downstream side near center of bridge at Spring Valley, 0.1 mile upstream from Mines Creek, 0.5 mile downstream from Lousy Creek, and at mile 29.96.

Drainage area.--64.8 sq mi.

Records available.--March 1944 to September 1965.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 910.45 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to July 31, 1957, chain gage at same site at datum 2.0 ft higher.

Average discharge.--21 years, 25.8 cfs.

Extremes.--Maximum discharge during year, 6,820 cfs June 1 (gage height, 12.80 ft); minimum observed, 6.8 cfs June 10-12.
1944-65: Maximum discharge, 7,000 cfs Apr. 15, 1954 (gage height, present datum, 11.50 ft); minimum observed, 5.8 cfs Sept. 25, 27, 28, 30, 1949.
Maximum stage known since at least 1894, 18.98 ft present datum Sept. 18, 1942, from floodmarks (discharge, 33,000 cfs estimated by Corps of Engineers on basis of slope-area measurement by Geological Survey of peak discharge of 39,000 cfs at Elmwood, drainage area, 91.9 sq mi).

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 28, Mar. 1-3, Apr. 16 to May 8)

Oct. 1 to Apr. 4				Apr. 5 to Sept. 30			
1.7	7.0	3.5	251	1.9	5.4	3.0	98
1.9	18	4.0	420	2.1	9.4	4.0	300
2.2	41	4.5	636	2.2	12	5.0	640
2.6	84	5.0	913	2.3	17	6.0	1,080
3.0	143	5.5	1,210	2.4	24	7.0	1,650
				2.5	34	8.0	2,300

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	8.5	8	8	7	1020	12	11	2340	11	14	12
2	9.5	8.5	9	8	7	463	14	10	92	234	13	12
3	9.5	8.5	9	8	7	95	16	10	24	55	13	11
4	9.5	8.5	9	8	7	64	50	10	*23	13	13	11
5	9.0	8.5	9	8	8	43	217	12	20	11	13	11
6	9.0	8.5	9	8	9	50	1650	11	154	13	12	11
7	9.0	8.5	9	8	9	50	1850	20	24	11	11	14
8	9.0	8.5	9	8	9	30	* 698	389	15	149	11	13
9	9.0	8.5	9	8	10	20	*1280	248	8.3	199	10	12
10	9.0	*9.0	12	7	10	16	2000	18	6.8	35	10	12
11	9.5	10	14	7	9	15	1630	10	6.8	15	10	12
12	9.0	10	10	7	9	12	441	9.4	6.8	12	10	14
13	9.0	9.5	9	7	8	15	*238	9.0	15	37	10	14
14	9.0	9.5	9	7	8	13	98	9.0	15	12	10	14
15	8.5	9.5	9	7	8	12	91	8.5	15	*13	11	14
16	8.5	9.5	* 8	7	8	10	55	113	15	12	11	14
17	8.5	9.5	8	7	* 8	10	38	18	*11	11	10	14
18	8.0	9.5	8	7	8	9	28	9.7	11	11	10	42
19	8.0	9.5	8	7	9	9	17	8.3	11	11	*10	52
20	8.0	9.5	9	7	10	8	14	7.9	11	12	10	55
21	8.0	9.5	9	8	10	8	12	7.9	11	12	10	45
22	8.0	9.0	9	9	9	9	12	7.4	29	12	10	24
23	8.0	9.0	9	8	9	8	13	7.4	21	11	10	20
24	8.0	9.0	8	8	9	8	14	7.4	11	11	10	18
25	8.5	9.5	8	8	9	9	14	7.4	11	11	11	15
26	8.5	9.5	8	* 8	10	* 9	49	7.4	11	11	11	12
27	8.5	9.5	8	8	10	9	41	7.4	11	11	10	12
28	8.5	9.5	8	7	20	9	*20	7.2	11	11	10	*13
29	8.5	9	8	7	---	9	14	7.2	11	11	10	14
30	8.5	8	8	7	---	9	12	7.2	11	14	10	14
31	8.5	---	8	7	---	10	---	8.1	---	19	13	---
Total	269.0	273.0	275	234	254	2,061	10,638	1,023.8	2,962.7	1,011	337	551
Mean	8.68	9.10	8.87	7.55	9.07	66.5	355	33.0	98 8	32.6	10.9	18.4
Cfsm	0.134	0.140	0.137	0.117	0.140	1.03	5.48	0.509	1.52	0.503	0.168	0.284
In.	0.15	0.16	0.16	0.13	0.15	1.18	6.11	0.59	1.70	0.58	0.19	0.32

Calendar year 1964: Max 320 Min 7.0 Mean 11.2 Cfsm 0.173 In. 2.34
Water year 1964-65: Max 2,340 Min 6.8 Mean 54.5 Cfsm 0.841 In. 11.42

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 1	1730	7.28	2,140	6-1	0545	12.80	6,820
4-10	2000	10.50	4,130	7-8	2200	6.21	1,180
5- 8	1900	7.10	1,710				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 29 to Feb. 28, Mar. 9 to Apr. 2.

Reservoirs in Chippewa River Basin

The nine reservoirs listed below are used to stabilize the flow of the Chippewa, Flambeau, and Red Cedar Rivers for power utilization, and are also used for recreational purposes. The first four are operated by the Chippewa-Flambeau Improvement Co. The remaining five are operated by the Northern States Power Co., which also furnishes the gage heights and capacity tables for all the above reservoirs. Month-end contents are computed by the Geological Survey. The usable capacity of these reservoirs is usually less in summer than in winter, because the allowable summer drawdown is limited by the Public Service Commission of Wisconsin in the interest of riparian property owners. There are occasionally formal or informal changes in capacity and in minimum drawdown levels. Usable capacity figures listed below are for winter regulation.

5-3554. Moose Lake on West Fork Chippewa River, lat 46°02'00", long 91°04'30", in NE 1/4 sec. 14, T. 41 N., R. 6 W., 15.0 miles north of Winter, Wis., completed in 1893, has a usable capacity of 400,000,000 cu ft. Datum of gage is at mean sea level (Northern States Power Co. bench mark).

5-3556. Lake Chippewa on Chippewa River, lat 45°53'20", long 91°04'40", in SE 1/4 sec. 2, T. 39 N., R. 6 W., 3.2 miles upstream from Geological Survey river-gaging station, 5.5 miles northwest of Winter, Wis., completed in 1923, has a usable capacity of 10,000,000,000 cu ft. Datum of gage is at mean sea level (Northern States Power Co. bench mark).

5-3573. Rest Lake on Manitowish River, lat 46°08'15", long 89°53'05", in NW 1/4 sec. 9, T. 42 N., R. 5 E., 6.2 miles east of Manitowish, Wis., used as a reservoir since 1887, has a capacity of 660,000,000 cu ft between gage heights 105.00 ft and 108.50 ft. This reservoir includes nine lakes controlled by the same dam. Altitude of gage is 1,490 ft (by U. S. Geological Survey bench mark near lake).

5-3574. Flambeau Flowage on North Fork Flambeau River, lat 46°04'15", long 90°13'30", in SE 1/4 sec. 34, T. 42 N., R. 2 E., 0.5 mile upstream from discontinued Geological Survey river-gaging station, 10.2 miles southwest of Mercer, Wis., completed in 1926, has a usable capacity of 5,895,000,000 cu ft. Datum of gage is at mean sea level (Northern States Power Co. bench mark).

5-3642. Lake Wissota on Chippewa River, lat 44°56'20", long 91°20'25", in NW 1/4 sec. 3, T. 28 N., R. 8 W., 2.0 miles east of Chippewa Falls, Wis., city limits, completed in 1917, has a usable capacity of 3,547,000,000 cu ft. Datum of gage is at mean sea level (Northern States Power Co. bench mark).

5-3671. Birch Lake on Red Cedar River, lat 45°39'35", long 91°33'25", in W 1/2 sec. 25, T. 37 N., R. 10 W., at Birchwood, Wis., used as a reservoir since 1882, has a usable capacity of 908,000,000 cu ft. Altitude of gage is 1,090 ft (from nearby bench marks).

5-3672. Red Cedar Lake on Red Cedar River, lat 45°35'20", long 91°36'05", on line between secs. 21 and 22, T. 36 N., R. 10 W., at south edge of Mikana, Wis., used as a reservoir since 1882, has a usable capacity of 577,000,000 cu ft. Altitude of gage is 1,080 ft (Northern States Power Co.).

5-3673. Long Lake on Brill River, lat 45°40'05", long 91°40'50", in SW 1/4 sec. 24, T. 37 N., R. 11 W., 1 mile east of Nobleton, Wis., used as a reservoir since 1883, has a usable capacity of 637,000,000 cu ft. Altitude of gage is 1,210 ft (from nearby bench marks).

5-3674. Bear Lake on Bear Creek, lat 45°36'30", long 91°46'25", in NE 1/4 sec. 18, T. 36 N., R. 11 W., at Haugen, Wis., used as a reservoir since 1880, has a capacity of 413,000,000 cu ft between gage heights 87.0 ft and 91.8 ft. Altitude of gage is 1,140 ft (from nearby bench marks).

Month-end contents, in millions of cubic feet, water year October 1964 to September 1965

Date	Moose Lake	Lake Chippewa	Rest Lake	Flambeau Flowage	Lake Wissota	Birch Lake	Red Cedar Lake	Long Lake	Bear Lake
Sept. 30	400	9,352	883	2,860	3,769	760	615	459	190
Oct. 31	195	9,856	350	3,198	3,828	760	640	441	182
Nov. 30	5	8,634	350	2,808	3,881	727	627	441	182
Dec. 31	15	6,432	350	3,362	3,766	695	590	424	182
Jan. 31	5	3,976	350	2,782	3,763	648	553	399	182
Feb. 28	5	1,650	350	1,792	2,747	618	516	371	182
Mar. 31	10	950	350	833	70	527	394	319	145
Apr. 30	379	7,190	565	4,070	3,999	808	702	354	175
May 31	386	9,856	991	5,976	3,798	743	640	476	222
June 30	400	9,784	991	5,376	3,849	743	652	476	205
July 31	400	9,532	973	4,584	3,822	727	640	459	205
Aug. 31	400	9,352	936	3,680	3,876	743	627	459	205
Sept. 30	400	9,705	850	3,980	3,991	808	652	459	230

5-3785. Mississippi River at Winona, Minn.

Location.--Lat 44°03'20", long 91°38'15", in sec. 23, T. 107 N., R. 7 W., on right bank at Winona pumping station in Winona, 9 1/2 miles upstream from Trempealeau River and at mile 725.7 upstream from the Ohio River.

Drainage area.--59,200 sq mi, approximately.

Records available.--June 1928 to September 1965. Gage-height records collected in this vicinity since 1878 are contained in reports of Mississippi River Commission.

Gage.--Water-stage recorder. Datum of gage is 639.64 ft above mean sea level, datum of 1929. June 10, 1928, to Apr. 15, 1931, staff gage at site 800 ft upstream. Prior to Oct. 1, 1929, at datum 0.20 ft higher and Oct. 1, 1929, to Apr. 15, 1931, at datum 0.12 ft lower. Apr. 16, 1931, to Nov. 12, 1934, staff gage at present site and datum. Since Mar. 31, 1937, auxiliary water-stage recorder 2.7 miles upstream at tailwater of navigation dam 5A.

Average discharge.--37 years, 24,520 cfs.

Extremes.--Maximum discharge during year, 268,000 cfs Apr. 19 (gage height, 20.77 ft, from floodmark); minimum daily, 8,000 cfs Nov. 30, Dec. 1, 2; minimum gage height, 5.05 ft Dec. 1.
1928-65: Maximum discharge, that of Apr. 19, 1965; minimum, 2,250 cfs Dec. 29, 1933 (gage height, -1.18 ft); minimum gage height, -3.38 ft Aug. 31, 1934.

Remarks.--Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

Cooperation.--Gage-height record at dam 5A furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24,600	11,400	8,000	11,600	10,300	24,500	14,400	154,000	70,000	41,600	18,400	15,600
2	23,800	10,200	8,000	11,800	10,400	40,000	21,300	144,000	70,400	40,000	16,300	16,000
3	23,000	10,200	9,600	11,800	10,500	50,000	27,200	135,000	74,200	39,100	17,300	14,700
4	23,600	12,800	10,600	11,800	10,600	43,300	35,600	124,000	78,500	35,800	18,700	13,700
5	21,700	14,500	10,600	10,700	11,200	31,700	53,200	115,000	80,400	36,000	20,800	14,500
6	19,900	14,900	10,600	10,900	11,400	27,000	66,800	107,000	80,900	30,900	21,500	15,400
7	18,300	17,500	11,200	11,900	11,600	27,100	77,300	99,800	80,200	27,200	21,900	15,000
8	17,500	12,700	11,100	12,000	12,200	22,700	87,600	94,900	77,600	26,900	22,000	15,300
9	16,400	12,700	11,200	12,000	11,700	22,400	98,400	91,800	76,700	29,300	22,200	16,800
10	15,300	13,300	11,800	11,900	13,000	22,600	104,000	88,700	76,300	32,600	21,900	17,800
11	14,200	13,300	12,900	11,800	13,000	22,300	112,000	87,600	76,800	30,900	21,400	19,100
12	15,900	15,200	14,400	11,800	12,800	21,800	121,000	91,100	77,900	30,200	20,200	17,200
13	16,200	15,300	13,000	11,800	12,600	20,000	131,000	93,700	78,500	31,800	20,500	15,500
14	16,300	15,300	13,000	11,800	12,400	19,800	150,000	94,800	78,800	37,600	20,000	14,300
15	14,500	15,100	12,000	11,200	12,200	16,800	178,000	94,200	78,200	36,800	19,500	14,200
16	13,900	15,500	11,400	11,000	12,000	16,000	210,000	92,500	76,700	35,600	17,400	14,300
17	13,200	16,400	11,400	11,000	11,800	15,000	215,000	89,200	75,000	35,700	16,100	15,200
18	12,500	*19,000	11,500	11,100	11,800	15,600	238,000	89,200	*73,100	34,300	16,100	18,600
19	13,000	19,100	11,500	10,800	11,800	15,000	263,000	91,200	71,600	31,300	15,000	24,300
20	12,700	19,000	11,500	10,300	11,700	14,300	264,000	93,200	69,000	32,500	13,900	24,400
21	*12,100	17,400	11,500	10,600	11,700	14,400	257,000	93,200	65,600	30,600	12,900	24,700
22	10,700	15,600	11,500	10,900	11,800	13,900	250,000	89,600	62,800	29,300	12,200	27,700
23	11,300	13,900	11,500	10,900	10,900	13,800	238,000	84,300	62,400	30,900	12,200	27,300
24	10,200	12,400	11,500	11,000	10,300	13,800	227,000	79,600	59,200	27,100	10,800	27,800
25	10,200	12,500	11,500	11,000	11,200	13,400	216,000	75,700	54,500	24,600	9,810	28,200
26	9,600	11,800	11,500	10,800	12,300	13,400	205,000	74,300	47,900	24,100	*12,200	28,700
27	8,900	10,900	11,500	10,700	12,300	13,400	195,000	73,300	47,200	20,400	14,000	26,900
28	10,000	10,100	9,700	10,500	12,600	13,400	184,000	71,800	48,400	*19,900	12,700	28,500
29	11,200	9,300	10,100	9,700	--------	13,000	173,000	69,900	45,400	19,500	14,400	31,700
30	11,800	8,000	11,300	10,000	---------	11,000	164,000	69,500	42,500	19,200	14,700	32,500
31	11,300	----------	11,500	10,200	---------	11,200	----------	69,900	----------	18,500	15,500	----------
Total	463,800	415,300	348,400	345,300	327,200	632,600	4,576,800	2,922,000	2,056,700	940,200	522,510	615,900
Mean	14,960	13,840	11,240	11,140	11,690	20,410	152,600	94,260	68,560	30,330	16,860	20,530
Cfsm	0.253	0.234	0.190	0.188	0.197	0.345	2.58	1.59	1.16	0.512	0.285	0.347
In.	0.29	0.26	0.22	0.22	0.21	0.40	2.88	1.84	1.29	0.59	0.33	0.39

Calendar year 1964 : Max 65,600 Min 6,190 Mean 18,710 Cfsm 0.316 In. 4.30
Water year 1964-65 : Max 264,000 Min 8,000 Mean 38,810 Cfsm 0.656 In. 8.92

* Discharge measurement made on this day.
Note.--Fall-stage-discharge relation affected by ice Nov. 29 to Apr. 4 (no gage-height record Jan. 8-12).

5-3794. Trempealeau River at Arcadia, Wis.

Location.--Lat 44°15'15", long 91°30'25", in SW 1/4 sec. 32, T. 21 N., R. 9 W., near right bank on downstream side of bridge on State Highways 93 and 95 in Arcadia, half a mile downstream from Turton Creek.

Drainage area.--552 sq mi.

Records available.--July 1960 to September 1965.

Gage.--Wire-weight gage read twice daily. Datum of gage is 719.61 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 322 cfs.

Extremes.--Maximum discharge during year, 9,740 cfs Apr. 6 (gage height, 7.15 ft, from graph based on gage readings) from rating curve extended above 7,000 cfs; Maximum gage height observed, 8.04 ft Mar. 2 (backwater from ice); minimum daily discharge, 150 cfs Jan. 29 to Feb. 4.
1960-65: Maximum discharge, that of Apr. 6, 1965; minimum observed, 110 cfs, Aug. 8, 9, 19, 1964.

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

Rating tables, except period of ice effect (gage height in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 15-23)

Oct. 1 to Mar. 1		Mar. 2 to Sept. 30			
0.6	157	-0.2	154	4.0	1,790
.8	207	0.0	189	5.0	2,750
1.0	265	1.0	455	6.0	4,850
1.6	466	3.0	1,210	7.0	8,950

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	199	167	170	205	150	700	270	384	262	178	225	231
2	197	171	*175	205	150	2,000	500	375	321	175	225	221
3	189	171	170	205	150	3,000	800	372	307	171	216	208
4	186	197	170	210	150	2,000	1,800	378	299	169	225	202
5	181	210	170	210	155	1,600	4,000	375	274	171	214	197
6	181	221	170	210	160	1,400	7,430	494	270	175	212	200
7	184	218	170	215	250	1,800	8,010	399	272	182	245	204
8	186	197	175	240	500	2,300	*6,470	351	290	180	468	210
9	181	191	180	250	500	1,900	3,990	327	262	360	587	216
10	181	184	190	200	430	1,250	*3,030	316	245	301	433	221
11	181	186	250	165	380	1,000	2,850	299	231	240	333	225
12	181	202	600	160	280	780	2,860	*285	221	214	282	212
13	181	213	500	*156	210	660	1,860	272	216	484	262	204
14	181	215	400	155	185	560	1,240	264	208	855	247	225
15	176	197	320	155	180	470	888	252	202	682	238	247
16	175	184	250	155	*180	430	724	272	*200	597	238	267
17	171	186	220	165	180	390	662	272	197	655	238	254
18	167	181	200	175	180	350	696	321	200	791	231	243
19	167	184	190	180	190	310	635	304	193	614	223	937
20	167	171	190	180	195	290	560	272	195	433	214	1,440
21	*167	160	195	180	200	280	513	247	191	330	208	980
22	167	160	200	180	200	270	484	238	193	301	210	745
23	167	200	205	175	195	260	477	238	221	*288	208	553
24	167	240	200	170	190	250	474	234	270	257	204	430
25	164	240	200	165	185	240	536	234	200	240	*206	369
26	164	210	195	160	185	240	968	339	189	236	208	339
27	162	170	195	155	190	240	830	436	185	234	204	318
28	159	160	195	155	250	240	675	412	185	221	200	614
29	162	155	200	150	-------	230	510	321	189	216	197	912
30	167	160	200	150	-------	*230	436	285	189	221	200	*748
31	167	-------	205	150	-------	240	-------	267	-------	221	223	-------
Total	5,426	5,701	7,050	5,586	6,350	25,910	55,178	9,835	6,877	10,392	7,824	12,372
Mean	175	190	227	180	227	836	1,839	317	229	335	252	412
Cfsm	0.317	0.344	0.411	0.326	0.411	1.51	3.33	0.574	0.415	0.607	0.457	0.746
In.	0.37	0.38	0.47	0.38	0.43	1.75	3.72	0.66	0.46	0.70	0.53	0.83

Calendar year 1964 : Max 1,940 Min 112 Mean 208 Cfsm 0.377 In. 5.10
Water year 1964-65 : Max 8,010 Min 150 Mean 434 Cfsm 0.786 In. 10.68

* Discharge measurement made on this date.
Note.--Stage-discharge relationship affected by ice Nov. 21 to Apr. 5.

5-3795. Trempealeau River at Dodge, Wis.

Location.--Lat 44°07'55", long 91°33'10", in sec. 10, T. 19 N., R. 10 W., near left bank on downstream side of highway bridge in Dodge, 9 miles upstream from mouth.

Drainage area.--643 sq mi.

Records available.--December 1913 to September 1919, April 1934 to September 1965.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 663.42 ft above mean sea level, datum of 1929. Prior to July 16, 1941, chain gage at same site and datum.

Average discharge.--36 years (1914-19, 1934-65), 388 cfs.

Extremes.--Maximum discharge during year, 12,100 cfs Apr. 7 (gage height, 9.40 ft); minimum daily, 160 cfs Jan. 12-15, Jan. 28 to Feb. 3.
1913-19, 1934-65: Maximum discharge, 17,400 cfs Apr. 4, 1956 (gage height, 10.35 ft); minimum daily, 98 cfs Jan. 10, 1938.

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

Cooperation.--Gage-height record collected in cooperation with Corps of Engineers.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	187	170	210	160	600	260	520	316	185	257	257
2	240	189	*165	210	160	900	400	489	329	183	249	246
3	234	191	165	210	160	1,800	600	487	371	172	239	225
4	220	205	165	210	165	4,000	1,000	505	344	171	242	211
5	214	244	170	210	175	2,400	2,000	505	331	196	228	209
6	216	244	170	210	190	1,800	5,000	549	323	187	232	208
7	216	244	175	220	240	1,600	9,970	559	308	215	312	242
8	214	225	175	230	450	1,500	9,930	485	327	195	561	227
9	205	218	180	240	490	2,700	6,470	428	308	460	585	249
10	207	212	190	190	520	2,400	*4,280	400	285	434	626	246
11	209	207	230	175	390	1,400	3,670	388	275	335	412	239
12	209	221	580	160	330	1,000	3,460	*361	253	282	321	233
13	209	246	610	*160	250	800	2,840	346	246	420	285	220
14	207	252	470	160	210	600	1,940	331	242	876	251	221
15	207	240	350	160	195	500	1,300	325	225	675	242	275
16	207	229	270	165	*190	450	957	357	220	600	235	297
17	202	221	230	170	195	400	796	356	*213	916	253	306
18	197	218	205	180	200	360	820	400	210	767	239	310
19	187	212	200	190	215	330	809	404	213	688	227	304
20	191	205	205	195	220	310	743	359	206	585	216	1,290
21	*191	180	210	195	220	290	626	327	203	406	215	1,400
22	189	180	210	195	210	280	595	306	203	359	215	1,240
23	189	240	210	190	210	270	564	293	348	*331	204	887
24	191	275	210	185	200	260	583	285	308	308	201	580
25	193	285	210	175	200	260	660	278	246	291	*204	470
26	189	290	205	170	210	250	1,010	361	223	271	206	432
27	189	280	200	165	250	250	1,030	507	203	264	204	406
28	189	240	200	160	350	250	826	498	193	253	201	819
29	185	210	200	160	--------	240	675	458	210	240	198	1,080
30	187	180	205	160	--------	*230	571	361	211	242	211	*1,020
31	191	----------	210	160	--------	240	----------	323	----------	257	249	----------
Total	6,322	6,770	7,345	5,770	6,955	28,670	64,385	12,551	7,893	11,765	8,520	14,948
Mean	204	226	237	186	248	925	2,146	405	263	380	275	498
Cfsm	0.317	0.351	0.369	0.289	0.386	1.44	3.34	0.630	0.409	0.591	0.428	0.774
In.	0.37	0.39	0.42	0.33	0.40	1.66	3.72	0.73	0.46	0.68	0.49	0.86

Calendar year 1964 : Max 1,530 Min 116 Mean 237 Cfsm 0.369 In. 5.02
Water year 1964-65 : Max 9,970 Min 160 Mean 498 Cfsm 0.774 In. 10.51

* Discharge measurement made this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 6.

5-3810. Black River at Neillsville, Wis.

Location.--Lat 44°33'35", long 90°36'50", in sec. 15, T. 24 N., R. 2 W., on right bank at downstream side of bridge on U. S. Highway 10 in Neillsville, 1 mile downstream from O'Neill Creek and 2.6 miles upstream from Cunningham Creek.

Drainage area.--756 sq mi.

Records available.--April 1905 to March 1909, October 1913 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Digital water-stage recorder. Datum of gage is 962.77 ft above mean sea level, datum of 1929 (levels by U. S. Weather Bureau). Prior to Oct. 24, 1934, chain gage, and Oct. 24, 1934, to July 28, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--55 years (1905-8, 1913-65), 566 cfs.

Extremes.--Maximum discharge during year, 18,300 cfs Apr. 12 (gage height, 15.28 ft); minimum daily, 25 cfs Jan. 30 to Feb. 3.
1905-9, 1913-65: Maximum discharge, 48,800 cfs Sept. 10, 1938 (gage height, 23.8 ft); minimum, 0.6 cfs Aug. 15, 1936 (gage height, 1.84 ft).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.7	50	4.0	401	7.0	2,440	11.0	8,620
3.0	101	5.0	870	8.0	3,520	13.0	12,600
3.5	226	6.0	1,520	9.0	5,020	15.0	17,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	930	92	94	58	25	400	76	1,260	935	120	230	197
2	633	*95	90	62	25	2,500	80	1,030	4,820	99	253	262
3	464	107	86	66	25	2,000	105	981	3,440	132	225	215
4	387	143	82	66	26	1,550	130	1,010	2,200	110	175	175
5	318	280	80	68	27	1,600	464	898	1,480	102	161	147
6	270	705	76	72	30	1,650	1,860	987	1,360	327	131	126
7	235	681	76	80	50	1,750	4,300	1,420	1,420	299	117	112
8	209	551	76	92	70	1,800	5,520	1,470	1,130	235	409	101
9	186	446	80	100	62	2,000	5,460	1,360	792	371	486	119
10	170	378	90	96	80	1,390	7,820	1,720	564	708	379	134
11	160	336	110	84	68	880	15,200	1,430	412	382	283	120
12	150	446	180	70	58	660	16,900	1,010	313	*226	211	110
13	143	2,340	265	50	50	500	11,600	764	248	919	161	107
14	138	2,890	*238	38	40	350	8,520	584	*201	336	125	114
15	134	2,330	180	30	*38	240	6,810	463	166	193	101	162
16	131	1,510	130	28	38	200	5,450	588	141	737	*85	160
17	127	1,020	90	27	39	160	4,060	1,220	121	1,290	78	141
18	120	726	70	27	40	145	3,790	1,330	105	736	70	137
19	114	545	60	28	44	135	3,640	1,260	93	451	62	1,640
20	109	380	54	30	52	125	3,080	1,010	84	289	60	1,960
21	105	198	50	35	60	125	2,690	735	77	203	63	*2,180
22	101	180	50	36	52	135	2,560	527	65	155	60	1,920
23	99	165	52	36	45	*159	2,460	398	138	126	56	1,390
24	95	160	54	35	43	132	2,140	321	169	116	54	1,050
25	95	155	56	*34	38	110	2,560	282	165	106	51	824
26	93	150	58	32	38	92	*5,200	1,550	135	168	50	628
27	92	130	56	30	45	84	6,180	2,260	111	155	53	481
28	90	120	52	28	90	76	4,050	1,730	220	126	54	1,200
29	92	110	50	26	------	74	2,520	1,080	154	100	51	2,990
30	92	100	52	25	------	73	1,700	729	153	83	77	3,210
31	92	------	54	25	------	74	------	518	------	96	116	------
TOTAL	6,169	17,469	2,791	1,514	1,298	21,169	136,945	31,925	21,432	9,496	4,489	22,112
MEAN	199	582	90.0	48.8	46.4	683	4,565	1,030	714	306	145	737
CFSM	.263	.770	.119	.065	.061	.903	6.04	1.36	.944	.405	.192	.975
IN	.30	.86	.14	.07	.06	1.04	6.74	1.57	1.05	.47	.22	1.09

CALENDAR YEAR 1964 MAX 4,520 MIN 5.4 MEAN 318 CFSM .421 INCHES 5.73
WATER YEAR 1964-65 MAX 16,900 MIN 25 MEAN 758 CFSM 1.00 INCHES 13.62

Peak discharge (base, 5,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4- 8	0200	11.32	9,240	4-26	2300	10.29	7,280
4-12	0400	15.28	18,300	6- 2	1400	9.18	5,320

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 22 to Mar. 9, Mar. 11-22, Mar. 26 to Apr. 14.

GPO 826-538-6

5-3820. Black River near Galesville, Wis.

Location.--Lat 44°03'45", long 91°17'30", in sec. 2, T. 18 N., R. 8 W., on left bank 30 ft downstream from bridge on U. S. Highway 53, 4.5 miles southeast of Galesville, and 5 miles downstream from Fleming Creek.

Drainage area.--2,120 sq mi, approximately.

Records available.--December 1931 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 658.43 ft above mean sea level, unadjusted. Prior to Apr. 2, 1941, chain gage on bridge 30 ft upstream at same datum.

Average discharge.--33 years (1932-65), 1,606 cfs.

Extremes.--Maximum discharge during year, 33,000 cfs Apr. 13 (gage height, 13.60); minimum daily, 320 cfs Jan. 4.
1931-65: Maximum discharge observed, 58,000 cfs Sept. 11, 1938 (gage height, 14.31 ft); minimum observed, 180 cfs Dec. 20, 1932.

Remarks.--Records good except those for period of ice effect, which are fair. Flow partly regulated at Hatfield Dam powerplant where drainage area is 1,290 sq mi and storage capacity is 272 million cubic feet. Water diverted periodically from the basin into the Lemonweir River basin for cranberry culture.

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to July 17				July 18 to Sept. 30			
1.2	315	9.0	9,700	1.0	363	3.0	1,800
1.6	490	11.0	15,000	1.6	648	6.0	4,950
2.0	745	12.0	19,500	2.2	1,070	8.0	7,900
3.0	1,690	13.0	27,000				
6.0	5,330	13.5	32,000				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,150	440	380	420	360	700	1,900	6,540	2,890	569	648	484
2	2,030	400	430	430	360	1,600	2,200	4,580	2,570	540	591	509
3	1,790	395	490	410	360	2,000	2,600	3,800	4,060	470	514	518
4	1,560	551	490	320	360	3,000	3,200	3,470	5,340	480	597	528
5	1,460	528	400	330	370	4,500	3,600	3,910	4,880	342	625	523
6	1,250	613	420	360	390	4,600	3,860	3,760	3,240	395	631	453
7	1,040	666	460	380	430	4,700	5,110	3,470	3,060	374	678	499
8	942	783	440	460	480	4,800	6,860	3,650	3,060	496	608	614
9	900	942	500	440	470	5,100	10,300	3,850	2,890	653	631	742
10	783	917	520	400	440	6,000	14,200	3,850	2,390	745	620	802
11	716	860	580	360	430	4,700	14,500	*3,930	2,010	687	865	946
12	606	942	660	340	420	3,900	22,200	3,770	1,860	791	850	916
13	646	942	640	*390	380	3,400	31,800	3,000	1,690	798	774	691
14	653	1,120	580	420	360	3,000	26,300	2,560	1,210	884	735	685
15	640	2,780	520	430	350	2,600	20,000	2,350	994	1,550	597	754
16	545	2,900	760	430	* 340	2,300	*15,400	2,260	*821	1,520	499	850
17	640	2,120	800	420	340	2,000	12,500	2,210	775	2,160	489	1,160
18	588	1,670	700	380	340	1,800	10,200	2,270	673	3,250	591	1,200
19	418	1,790	680	350	340	2,000	8,370	3,120	576	3,180	489	1,460
20	*422	1,650	400	350	350	2,050	7,650	3,640	653	2,220	489	2,330
21	518	1,450	370	360	360	1,900	7,140	3,320	518	1,910	528	4,570
22	480	1,250	370	370	350	1,750	5,950	2,840	506	1,520	415	6,150
23	485	1,000	420	380	340	1,650	5,360	2,320	680	*1,250	390	7,290
24	501	700	440	380	340	1,550	5,330	2,050	653	1,040	390	7,900
25	551	540	450	380	350	1,450	5,330	2,050	738	887	*410	6,780
26	408	480	430	370	350	1,350	5,580	3,190	702	709	419	4,230
27	404	420	370	370	350	1,250	6,670	3,400	619	608	402	3,300
28	496	370	330	370	360	1,200	9,690	5,230	512	709	406	3,250
29	490	350	340	370	------	1,150	12,000	6,080	436	678	415	*4,140
30	490	330	360	370	------	1,100	9,640	5,420	594	637	386	5,680
31	475	------	400	370	------	1,500	------	3,500	------	620	423	------
Total	25,077	30,099	15,130	11,910	10,470	80,600	295,440	109,390	51,600	32,672	17,105	69,954
Mean	809	1,003	488	384	374	2,600	9,848	3,529	1,720	1,054	552	2,332
Cfsm	0.382	0.473	0.230	0.181	0.176	1.23	4.65	1.66	0.811	0.497	0.260	1.10
In.	0.44	0.53	0.27	0.21	0.18	1.41	5.18	1.92	0.91	0.57	0.30	1.23

Calendar year 1964: Max 7,270 Min 258 Mean 995 Cfsm 0.469 In. 6.40
Water year 1964-65: Max 31,800 Min 320 Mean 2,053 Cfsm 0.968 In. 13.15

Peak discharge (base, 12,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-13	1600	13.60	33,000	4-29	0900	10.18	12,500

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 5.

5-3830. La Crosse River near West Salem, Wis.

Location.--Lat 43°54'05", long 91°07'05", in SE 1/4 sec. 32, T. 17 N., R. 6 W., on left bank 30 ft upstream from highway bridge, 2 miles west of West Salem, and 6 miles downstream from Dutch Creek.

Drainage area.--398 sq mi.

Records available.--December 1913 to September 1965.

Gage.--Digital water-stage recorder or chain gage. Datum of gage is 668.0 ft above mean sea level, adjustment of 1912. Prior to Oct. 19, 1938, chain gage at site 30 ft downstream at same datum. Oct. 19, 1938, to Aug. 12, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years (1914-65), 287 cfs.

Extremes.--Maximum discharge during year, 2,610 cfs Mar. 3 (gage height, 8.76 ft); minimum observed, 69 cfs Oct. 7 (gage height, 1.17 ft).

1913-65: Maximum discharge observed, 8,200 cfs Aug. 6, 1935 (gage height, 12.2 ft), from rating curve extended above 3,000 cfs; minimum, 30 cfs Sept. 5, 1948 (gage height, 0.45 ft).

Remarks.--Records good to Dec. 31 and fair thereafter. Diurnal fluctuation caused by powerplant a few miles above station.

Cooperation.--Water-stage recorder inspected by employee of Corps of Engineers.

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	190	186	188	171	175	905	576	308	318	184	197	208
2	186	186	188	172	175	*2,080	970	300	316	182	194	215
3	186	186	*185	199	175	2,440	960	288	298	182	197	208
4	190	187	180	179	175	1,140	1,190	302	286	184	195	200
5	189	207	180	186	175	1,450	1,060	304	296	184	192	194
6	189	194	180	203	175	2,200	1,290	306	304	189	197	210
7	191	187	180	197	185	1,920	1,360	314	308	189	210	232
8	193	190	180	195	280	810	1,440	308	308	243	202	276
9	194	211	170	200	270	600	1,790	308	286	249	229	395
10	194	231	180	205	270	350	1,590	300	276	252	274	399
11	193	220	204	200	270	280	1,130	300	256	249	223	420
12	191	185	196	*185	270	230	1,900	280	252	239	260	411
13	189	187	196	195	260	210	1,220	*274	245	249	229	274
14	190	189	198	190	240	200	813	266	251	247	174	292
15	190	189	192	190	230	190	511	264	247	215	174	340
16	187	189	193	190	*180	190	310	206	225	200	179	374
17	183	190	190	190	220	190	374	310	*184	251	179	556
18	184	194	185	180	220	180	397	385	173	252	190	501
19	184	194	180	175	205	190	392	329	181	254	192	1,020
20	*187	195	168	170	190	160	438	318	181	251	200	1,210
21	188	195	168	180	240	130	353	298	179	251	198	1,510
22	188	195	168	180	300	150	294	302	189	*186	202	1,060
23	187	192	168	180	260	180	298	310	266	184	197	1,080
24	188	193	169	185	220	250	306	302	470	187	190	690
25	188	193	172	192	195	290	362	298	222	189	*189	356
26	186	195	178	183	185	290	576	452	284	187	192	499
27	181	196	175	190	180	290	571	718	272	182	192	520
28	195	199	170	190	200	280	369	837	264	190	187	576
29	200	192	171	185	------	270	452	528	190	192	186	1,020
30	189	189	171	185	------	260	318	320	181	192	192	1,480
31	188	------	171	175	------	*290	------	322	------	194	194	------
TOTAL	5,858	5,836	5,594	5,797	6,120	18,595	23,610	10,657	7,708	6,579	6,206	16,726
MEAN	189	195	180	187	219	600	787	344	257	212	200	558
CFSM	.475	.490	.452	.470	.550	1.51	1.98	.864	.646	.533	.503	1.40
IN	.55	.55	.52	.54	.57	1.74	2.21	1.00	.72	.61	.58	1.56

CALENDAR YEAR 1964	MAX	685	MIN	120	MEAN	210	CFSM	.528	INCHES	7.18
WATER YEAR 1964-65	MAX	2,440	MIN	130	MEAN	327	CFSM	.822	INCHES	11.15

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21, 22, Dec. 3-10, 17-19, 27, 28, 31, Jan. 8-24, Jan. 27 to Feb. 28, Mar. 9-30.

5-3895. Mississippi River at McGregor, Iowa

Location.--Lat 43°01'30", long 91°10'20", in SE 1/4 SE 1/4 sec. 22, T. 95 N., R. 3 W., on right bank in city park at north end of Main Street in McGregor, 2.6 miles upstream from Wisconsin River, 4.3 miles downstream from Yellow River, and at mile 633.4 from Ohio River.

Drainage area.--67,500 sq mi, approximately.

Records available.--August 1936 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 605.30 ft above mean sea level, adjustment of 1912. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937, to June 1, 1939, auxiliary staff gage 14.1 miles upstream in tailwater of dam 9, at datum 5.30 ft lower.

Average discharge.--29 years, 31,870 cfs (23,070,000 acre-ft per year).

Extremes.--Maximum daily discharge during year, 276,000 cfs Apr. 24; maximum gage height, 25.38 ft Apr. 24; minimum daily discharge, 10,000 cfs Dec. 2, 3; minimum gage height, 5.67 ft Feb. 4.
1936-65: Maximum daily discharge that of Apr. 24, 1965; maximum gage height, that of Apr. 24, 1965; minimum daily discharge, 6,200 cfs Dec. 9, 1936; minimum gage height, -0.86 ft Aug. 18, 1936.
Maximum stage known since at least 1828 that of Apr. 24, 1965.

Remarks.--Records good except those for periods of ice effect, which are fair. Stage-discharge relation affected by backwater from Wisconsin River and Dam 10. Flow regulated by reservoirs and navigation dams.

Cooperation.--Gage-height record at Dam 9 collected in cooperation with Corps of Engineers.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28,600	14,500	11,000	12,400	12,200	24,700	23,100	203,000	81,800	45,100	21,100	20,100
2	26,900	14,800	10,000	12,500	11,300	41,000	33,200	191,000	82,900	43,700	20,300	20,000
3	27,100	16,600	10,000	13,700	11,300	56,900	39,500	181,000	81,900	43,400	19,600	19,600
4	25,600	18,500	10,200	13,500	11,300	63,300	46,800	169,000	81,200	40,200	19,100	19,300
5	24,500	19,600	10,400	13,200	12,200	59,800	54,600	159,000	83,000	37,900	21,500	19,500
6	22,700	19,800	10,800	13,300	12,300	59,300	64,600	150,000	85,600	35,700	22,400	19,200
7	21,200	18,700	11,400	13,300	12,600	56,200	74,400	139,000	88,100	31,700	23,800	20,300
8	18,900	17,800	11,800	14,100	17,400	52,500	87,000	129,000	89,900	28,400	26,200	18,300
9	18,000	17,000	12,000	13,900	20,200	47,700	109,000	123,000	89,900	29,300	28,400	17,500
10	17,600	16,100	12,000	13,800	20,000	43,000	121,000	117,000	90,000	33,800	26,400	19,700
11	16,800	17,200	13,000	13,800	19,500	39,000	132,000	110,000	88,500	35,300	24,900	20,000
12	18,000	19,900	15,000	13,800	18,300	35,400	140,000	106,000	86,900	35,700	22,800	19,000
13	18,600	20,200	16,500	13,600	17,700	33,600	146,000	101,000	86,100	35,300	21,700	17,500
14	18,400	20,200	15,000	13,600	17,500	31,400	153,000	98,800	84,800	32,800	21,600	15,900
15	18,800	19,500	14,600	12,900	14,100	23,500	165,000	99,000	84,800	32,000	20,900	16,000
16	18,200	19,700	14,900	12,900	13,200	23,000	173,000	101,000	84,500	31,500	20,600	17,300
17	17,200	20,900	15,000	12,900	12,000	19,100	185,000	99,000	84,000	30,900	20,800	21,400
18	17,300	23,000	14,300	12,900	12,400	18,100	196,000	100,000	83,600	30,700	19,700	27,000
19	17,500	22,900	14,300	12,200	13,900	18,700	211,000	97,200	81,100	30,000	18,900	34,400
20	16,900	22,400	14,400	12,300	13,800	19,100	238,000	96,100	81,600	34,300	18,100	46,200
21	14,900	20,000	14,100	12,300	13,900	16,200	256,000	95,900	80,300	33,000	17,000	51,700
22	14,500	20,000	13,800	11,900	14,000	16,300	268,000	95,500	78,100	33,400	16,200	48,300
23	14,300	18,000	13,600	12,000	12,200	16,700	275,000	96,000	75,600	32,900	15,800	44,500
24	13,900	17,000	13,600	12,100	12,500	16,700	276,000	94,900	70,500	31,300	14,900	44,700
25	13,300	16,000	13,700	12,200	12,400	16,600	270,000	96,300	67,000	28,000	14,300	42,300
26	12,700	16,000	13,500	12,300	13,600	16,400	264,000	95,500	63,000	26,400	16,000	40,400
27	13,400	16,000	13,600	12,300	13,600	16,500	255,000	96,100	57,600	23,800	18,200	39,700
28	13,800	16,000	12,000	12,300	13,900	17,200	242,000	93,400	54,100	21,100	18,400	40,800
29	14,500	15,000	12,000	12,300	----------	18,000	231,000	89,000	50,000	21,700	17,900	47,900
30	15,100	13,000	11,900	12,300	----------	16,100	216,000	87,100	48,600	21,100	17,100	53,600
31	14,600	----------	12,000	12,300	----------	17,100	----------	84,300	----------	20,700	19,200	----------
Total	563,800	546,300	400,400	398,900	399,300	949,100	4,945,200	3,593,100	2,345,000	991,100	623,800	882,100
Mean	18,190	18,210	12,920	12,870	14,260	30,620	164,800	115,900	78,170	31,970	20,120	29,400
Cfsm	0.269	0.270	0.191	0.191	0.211	0.454	2.44	1.72	1.16	0.474	0.298	0.436
In.	0.31	0.30	0.22	0.22	0.22	0.52	2.72	1.98	1.29	0.55	0.34	0.49

Calendar year 1964 : Max 75,600 Min 7,220 Mean 21,280 Cfsm 0.315 In. 4.30
Water year 1964-65 : Max 276,000 Min 10,000 Mean 45,580 Cfsm 0.675 In. 9.16

Note.--Stage-discharge relation affected by ice Nov. 21 to Mar. 31.

5-3905. Anvil Lake near Eagle River, Wis.

Location.--Lat 45°56'20", long 89°03'35", in sec. 13, T. 40 N., R. 11 E., at resort of Hans Schaffer on north side of lake, 11 miles northeast of Eagle River.

Drainage area.--3 sq mi, approximately. Area of Anvil Lake, 380 acres.

Records available.--August 1936 to September 1965 (fragmentary).

Gage.--Staff gage read almost weekly. Datum of gage is 90.00 ft above datum assumed by Public Service Commission of Wisconsin; gage readings have been reduced to elevations above this datum. Prior to Aug. 13, 1950, staff gage 0.3 mile south as same datum.

Extremes.--Maximum elevation observed during the year, 93.18 ft June 8; minimum observed, 92.20 ft Dec. 15
1936-65: Maximum elevation observed, 97.20 ft May 3, 7, 17, 21, 24, 28, June 20, 24, 1943; minimum observed, 92.10 ft July 31, 1964.

Remarks.--Lake has no surface outlet. Lake was ice covered about Dec. 1 to early May.

Elevation, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												
2												
3												
4										2.96		
5											2.70	
6				2.34								
7	2.32											
8									3.18			
9												
10	2.26											
11		2.29			2.36							
12												
13												
14												
15		2.30	2.20									2.44
16											2.64	
17						2.32						
18	2.23											
19									3.16			
20												
21										2.78		
22											2.60	
23												
24												
25										2.76		
26												2.54
27												
28												
29							2.78		3.04			2.60
30					---							2.64
31		---			---		---		---			---

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

5-3910. Wisconsin River at Rainbow Lake, near Lake Tomahawk, Wis.

Location.--Lat 45°50'00", long 89°32'50", in S 1/2 SW 1/4 sec. 30, T. 39 N., R. 8 E., on right bank 400 ft upstream from Gilmore Creek, 800 ft downstream from Rainbow Lake, and 2.5 miles northeast of Lake Tomahawk. Records include flow of Gilmore Creek.

Drainage area.--750 sq mi, approximately, includes that of Gilmore Creek.

Records available.--July 1936 to September 1965. Prior to October 1955, published as "at Rainbow Reservoir, near Lake Tomahawk."

Gage.--Water-stage recorder. Datum of gage is 1,570.05 ft above mean sea level (Public Service Commission of Wisconsin berch mark).

Average discharge.--29 years, 688 cfs.

Extremes.--Maximum discharge during year, 2,400 cfs May 18 (gage height, 5.78 ft); minimum observed, 62 cfs Apr. 12.
1936-65: Maximum discharge, 3,570 cfs Sept. 5, 1941 (gage height, 7.59 ft); minimum, 17 cfs Oct. 10-12, 1940; minimum daily, 35 cfs Apr. 6, 1955.

Remarks.--Records good except those for Apr. 12-30, which are poor. Flow regulated by Rainbow Lake and 12 smaller reservoirs above station (see p. 109).

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 20				May 21 to Sept. 30			
0.5	114	2.5	695	0.8	198	2.5	695
1.0	214	3.0	905	1.0	239	3.0	905
1.5	346	4.0	1,360	1.5	359	4.0	1,360
2.0	510	6.0	2,540	2.0	510	6.0	2,540

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	441	444	559	637	695	567	520	154	1,080	691	496	534
2	428	428	556	592	695	577	460	181	1,250	739	483	556
3	355	418	556	596	687	600	400	290	1,190	760	503	531
4	303	398	556	618	679	581	380	482	1,070	797	534	503
5	418	389	563	611	687	570	370	524	972	764	545	486
6	510	361	570	*622	703	556	370	637	972	668	556	483
7	478	355	563	626	703	563	355	870	945	629	520	476
8	448	376	567	637	699	563	326	1,300	*895	679	611	470
9	415	438	570	633	703	581	340	1,740	810	687	600	466
10	424	468	567	629	699	570	332	1,850	679	711	645	450
11	465	*451	570	618	695	585	210	1,670	622	711	542	435
12	475	294	570	618	695	596	100	1,790	648	715	588	432
13	455	161	567	637	695	592	100	1,820	695	687	611	429
14	431	289	563	637	695	581	100	1,610	652	668	668	435
15	431	376	581	656	699	596	100	1,870	637	645	695	438
16	431	303	*614	699	727	*600	110	2,270	600	581	596	435
17	458	248	614	691	715	607	120	2,190	588	559	*577	444
18	482	284	614	683	703	622	120	2,070	660	592	577	457
19	465	415	611	679	691	620	120	2,290	679	607	563	453
20	465	468	611	676	679	618	120	2,340	668	603	545	376
21	458	496	614	695	672	616	120	2,040	664	*603	556	276
22	458	500	611	715	664	640	125	2,030	660	592	559	316
23	461	461	611	715	648	660	115	1,790	629	600	563	394
24	461	441	614	715	637	658	115	1,180	629	574	552	397
25	461	441	614	715	614	656	115	1,500	691	552	556	359
26	458	438	614	711	600	652	115	1,710	747	556	552	301
27	455	468	611	711	596	648	120	1,440	805	563	570	303
28	451	506	611	707	588	644	*125	1,080	719	552	581	261
29	475	503	600	711	-------	640	125	995	596	556	574	*204
30	486	534	676	707	-------	620	115	914	622	556	570	246
31	478	-------	699	703	-------	580	-------	840	-------	520	552	-------
Total	13,880	12,152	18,417	20,600	18,963	18,759	6,243	43,467	23,075	19,717	17,640	12,346
Mean	448	405	594	665	677	605	208	1,402	769	636	569	412

Calendar year 1964: Max 699 Min 125 Mean 419
Water year 1964-65: Max 2,340 Min 100 Mean 617

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Mar. 19 to Apr. 5. No gage-height record Apr. 12-31; discharge computed on basis of head and gate openings at dam upstream.

5-3930. Tomahawk River at Bradley, Wis.

Location.--Lat 45°32'20", long 89°44'45", in NW 1/4 sec. 9, T. 35 N., R. 6 E., at dam at outlet of Lake Nokomis, 0.5 mile east of Bradley, 4.0 miles upstream from Jersey powerplant, and 4.7 miles upstream from mouth.

Drainage area.--545 sq mi.

Records available.--January 1930 to September 1965. Prior to October 1951, published as "at Tomahawk".

Gage.--Lake staff gage read once daily, supplemented by frequent readings of tainter-gate openings. Datum of gage is 1,448.24 ft above mean sea level, datum of 1929. Prior to October 1951, powerplant records at site 4.0 miles downstream.

Average discharge.--35 years, 531 cfs.

Extremes.--Maximum discharge during year, 1,560 cfs May 21-23; minimum, 31 cfs Nov. 13, 14.
1930-65: Maximum discharge, 2,690 cfs Oct. 2, 1959; no flow at times in 1931, 1934, 1940, 1957.

Remarks.--Records good except those below 350 cfs, which are poor. Flow completely regulated by four reservoirs operated by Wisconsin Valley Improvement Company (see p. 109).

Cooperation.--Record of lake elevations and gate openings furnished by Wisconsin Valley Improvement Company.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	451	440	589	599	629	361	48	700	651	659	614
2	170	409	457	588	573	627	356	48	904	685	656	629
3	202	403	456	587	572	621	347	337	958	656	622	613
4	89	329	456	630	571	612	300	463	961	680	751	529
5	165	213	455	656	570	601	205	439	806	701	794	565
6	352	154	454	550	570	588	370	440	805	758	709	469
7	374	137	508	510	570	579	430	485	523	656	693	508
8	437	121	540	522	569	568	418	485	358	643	544	526
9	347	148	539	521	595	557	416	513	455	659	529	471
10	375	240	538	557	610	544	302	513	437	702	648	459
11	443	231	497	613	609	563	94	513	516	730	752	458
12	459	128	468	611	610	565	54	607	517	702	745	458
13	393	50	468	609	605	551	57	612	516	689	729	444
14	410	31	509	607	601	543	60	417	517	688	723	306
15	427	32	610	605	655	516	63	489	491	731	735	374
16	404	32	630	603	684	528	66	675	412	719	670	431
17	425	32	628	601	655	517	68	858	494	606	673	419
18	427	33	626	598	638	553	71	1,160	605	651	689	346
19	421	33	624	634	632	620	72	1,380	548	744	688	158
20	433	83	623	656	630	570	75	1,460	527	*740	682	49
21	419	197	551	655	626	510	79	1,500	669	730	680	34
22	417	197	501	653	623	444	56	1,560	803	730	685	34
23	416	197	461	652	643	322	43	1,560	669	713	695	34
24	384	197	439	651	675	287	43	1,500	603	545	692	228
25	343	197	440	650	617	264	44	1,460	628	539	673	325
26	392	197	441	648	582	266	45	1,460	663	550	652	228
27	432	245	441	647	615	326	46	1,320	714	570	657	118
28	443	328	469	645	635	340	46	1,240	516	713	662	* 51
29	448	357	486	642	--------	351	47	1,060	387	733	665	35
30	441	389	487	638	---------	351	47	950	526	755	641	35
31	447	----------	551	635	---------	356	----------	672	----------	752	642	----------
Total	11,419	5,791	15,793	18,963	17,134	15,269	4,681	26,224	18,228	21,121	21,035	9,948
Mean	368	193	509	612	612	493	156	846	608	681	679	332

Calendar year 1964: Max 630 Min 15 Mean 279
Water year 1964-65: Max 1,560 Min 31 Mean 509

* Discharge measurement made on this day.

5-3935. Spirit River at Spirit Falls, Wis.

Location.--Lat 45°26'55", long 89°58'50", in NW 1/4 sec. 10, T. 34 N., R. 4 E., near center of span on downstream side of bridge 0.2 mile south of town of Spirit Falls, 0.6 mile upstream from Squaw Creek, and 2.0 miles downstream from Richie Creek.

Drainage area.--82 sq mi, approximately.

Records available.--April 1942 to September 1965.

Gage.--Wire-weight gage and crest-stage indicator; gage read once daily. Altitude of gage is 1,450 ft (from dam and reservoir data). Prior to Oct. 19, 1955, chain gage at same site and datum.

Average discharge.--23 years, 79.7 cfs.

Extremes.--Maximum discharge during year, about 1,500 cfs Apr. 14 (release of ice jam); maximum gage height, 8.87 ft Apr. 14 (ice jam); minimum discharge observed, 5.2 cfs July 29 (gage height, 1.16 ft).
1942-65: Maximum discharge observed, 4,180 cfs Sept. 18, 1942 (gage height, 10.00 ft), from rating curve extended above 2,000 cfs; minimum observed, 1.0 cfs Aug. 11, 1964 (gage height 0.85 ft).

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	4.0	1.7	27	4.0	446
1.3	9.0	2.0	52	5.0	784
1.5	16.0	2.5	114	6.0	1,240
		3.0	204		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	15	14	18	9	12	15	344	334	12	40	50
2	34	12	14	18	9	14	15	298	573	14	29	28
3	40	14	16	18	9	22	16	265	372	16	19	20
4	40	27	18	18	9	45	16	249	206	13	16	15
5	34	81	18	19	9	68	17	200	137	14	13	15
6	*30	140	18	19	9	70	20	222	206	13	12	12
7	26	107	18	*19	10	64	25	301	*163	12	20	12
8	26	94	18	19	10	62	42	322	129	11	26	10
9	27	82	17	18	10	60	66	344	122	13	23	8.4
10	24	62	18	17	10	54	120	376	97	11	20	10
11	23	*55	20	16	10	47	200	289	80	11	14	11
12	23	126	27	16	*10	40	450	211	64	8.7	12	9.9
13	22	691	30	15	10	35	*860	156	53	9.0	10	9.0
14	21	533	28	14	9	31	*1,230	120	38	8.7	9.3	9.6
15	20	420	*26	14	9	27	1,230	108	32	7.8	8.4	10
16	20	286	25	13	10	*24	1,110	364	26	7.2	7.5	10
17	18	251	23	13	10	22	924	457	24	31	*7.8	12
18	18	200	22	13	10	21	968	325	21	23	9.0	20
19	17	147	21	12	10	20	738	249	20	17	8.4	36
20	16	118	20	12	10	20	919	169	17	*12	7.8	114
21	16	92	20	12	10	19	968	124	18	9.6	7.5	226
22	16	70	19	12	10	18	978	104	16	8.4	8.1	196
23	14	56	18	12	10	17	796	83	26	7.8	7.5	134
24	15	45	17	12	10	17	658	67	21	9.6	7.2	104
25	14	38	17	11	10	16	511	67	18	12	7.2	90
26	14	31	17	11	10	16	430	200	14	9.0	13	73
27	14	26	17	11	10	16	*679	284	12	8.1	44	55
28	14	22	17	10	11	15	604	183	20	7.5	46	*423
29	14	18	18	10	-------	15	457	139	20	5.2	29	540
30	14	15	18	10	---------	15	392	132	16	5.6	18	505
31	14	----------	18	9	---------	15	----------	99	----------	18	37	----------
Total	671	3,874	607	441	273	937	15,454	6,851	2,895	365.2	536.7	2,767.9
Mean	21.6	129	19.6	14.2	9.8	30.2	515	221	96.5	11.8	17.3	92.3
Cfsm	0.263	1.57	0.239	0.173	0.120	0.368	6.28	2.70	1.18	0.144	0.211	1.13
In.	0.30	1.76	0.28	0.20	0.12	0.42	7.01	3.11	1.31	0.17	0.24	1.26

Calendar year 1964: Max 691 Min 1.0 Mean 47.9 Cfsm 0.584 In. 7.96
Water year 1964-65: Max 1,230 Min 5.2 Mean 97.7 Cfsm 1.19 In. 16.18

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 14 (no gage heights Nov. 27-30, Dec. 2-6, 8-13, 16-18, Feb. 9)

5

5-3945. Prairie River near Merrill, Wis.

Location.--Lat 45°14'10", long 89°38'50", on line between secs. 20 and 29, T. 32 N., R. 7 E., near center of span on downstream side of highway bridge, 1.5 miles upstream from Meadow Creek, 4.5 miles northeast of Merrill, and 8 miles upstream from mouth.

Drainage area.--181 sq mi.

Records available.--January 1914 to September 1931, August 1939 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Chain gage read once daily. Altitude of gage is 1,300 ft (from topographic map). January 1914 to June 1931 chain gage, and August 1939 to June 28, 1949, wire-weight gage at same site and datum.

Average discharge.--43 years (1914-31, 1939-65), 180 cfs.

Extremes.--Maximum discharge during year, 2,530 cfs Apr. 12 (gage height, 6.60 ft, from floodmarks); minimum daily, 67 cfs Jan. 31 to Feb. 2.

1914-31, 1939-65: Maximum discharge, 5,800 cfs Aug. 31, 1941 (gage height, 9.45 ft, from floodmarks), from rating curve extended above 2,200 cfs; minimum observed, 34 cfs Oct. 26, 1947 (gage height, 1.39 ft).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.6	68	3.4	547
1.8	100	4.0	794
2.2	172	5.0	1,340
2.8	334	6.0	2,030

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	241	102	82	76	67	72	72	570	509	92	139	89
2	206	95	82	76	67	76	72	528	691	89	147	89
3	166	112	82	77	68	81	74	513	547	89	132	92
4	162	211	82	78	72	83	76	461	350	89	89	95
5	150	337	83	80	75	86	78	412	293	108	89	95
6	136	299	84	82	78	98	82	454	269	122	115	98
7	136	236	85	*84	79	147	95	520	264	108	150	95
8	*131	206	83	86	80	126	183	574	220	108	170	95
9	108	174	82	85	80	119	611	574	*213	92	166	98
10	122	*164	90	82	79	106	1,110	454	201	76	122	98
11	122	201	98	80	78	96	1,500	398	170	86	131	98
12	119	299	90	76	*74	91	*2,020	350	154	86	115	95
13	115	391	84	74	73	90	1,260	312	132	86	89	95
14	108	337	83	73	72	90	1,140	264	122	86	97	98
15	108	275	82	72	72	91	1,140	312	112	82	70	98
16	105	226	81	71	72	90	1,060	600	105	82	73	98
17	98	196	*81	72	72	*86	1,000	833	102	86	82	126
18	95	179	80	73	72	82	998	768	102	95	*86	132
19	102	154	80	73	72	80	928	478	95	89	82	162
20	102	126	80	73	73	78	897	370	95	89	79	231
21	108	118	79	74	73	78	960	324	95	89	82	331
22	92	110	79	76	73	76	877	264	102	*87	73	398
23	98	106	78	76	71	76	754	226	102	79	73	367
24	98	105	77	76	70	76	728	166	97	82	73	226
25	102	106	76	74	70	76	695	170	89	97	70	192
26	98	108	75	73	70	75	720	252	89	126	73	166
27	95	104	74	71	70	74	877	247	97	126	73	154
28	95	94	74	70	70	73	970	247	117	136	73	236
29	98	84	74	69	--------	72	800	211	122	145	76	513
30	102	80	74	68	---------	72	*634	196	97	92	82	*622
31	102	----------	75	67	---------	72	----------	204	----------	98	86	----------
Total	3,720	5,335	2,509	2,337	2,042	2,688	22,411	12,252	5,753	2,997	3,057	5,382
Mean	120	178	80.9	75.4	72.9	86.7	747	395	192	96.7	98.6	179
Cfsm	0.663	0.983	0.447	0.417	0.403	0.479	4.13	2.18	1.06	0.534	0.545	0.989
In.	0.76	1.10	0.52	0.48	0.42	0.55	4.60	2.52	1.18	0.62	0.63	1.11

Calendar year 1964 : Max 670 Min 60 Mean 145 Cfsm 0.801 In. 10.91
Water year 1964-65 : Max 2,020 Min 67 Mean 193 Cfsm 1.07 In. 14.49

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21 to Mar. 4, Mar. 10 to Apr. 5.

5-3950. Wisconsin River at Merrill, Wis.

Location.--Lat 45°10'40", long 89°40'45", on line between secs. 12 and 13, T. 31 N., R. 6 E., on left bank 300 ft downstream from highway bridge at east end of Merrill and 0.5 mile downstream from Prairie River.

Drainage area.--2,780 sq mi, approximately.

Records available.--November 1902 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 1,228.85 ft above mean sea level, datum of 1929. Prior to June 18, 1903, staff gage at different datum. June 18, 1903, to Sept. 10, 1914, chain gage, and Sept. 11, 1914, to Aug. 13, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--62 years (1903-65), 2,672 cfs.

Extremes.--Maximum discharge during year, 12,300 cfs May 18 (gage height, 9.79 ft); minimum, 563 cfs June 28 (gage height, 3.49 ft). 1902-65: Maximum discharge, 49,400 cfs Aug. 31, 1941 (gage height, 18.26 ft) from rating curve extended above 20,000 cfs; minimum, about 90 cfs Sept. 26, 1908 (gage height, 2.45 ft).

Remarks.--Records excellent except those for period of ice effect, which are good. Flow regulated by 20 reservoirs (see p. 109) and 9 powerplants above station.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.1	1,080	7.0	5,630
4.5	1,510	9.0	9,900
5.0	2,130	10.0	12,900

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,730	1,300	1,480	1,700	1,780	1,700	1,500	4,610	6,220	1,970	2,120	1,760
2	1,620	1,370	1,640	1,680	1,820	1,900	1,500	4,290	8,390	1,960	1,860	1,630
3	1,270	1,520	1,680	1,680	1,860	2,100	1,500	4,890	7,470	1,990	1,740	1,630
4	1,590	2,260	1,660	1,640	1,860	2,100	1,400	5,410	5,430	2,030	2,050	1,570
5	1,290	2,230	1,640	1,680	1,800	2,000	1,360	4,460	4,650	2,030	1,860	1,520
6	1,400	2,140	1,600	2,010	1,740	1,900	1,470	4,600	4,710	2,010	2,050	1,370
7	1,480	1,740	1,680	*1,940	1,720	1,900	1,580	5,910	4,440	2,040	2,130	1,400
8	*1,710	1,770	1,640	1,740	1,640	1,900	1,600	6,380	3,650	2,100	2,080	1,390
9	1,770	1,650	1,680	1,820	1,700	2,000	2,100	7,350	3,640	2,020	1,950	1,630
10	1,270	1,600	1,700	1,880	1,840	1,900	3,250	7,490	*3,350	1,890	1,690	1,620
11	1,280	1,610	1,920	1,680	1,800	1,800	7,860	7,040	3,010	1,870	1,770	1,350
12	1,390	*2,770	1,760	1,600	*1,850	1,700	9,140	6,430	2,460	1,750	1,740	1,320
13	1,470	3,770	1,800	1,650	1,850	1,700	7,760	5,560	2,160	1,950	1,850	1,240
14	1,530	3,940	1,640	1,680	1,720	1,600	9,380	5,250	2,130	1,860	1,680	1,330
15	1,470	3,850	1,660	1,660	1,680	1,500	9,970	4,710	2,120	1,990	1,830	1,520
16	1,260	3,480	1,640	1,720	1,720	1,700	10,300	8,040	2,120	1,900	1,700	1,300
17	1,480	2,600	*1,710	1,800	1,740	1,700	10,500	8,570	2,010	2,030	1,650	1,420
18	1,320	2,370	1,740	1,720	1,800	1,500	10,500	10,200	1,720	1,930	*1,760	1,430
19	1,240	1,950	1,820	1,840	1,880	1,500	9,950	8,280	2,030	1,770	1,690	1,760
20	1,410	1,780	1,700	1,800	1,900	1,400	9,650	7,260	2,170	1,740	1,680	2,140
21	1,520	1,600	1,740	1,760	1,800	1,300	9,630	6,680	2,060	1,710	1,530	2,520
22	1,390	1,600	1,760	1,800	1,760	1,400	9,380	6,870	2,010	*1,660	1,580	2,520
23	1,360	1,520	1,720	1,760	1,740	1,300	8,760	6,290	2,320	2,130	1,520	1,940
24	1,300	1,710	1,680	1,880	1,680	1,500	8,050	6,010	2,140	2,170	1,530	1,810
25	1,150	1,690	1,640	1,800	1,640	1,600	7,240	4,890	1,830	1,720	1,440	1,830
26	1,270	1,620	1,740	1,760	1,720	1,500	6,320	4,370	1,920	1,810	1,620	1,740
27	1,370	1,450	1,700	1,720	1,680	1,300	7,360	5,900	2,130	1,830	1,690	1,640
28	1,640	1,550	1,780	1,740	1,660	1,500	7,580	6,160	2,230	1,780	1,800	2,580
29	1,460	1,580	1,800	1,860	----------	1,600	6,650	4,740	1,970	1,730	1,530	4,320
30	1,350	1,450	1,800	1,720	----------	1,500	*5,390	3,670	1,930	2,080	1,700	*3,780
31	1,460	----------	1,760	1,700	----------	1,400	----------	3,420	----------	2,300	2,000	----------
Total	44,250	61,470	52,910	54,420	49,380	51,400	188,630	185,730	94,420	59,750	54,827	55,010
Mean	1,427	2,049	1,707	1,755	1,764	1,658	6,288	5,991	3,147	1,927	1,768	1,834

Calendar year 1964 : Max 4,410 Min 935 Mean 1,560
Water year 1964-65 : Max 10,500 Min 1,150 Mean 2,609

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 26 to Apr. 4.

5-3975. Eau Claire River at Kelly, Wis.

Location.--Lat 44°55'05", long 89°33'00", on line between secs. 9 and 10, T. 28 N., R. 8 E., on right bank 50 ft downstream from highway bridge, 0.7 mile northeast of Kelly, 1.3 miles upstream from Big Sandy Creek, 4.5 miles upstream from mouth, and 5 miles southeast of Wausau.

Drainage area.--326 sq mi.

Records available.--January 1914 to November 1926, August 1939 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 1,177.88 ft above mean sea level, datum of 1929. Prior to November 1926, chain gage and August 1939 to September 16, 1953, wire-weight gage, at same site at datum 1.00 ft higher. Sept. 17, 1953 to June 11, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--38 years, 244 cfs.

Extremes.--Maximum discharge during year, 6,980 cfs Apr. 12 (gage height, 10.04 ft); minimum daily, 45 cfs Feb. 3.
1914-26, 1939-65: Maximum discharge, 8,300 cfs Aug. 21, 1926 (gage height, 8.4 ft from graph based on gage readings), from rating curve extended above 6,000 cfs; minimum observed, 8 cfs July 17, 1944 (gage height, 0.17 ft), probably result of temporary regulation.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 9		Apr. 10 to Sept. 30			
1.3	78	1.2	60	4.0	1,320
1.7	178	1.5	125	6.0	2,900
2.2	350	2.0	294	8.0	4,840
2.8	620	3.0	776	10.0	6,940

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	291	90	*74	74	48	58	73	*717	402	139	100	92
2	244	92	80	74	46	120	71	652	914	120	105	91
3	213	120	88	74	45	200	70	628	1,010	110	*108	80
4	190	166	87	75	46	180	70	706	710	103	95	78
5	168	283	86	75	47	180	80	621	464	96	85	79
6	155	331	85	75	48	300	100	535	459	91	80	83
7	143	294	83	*76	49	260	120	497	440	91	84	88
8	137	255	82	75	50	310	250	483	403	89	99	82
9	132	228	81	74	*50	330	600	538	340	99	114	122
10	126	208	81	72	52	320	1,980	615	278	92	107	120
11	120	212	84	71	52	280	3,150	576	237	85	94	112
12	117	349	100	70	52	210	*6,420	474	194	76	83	99
13	116	516	120	69	52	170	5,410	380	181	80	77	*89
14	114	607	98	68	51	150	4,040	315	162	83	72	99
15	111	616	90	67	48	146	3,340	376	147	79	66	181
16	107	451	86	66	49	134	2,520	2,030	139	75	66	189
17	103	362	84	66	50	128	1,960	1,610	131	75	66	172
18	99	300	82	65	51	130	1,780	1,320	125	102	70	173
19	97	252	81	65	52	108	1,490	899	115	104	75	533
20	94	210	79	66	55	102	1,310	*582	110	90	75	1,350
21	94	170	78	68	56	96	1,160	432	*108	78	72	1,470
22	92	146	76	69	53	92	1,130	357	113	73	66	1,550
23	*91	140	73	69	51	90	1,060	310	145	72	65	1,200
24	89	150	71	66	50	86	949	263	139	109	62	954
25	88	158	70	62	50	81	861	252	125	132	61	598
26	88	150	69	60	50	78	1,040	414	108	107	63	426
27	87	130	69	58	51	76	1,370	503	103	87	70	342
28	88	120	71	55	53	74	1,300	386	165	77	69	377
29	93	104	72	53	------	73	1,100	311	233	69	68	1,090
30	93	90	73	52	------	73	844	261	175	69	74	1,080
31	92	------	73	50	------	73	------	228	------	81	83	------
TOTAL	3,872	7,300	2,526	2,079	1,407	4,708	45,648	18,271	8,375	2,833	2,474	12,999
MEAN	125	243	81.5	67.1	50.3	152	1,522	589	279	91.4	79.8	433
CFSM	.383	.745	.250	.206	.154	.466	4.67	1.81	.856	.280	.245	1.33
IN	.44	.83	.29	.24	.16	.54	5.21	2.08	.96	.32	.28	1.48

CALENDAR YEAR 1964 MAX 2,440 MIN 40 MEAN 180 CFSM .552 INCHES 7.49
WATER YEAR 1964-65 MAX 6,420 MIN 45 MEAN 308 CFSM .945 INCHES 12.83

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-12	2000	10.04	6,980	5-16	1500	5.58	2,520
4-26	2400	4.37	1,560	9-21	2400	4.72	1,820

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20 to Apr. 9.

5-3980. Wisconsin River at Rothschild, Wis.

Location.--Lat 44°53'10", long 89°37'50", in sec. 26, T. 28 N., R. 7 E., on left bank at Rothschild, 0.5 mile downstream from Rothschild Dam, 2 miles downstream from Eau Claire River, 5 miles upstream from Black Creek, and 5.5 miles south of bridge on State Highway 29, in Wausau.

Drainage area.--4,000 sq mi, approximately.

Records available.--October 1944 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 1,135.86 ft above mean sea level, datum of 1929. Prior to June 23, 1964, graphic water-stage recorder at present site and datum. Auxiliary digital water-stage recorder in Mosinee pond 8 miles downstream. Prior to July 23, 1964, auxiliary staff gage at present site and datum read hourly.

Average discharge.--21 years, 3,200 cfs.

Extremes.--Maximum discharge during year, 49,200 cfs Apr. 12 (gage height, 18.46 ft); minimum daily, 913 cfs Oct. 11.
1944-65: Maximum discharge, that of Apr. 12, 1965; minimum daily, 680 cfs Oct. 17, 1948.
Flood of Sept. 1, 1941, reached a stage of 22.3 ft from tailwater data at Rothschild dam (discharge 75,000 cfs from rating curve extended above 45,000 cfs by logarithmic plotting).

Remarks.--Records good except those for period of ice effect, or discharge below 1,500 cfs, which are fair. Flow regulated by 20 reservoirs (see p. 109) and 12 powerplants above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,850	1,010	1,430	1,250	1,900	2,010	1,720	7,380	6,950	2,320	2,280	2,220
2	2,810	1,750	1,600	1,890	2,000	2,640	1,880	6,980	12,700	2,500	* 2,320	2,100
3	1,990	2,030	1,740	1,820	2,100	4,030	1,610	* 6,860	11,600	1,940	2,000	2,170
4	1,480	2,480	1,820	1,980	2,100	4,020	1,800	7,680	7,590	1,730	2,180	1,620
5	2,080	4,770	1,530	2,040	1,900	3,640	1,780	6,840	6,140	1,850	2,170	1,390
6	1,940	3,710	1,260	2,110	1,700	3,830	1,930	6,500	6,750	2,360	2,220	1,040
7	2,030	3,150	1,920	2,200	1,600	3,830	3,410	7,150	6,640	2,360	2,220	1,930
8	2,060	2,400	1,980	2,000	2,000	3,670	5,170	7,670	5,190	2,450	2,420	1,970
9	2,160	2,430	1,920	1,750	1,900	4,110	6,210	9,170	4,650	2,510	2,580	2,140
10	1,660	2,280	1,830	1,800	1,800	3,510	7,730	10,000	4,420	1,830	2,120	2,030
11	913	2,460	2,190	1,900	2,000	2,940	21,700	9,190	3,610	1,660	2,080	1,590
12	1,890	3,870	1,890	1,800	2,200	2,240	*44,300	7,480	3,340	2,040	1,980	1,230
13	1,940	7,640	1,800	1,850	1,800	1,980	30,200	6,930	2,510	2,190	2,020	1,770
14	1,860	7,120	2,100	2,000	1,750	1,790	24,200	6,270	2,430	2,280	1,610	* 1,730
15	1,870	6,570	1,840	1,850	1,700	1,950	23,800	6,200	2,430	2,200	1,380	2,040
16	1,910	5,320	1,870	1,550	1,700	1,930	20,400	12,600	2,400	2,120	1,990	1,920
17	1,370	4,390	2,220	1,700	1,700	2,000	17,900	14,900	2,340	1,740	1,980	1,930
18	1,250	3,300	2,280	2,100	1,700	1,910	18,400	13,300	2,120	1,760	1,840	1,710
19	1,740	3,030	1,850	2,000	2,000	2,000	16,600	11,700	1,770	2,140	1,880	5,160
20	1,590	2,600	1,560	2,100	1,900	1,600	15,400	* 9,150	2,090	1,990	1,840	8,940
21	1,750	1,730	1,980	2,000	2,000	1,350	14,400	7,480	* 2,520	1,840	1,400	8,780
22	*1,890	1,450	2,170	2,000	2,100	1,930	14,600	7,700	2,440	1,870	1,250	8,990
23	1,740	2,140	2,280	1,700	2,000	2,030	12,700	7,150	2,640	2,050	1,650	6,060
24	1,190	1,970	1,570	1,700	2,000	1,750	11,700	6,750	2,770	2,170	1,720	4,240
25	996	2,200	1,470	2,200	1,900	2,000	10,400	6,370	2,500	1,760	1,670	3,550
26	1,650	1,980	1,920	1,900	2,000	2,010	10,300	6,280	1,880	2,160	1,640	3,090
27	1,650	1,980	1,890	2,000	1,600	1,540	15,800	7,510	1,620	2,030	1,840	2,490
28	1,550	1,560	2,220	2,100	1,500	1,330	13,900	7,470	3,280	1,960	1,420	3,680
29	1,870	1,340	2,180	2,200	----------	1,950	10,600	6,190	2,600	1,940	1,340	9,860
30	1,630	1,810	2,220	1,800	----------	1,980	8,210	5,170	2,410	2,000	1,860	9,090
31	1,090	----------	1,970	1,700	----------	1,740	----------	4,140	----------	2,050	2,270	----------
Total	54,399	90,470	58,500	58,990	52,550	75,240	388,750	246,160	122,330	63,800	59,170	106,460
Mean	1,755	3,016	1,887	1,903	1,877	2,427	12,960	7,941	4,078	2,058	1,909	3,549

Calendar year 1964 : Max 9,960 Min 750 Mean 2,178
Water year 1964-65 : Max 44,300 Min 913 Mean 3,772

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 7 to Feb. 28.

5-3995. Big Eau Pleine River near Stratford, Wis.

Location.--Lat 44°49'15", long 90°04'35", on line between sec. 13, T. 27 N., R. 3 E., and sec. 18, T. 27 N., R. 4 E., on left bank 15 ft upstream from bridge on State Highway 97, 1 mile north of Stratford, and 1.4 miles downstream from small tributary.

Drainage area.--224 sq mi.

Records available.--July 1914 to December 1925, April 1937 to September 1965. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 1,154.24 ft above mean sea level, datum of 1929. July 24, 1914, to Dec. 31, 1925, staff gage at site 0.5 mile upstream at different datum. Apr. 30, 1937, to Sept. 15, 1938, chain gage at present site and datum.

Average discharge.--39 years (1914-25, 1937-65), 166 cfs.

Extremes.--Maximum discharge during year, 13,700 cfs Apr. 11 (gage height, 18.43 ft); minimum daily, 0.5 cfs Jan. 18.
1914-25, 1937-65: Maximum discharge, 41,000 cfs Sept. 9, 1938 (gage height, 24.5 ft, from floodmarks), from rating curve extended above 24,000 cfs; no flow Aug. 17, 1947, Jan. 22 to Feb. 5, 1961.
Flood of June 5, 1914, reached a stage of 20.7 ft, from floodmarks (discharge, 40,000 cfs), former site and datum.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second). (Rate of change in stage used as a factor Apr. 10-15, 26, 27, May 16, 26, June 1, 2, 5, 6, Sept. 19, 20, 22, 28.)

2.5	3.0	3.5	93	8.0	1,500
2.6	6.0	4.0	169	11.0	3,420
2.7	11	5.0	391	13.0	5,400
2.8	18	6.0	673	15.0	7,900
3.0	36	7.0	1,040	17.0	11,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	13	14	8.2	1.0	40	17	195	1,010	25	46	180
2	81	16	14	8.6	1.0	150	18	182	1,380	39	59	80
3	67	20	13	9.0	1.0	350	18	220	*443	38	40	49
4	55	116	13	9.4	1.0	250	19	258	200	24	49	35
5	*47	364	13	9.8	1.0	200	20	173	742	21	30	26
6	41	193	14	10	1.3	280	50	267	982	41	21	22
7	36	130	14	11	1.7	180	400	292	433	36	18	20
8	33	98	14	12	3.0	260	1,400	183	206	26	17	19
9	30	80	15	13	4.0	240	2,300	260	134	65	19	83
10	26	69	18	13	4.8	160	5,670	328	90	100	25	126
11	25	73	23	9.0	3.5	115	11,100	176	65	49	20	58
12	23	239	36	3.5	2.8	94	*6,160	118	49	34	15	35
13	22	*1,160	40	2.4	2.6	80	2,090	90	38	32	12	26
14	23	545	*43	1.7	2.5	70	1,710	72	28	75	9.8	26
15	20	274	38	1.3	*2.5	*58	1,690	74	25	62	7.9	114
16	18	196	32	1.0	2.4	50	984	1,520	20	59	*7.4	99
17	18	139	25	.7	2.5	44	818	716	17	214	7.9	65
18	16	101	19	*.5	2.8	39	1,140	477	14	142	7.4	57
19	16	79	16	.7	3.5	34	836	358	13	*68	7.4	1,430
20	14	60	12	1.1	4.4	31	651	180	11	40	7.0	959
21	14	45	10	1.7	3.6	28	604	115	12	26	6.5	1,480
22	14	35	9.0	1.4	3.0	26	598	85	11	21	7.0	619
23	13	30	8.4	1.0	2.5	24	488	67	51	18	6.0	309
24	13	27	8.2	1.0	2.3	22	384	55	75	22	5.1	206
25	12	26	8.2	1.0	2.1	21	511	55	47	22	5.7	149
26	12	25	9.0	1.0	2.0	20	*2,320	977	29	16	6.2	114
27	12	21	9.0	1.0	2.1	19	2,200	886	21	11	7.2	*89
28	12	18	8.8	1.0	2.2	18	660	318	182	8.9	16	550
29	13	16	8.2	1.0	------	18	346	173	96	7.4	11	1,960
30	13	15	8.0	1.0	------	17	228	115	42	6.5	7.4	804
31	14	------	8.0	1.0	------	17	------	84	------	16	221	------
Total	849	4,223	520.8	138.0	69.1	2,955	45,430	9,069	6,466	1,364.8	766.3	9,789
Mean	27.4	141	16.8	4.45	2.47	95.3	1,514	293	216	44.0	25.0	326
Cfsm	0.122	0.629	0.075	0.020	0.011	0.425	6.76	1.31	0.964	0.196	0.112	1.46
In.	0.14	0.70	0.09	0.02	0.01	0.49	7.54	1.51	1.07	0.23	0.13	1.63

Calendar year 1964: Max 7,270 Min 0.9 Mean 129 Cfsm 0.576 In. 7.82
Water year 1964-65: Max 11,100 Min 0.5 Mean 224 Cfsm 1.00 In. 13.56

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-11	0500	18.43	13,700	6- 1	2300	9.82	2,560
4-26	2200	12.07	4,470	9-29	0400	10.08	2,750

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20-22, Nov. 27 to Apr. 9 (no gage-height record Jar. 26-30, Feb. 1-7, 9-12, 14, 16-19, 21-26, 28, Mar. 10-14, 21-25, 27-29).

5-4006. Little Plover River near Arnott, Wis.

Location.--Lat 44°28'05", long 89°29'20", in NE 1/4 sec. 24, T. 23 N., R. 9 E., 150 ft below bridge on town road 2.2 miles northwest of Arnott and 3 1/2 miles upstream from mouth.

Drainage area.--1.5 sq mi, approximately, of which a portion is noncontributing.

Records available.--July 1959 to September 1965.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 1,087.37 ft above mean sea level, datum of 1929 (levels by Wisconsin Conservation Dept.). Prior to April 1960 staff gage at same site at datum 0.26 ft higher.

Average discharge.--6 years, 2.84 cfs.

Extremes.--Maximum discharge during year, 51 cfs Apr. 7 (gage height, 2.81 ft); minimum daily, 0.88 cfs Feb. 26.
1959-65: Maximum discharge, 66 cfs Sept. 13, 1962; minimum, 0.8 cfs for many days in July, Aug., and Sept., 1959.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-8)

0.3	0.64	1.6	8.4
.6	1.84	1.9	16
1.0	4.00	2.2	26
1.3	5.96		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.43	1.66	1.35	1.44	1.03	3.40	1.57	4.25	3.07	1.80	2.08	2.23
2	2.33	1.84	1.48	1.44	.95	11	1.44	3.94	2.85	1.80	1.75	2.03
3	2.13	1.84	1.39	1.39	.95	2.90	1.52	*4.31	2.68	1.70	1.80	1.93
4	2.08	1.93	1.35	1.44	.95	2.33	1.80	3.94	*2.63	1.70	1.66	3.60
5	2.03	1.80	1.31	1.44	1.03	11	2.85	3.76	4.31	1.75	1.62	3.29
6	2.03	1.80	1.31	1.44	1.07	4.54	5.18	3.82	3.88	1.98	1.70	3.12
7	2.13	1.75	1.39	1.57	1.27	2.63	26	3.52	3.29	2.13	1.88	4.06
8	2.18	1.70	1.35	*1.75	1.07	2.23	9.7	3.88	3.41	1.93	5.90	3.35
9	*2.03	*1.70	1.35	1.31	1.19	1.88	6.68	3.76	2.96	1.98	3.88	5.55
10	2.03	1.75	1.39	1.27	1.66	1.70	6.25	3.41	2.74	1.80	2.96	3.94
				1.20								
11	2.08	1.80	1.57	1.20	1.11	1.66	25	3.24	2.63	1.75	2.63	3.58
12	2.13	1.80	1.52	1.20	1.31	1.62	13	3.12	2.53	1.70	*2.33	3.24
13	2.08	1.66	1.44	1.19	*1.11	1.52	5.15	2.96	2.43	2.08	2.18	3.07
14	2.03	1.66	1.31	1.15	1.19	1.57	4.25	2.90	2.38	1.84	2.03	3.35
15	2.03	2.43	1.19	1.15	1.11	1.52	4.43	3.29	2.28	1.75	1.98	3.52
16	1.98	2.18	1.31	1.11	1.07	1.48	3.82	5.01	2.23	1.80	2.08	3.07
17	1.93	2.08	1.03	1.15	1.15	1.45	4.06	3.88	2.18	1.93	2.48	4.56
18	1.88	1.93	*1.03	1.15	1.07	*1.45	4.06	4.75	2.13	1.98	2.13	3.94
19	1.84	1.88	1.15	1.20	1.07	1.40	3.64	3.88	2.13	1.70	*1.98	18
20	1.84	1.70	1.20	1.19	1.23	1.40	3.41	3.35	2.23	1.62	1.88	9.6
21	1.84	1.48	1.25	1.19	.99	1.40	3.52	3.52	2.08	1.62	1.98	10
22	1.75	1.52	1.30	1.15	.92	1.40	3.41	3.29	2.13	1.62	1.93	6.39
23	1.75	1.66	1.30	1.15	.92	1.40	3.58	3.12	2.63	*1.93	1.93	5.34
24	1.80	1.70	1.30	1.15	.92	1.39	3.46	3.02	2.13	1.98	1.88	4.82
25	1.84	1.75	1.30	1.15	.92	1.39	5.50	3.02	2.03	1.75	1.93	4.56
26	1.75	1.66	1.30	1.15	.88	1.39	9.0	5.01	1.93	1.70	1.93	4.25
27	1.75	1.66	1.27	1.15	.99	1.39	5.96	3.94	1.93	1.62	1.98	4.12
28	1.75	1.52	1.35	1.11	.99	1.44	4.50	3.41	1.88	1.57	1.80	6.82
29	1.70	1.23	1.48	1.15	-------	1.39	4.06	3.18	1.88	1.57	1.93	5.48
30	1.66	1.19	1.44	1.07	---------	1.39	3.82	3.02	1.80	1.70	2.68	5.76
31	1.66	----------	1.35	.99	---------	1.35	----------	2.96	----------	1.98	2.38	----------
Total	60.47	52.26	41.06	38.59	30.12	74.01	180.62	112.46	75.39	55.76	69.28	146.57
Mean	1.95	1.74	1.32	1.24	1.08	2.39	6.02	3.63	2.51	1.80	2.23	4.89

Calendar year 1964 : Max 5.93 Min 1.03 Mean 1.96
Water year 1965 : Max 26 Min 0.88 Mean 2.57

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 19-26, Jan. 11, 12, 17-19, 23-26, 29, 30, Mar. 17-23.

5-4006.5 Little Plover River at Plover, Wis.

Location.--Lat 44°28'20", long 89°10'10", in SW 1/4 sec. 14, T. 23 N., R. 8 E., on right bank at bridge on town road, 1 mile northeast of Plover and 1.2 miles upstream from mouth

Drainage area.--15 sq mi, approximately, of which a large portion is noncontributing.

Records available.--July 1959 to September 1965.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 1,068.34 ft above mean sea level, datum of 1929 (levels by Wisconsin Conservation Dept.). Prior to May 1960 staff gage at same site at datum 0.88 ft lower.

Average discharge.--6 years, 8.90 cfs.

Extremes.--Maximum discharge during year, 59 cfs Apr. 7 (gage height, 2.73 ft); minimum, 2.4 cfs May 23, result of temporary dam at flume entrance; minimum daily, 4.9 cfs Feb. 22.
1959-65: Maximum discharge, 67 cfs Sept. 13, 1962; minimum, that of May 23, 1965; minimum daily, 4.3 cfs Aug. 19, 20, 1959.

Remarks.--Records excellent except those for periods of ice effect or above 25 cfs, which are good.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.6	4.5	2.0	29
.8	7.1	2.5	44
1.0	10.0	2.8	65
1.5	18.8		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.2	6.9	6.2	6.1	5.1	6.1	6.5	13.1	11.1	7.6	6.9	7.3
2	8.0	7.2	6.4	6.2	5.1	37	6.4	12.9	10.8	7.6	6.4	6.9
3	7.9	7.2	6.4	6.1	5.1	11.1	6.4	*13.3	10.3	7.3	6.6	6.8
4	7.6	7.5	6.4	6.1	5.1	7.8	6.8	12.9	*10.2	7.2	6.2	7.6
5	7.6	7.3	6.0	6.1	5.2	18.2	8.3	12.4	12.4	7.3	6.1	9.1
6	7.6	7.2	6.1	6.1	5.4	14.1	11.9	12.4	11.9	7.5	6.1	8.2
7	7.6	7.2	6.2	*6.2	5.7	9.2	*29	12.1	11.1	8.2	6.2	9.7
8	7.6	7.1	6.4	*6.4	5.6	8.0	26	12.4	11.1	7.6	11.8	8.8
9	*7.6	*7.1	6.2	5.7	5.6	7.6	15.8	12.4	10.3	7.6	10.6	11.4
10	7.5	7.1	6.5	5.6	6.4	6.9	13.6	11.6	10.0	7.2	8.6	10.5
11	7.6	7.2	6.9	5.5	5.9	6.9	33	11.4	9.7	7.1	8.3	9.5
12	7.6	7.2	6.8	5.3	5.7	6.8	27	11.1	9.5	6.9	7.9	9.1
13	7.6	7.1	6.6	5.2	*5.5	6.8	14.9	11.0	9.4	7.8	7.8	8.9
14	7.5	6.9	6.2	5.0	5.6	6.8	13.1	10.8	9.2	7.3	7.5	8.9
15	7.5	8.2	6.1	5.1	5.6	6.6	13.1	11.4	9.1	6.9	7.3	9.7
16	7.3	7.6	6.2	5.1	5.4	6.6	12.4	14.9	8.9	7.2	7.3	8.9
17	7.3	7.3	5.7	5.1	5.6	6.5	12.6	12.6	8.8	7.2	8.2	10.8
18	7.2	7.2	*5.5	5.1	5.5	*7.1	12.8	13.6	8.6	7.5	7.6	10.5
19	7.1	7.1	5.5	5.1	5.4	6.6	12.3	12.6	8.6	7.1	*7.5	20.0
20	7.1	6.8	5.5	5.1	5.5	6.5	11.9	11.8	8.8	6.8	7.1	20.0
21	7.2	6.4	5.6	5.2	5.2	6.4	12.1	11.8	8.5	6.8	7.1	18.4
22	7.1	6.5	5.6	5.2	4.9	6.6	11.9	11.8	8.6	6.6	7.1	16.3
23	7.1	6.8	5.6	5.2	5.0	6.6	12.3	11.3	9.5	*6.8	6.9	14.9
24	7.1	6.9	5.6	5.3	5.0	6.4	11.9	11.1	8.6	7.5	6.9	14.3
25	7.1	6.9	5.6	5.2	5.0	6.4	14.0	11.1	8.3	6.8	6.9	13.8
26	7.1	6.9	5.6	5.2	5.0	6.4	18.2	14.3	8.2	6.6	6.9	13.3
27	7.1	6.8	5.7	5.2	5.1	6.2	15.8	12.8	8.0	6.5	6.9	12.9
28	7.1	6.8	6.1	5.1	5.4	6.4	13.8	11.9	7.9	6.2	6.6	16.3
29	7.1	6.2	6.2	5.1	----------	6.2	13.1	11.4	7.9	6.2	6.6	17.1
30	6.9	6.1	6.2	5.0	----------	6.2	12.8	11.1	7.6	6.4	7.9	15.4
31	6.9	----------	6.1	5.1	----------	6.2	----------	11.0	----------	6.6	7.5	----------
Total	228.8	210.7	187.7	169.0	150.6	263.2	429.7	376.3	283.1	219.9	229.5	355.3
Mean	7.38	7.02	6.05	5.45	5.38	8.49	14.3	12.1	9.44	7.09	7.40	11.8

Calendar year 1964 : Max 12.8 Min 4.8 Mean 6.84
Water year 1965 : Max 37 Min 4.9 Mean 8.50

Peak discharge (base, 18.0 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-2	1100	2.62	51	4-11	1200	2.35	38
3-5	2030	1.93	28	4-26	1800	1.57	20.2
4-7	2330	2.73	59	9-19	1530	1.97	28

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 20-26, Jan. 11-13, 24-28.

5-4008. *Wisconsin River at Wisconsin Rapids, Wis.*

Location.--Lat 44°22'05", long 89°51'30", in SW 1/4 sec. 24, T. 22 N., R. 5 E., at Centralia powerplant of Nekoosa-Edwards Paper Co., 1.6 miles downstream from Chicago and Northwestern Railway bridge in Wisconsin Rapids.

Drainage area.--5,400 sq mi, approximately.

Records available.--May 1914 to March 1950 (published as "near Nekoosa"), October 1957 to September 1965.

Gage.--Water-stage recorders on headwater and tailwater. Elevation of powerplant pond is 980 ft and datum of powerplant gages is 887.83 ft above mean sea level (levels by Wisconsin Valley Improvement Co.). May 1914 to March 1950, water-stage recorder at site 7.0 miles downstream at different datum.

Average discharge.--43 years (1914-49, 1957-65), 4,834 cfs.

Extremes.--Maximum discharge during year, 64,000 cfs Apr. 13; minimum daily, 920 cfs July 5.
1914-50, 1957-65: Maximum discharge, 70,400 cfs Sept. 12, 1938 (gage height, 19.10 ft), from rating curve extended above 58,000 cfs; minimum, 26 cfs Sept. 7, 1942; minimum daily, 165 cfs Aug. 12, 1934.

Remarks.--Records good. Discharge computed from powerplant records on basis of load-discharge rating of hydroelectric units as developed by Geological Survey and tainter-gate ratings and spillway ratings based on theoretical formulas and discharge measurements. Flow regulated by 21 reservoirs (see p. 109) and many powerplants above station. Water diverted periodically from pond of Wisconsin Rapids powerplant 2.6 miles upstream into Cranberry Creek, a tributary of Yellow River, for cranberry culture. Probably most of the water diverted is lost by evaporation and transpiration. These diversions in cubic feet per second, for water year October 1964 to September 1965, were as follows:

Oct.	1	21	Nov.	13	71	Dec.	7	100	Dec.	15	38	July	10	100	Aug.	22	100	Aug.	30	100
	5	98		14	100		8	100	July	3	96		11	100		23	100		31	100
	6	100		15	100		9	42		4	100		12	100		24	100	Sept.	1	100
	7	100		16	100		10	33		5	100		13	38		25	100		2	100
	8	100		17	12		11	98		6	100	Aug.	18	62		26	100		3	100
	9	100	Dec.	4	73		12	100		7	100		19	100		27	100		4	100
	10	100		5	100		13	100		8	100		20	100		28	100		5	100
	11	96		6	100		14	100		9	100		21	100		29	100		6	100
	12	25																	7	4

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,840	1,850	2,840	3,240	2,990	2,740	2,970	6,860	7,130	2,930	2,560	2,860
2	4,750	2,510	2,660	2,870	2,830	3,480	2,520	11,000	13,300	2,880	2,570	2,650
3	4,550	2,490	2,620	2,980	2,890	3,750	2,250	9,420	16,700	2,390	2,760	2,670
4	3,860	3,340	2,570	2,940	2,960	5,010	2,230	12,800	15,500	1,000	2,680	2,390
5	3,680	4,170	2,110	3,150	2,750	5,480	3,390	12,300	8,430	920	2,770	970
6	3,460	4,500	2,100	3,180	2,910	6,040	4,170	9,000	6,260	2,860	2,880	930
7	2,960	4,370	2,280	3,170	2,270	6,810	5,700	7,610	7,000	3,130	2,740	2,850
8	2,830	4,360	2,540	3,190	2,460	7,250	7,750	8,420	7,790	3,320	3,850	2,480
9	2,960	3,670	2,740	2,540	2,510	7,200	8,940	12,400	6,120	2,910	3,120	3,300
10	2,530	3,520	2,660	2,120	2,340	6,720	11,000	13,600	5,480	2,680	2,880	3,640
11	2,570	3,530	3,220	2,690	2,590	5,640	24,700	12,200	5,310	2,570	2,900	3,170
12	2,580	4,290	3,310	2,830	2,850	4,950	45,900	10,900	5,170	2,670	2,910	2,220
13	2,530	6,970	2,520	3,030	2,880	4,910	53,100	8,220	4,480	2,970	2,500	2,340
14	2,650	8,850	2,690	2,960	2,690	4,260	*43,600	5,250	4,480	2,760	2,370	2,800
15	2,770	9,680	2,780	3,000	2,480	4,320	35,400	7,480	3,780	2,710	2,020	3,100
16	2,650	6,070	2,720	2,450	2,550	3,920	35,500	17,200	3,580	2,800	2,650	2,830
17	2,580	5,590	2,760	2,300	2,250	4,020	31,900	19,800	3,450	2,540	2,920	3,160
18	2,430	4,700	2,900	2,630	2,170	3,390	24,800	21,500	3,260	1,830	2,820	2,670
19	2,440	4,340	2,500	2,850	2,210	3,180	19,300	19,000	2,970	2,680	2,610	6,850
20	2,440	4,150	2,140	2,950	2,380	3,270	22,100	13,000	2,680	2,940	2,440	12,000
21	2,600	3,290	2,590	2,840	1,960	2,340	21,600	10,100	2,780	2,950	2,060	16,100
22	2,520	2,130	2,550	2,970	2,410	2,940	20,000	8,000	2,950	2,870	1,820	15,400
23	2,210	2,980	3,340	2,840	2,570	2,910	19,100	8,800	3,330	2,390	2,030	13,300
24	2,470	3,030	1,430	2,390	2,510	3,020	17,000	8,500	2,970	2,690	2,130	8,330
25	1,990	3,060	1,280	2,920	2,550	2,640	16,900	8,720	2,950	2,200	2,450	5,360
26	2,360	3,040	3,130	3,030	2,390	2,620	16,600	12,000	2,870	2,340	2,420	5,870
27	2,460	3,120	2,720	2,960	2,250	2,990	21,900	10,500	2,580	2,730	2,340	5,040
28	2,350	3,040	2,870	2,960	2,030	2,290	23,700	12,200	2,800	2,630	2,330	9,040
29	2,270	2,650	3,040	2,960	----------	2,100	19,000	11,600	3,170	2,470	1,920	10,600
30	2,260	2,830	3,130	2,950	----------	2,670	11,600	7,270	3,220	2,500	2,620	17,500
31	2,300	----------	3,290	2,820	----------	2,940	----------	4,880	----------	2,680	2,420	----------
Total	87,850	122,120	82,030	88,710	70,630	125,800	574,620	340,530	162,490	79,940	79,490	172,420
Mean	2,834	4,071	2,646	2,862	2,522	4,058	19,150	10,980	5,416	2,579	2,564	5,747

Calendar year 1964: Max 13,900 Min 746 Mean 2,982
Water year 1964-65: Max 53,100 Min 920 Mean 5,443

* Discharge measurement made on this day.

5-4008.53 Buena Vista Creek near Kellner, Wis.

Location.--Lat 44°22'26", long 89°41'52", in center of sec. 20, T. 22 N., R. 7 E., on left bank upstream from highway bridge, 1.2 miles upstream from Fourmile Creek, and 1.7 miles northeast of Kellner.

Drainage area.--Not determined.

Records available.--March 1964 to September 1965.

Gage.--Water-stage recorder. Staff gage read once daily prior to Aug. 27, 1964.

Extremes.--Maximum discharge during year, 188 cfs Sept. 21, 22 (gage height, 4.20 ft); minimum, 8.7 cfs Feb. 19, result of freezeup. 1964-65: Maximum discharge, that of Sept. 21, 22, 1965; minimum, that of Feb. 19, 1965.

Remarks.--Records good except those for periods of ice effect and no gage-height record, which are fair. Approximately 17 miles of drainage ditches with 10 check dams are located above station. The check dams are used to control the water level. Sprinkler irrigation from ground-water sources is developing rapidly in the basin.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 2, Sept. 5-30)

1.2	14	3.0	103
1.5	25	4.0	182
2.0	49	4.1	192

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	28	21	21	15	16	36	86	58	32	29	44
2	34	29	21	21	15	53	34	82	56	32	28	42
3	34	30	*21	21	14	*95	34	80	53	31	28	38
4	33	31	21	21	14	61	36	80	51	30	27	37
5	32	33	21	22	14	64	*43	77	56	30	26	45
6	32	33	21	22	15	78	54	75	63	30	26	48
7	32	32	21	22	16	84	94	72	60	31	26	*55
8	*32	32	21	*23	*16	71	141	71	58	31	35	60
9	32	32	21	23	14	72	118	72	54	31	50	68
10	32	32	23	24	16	58	116	68	51	30	45	78
11	32	32	26	22	16	58	136	*66	49	28	42	74
12	32	32	28	21	16	60	172	63	47	*27	39	67
13	32	32	28	21	16	57	145	60	45	30	*36	62
14	32	31	*25	20	16	51	124	58	44	33	34	60
15	*32	32	24	19	15	48	115	58	42	31	32	67
16	32	32	22	18	16	46	109	68	*42	31	32	71
17	31	32	21	18	16	44	103	70	41	32	42	74
18	31	*32	20	17	15	39	102	72	40	32	52	86
19	30	32	19	17	16	38	98	74	37	31	49	104
20	30	28	19	17	16	38	92	68	38	30	44	170
21	30	26	19	17	15	38	89	64	39	28	42	*187
22	30	28	20	17	17	*41	86	66	36	28	40	184
23	30	28	20	17	15	40	84	64	45	*28	38	162
24	30	30	20	17	15	42	83	60	46	31	36	139
25	30	31	20	17	14	40	87	58	42	30	*35	121
26	30	32	20	17	14	42	114	72	38	28	34	109
27	29	30	20	17	14	39	125	78	37	28	34	101
28	29	27	20	17	14	37	*111	*72	35	26	32	108
29	29	23	20	16	-------	36	99	68	34	26	32	144
30	*28	22	21	16	---------	35	91	64	33	26	41	147
31	28	----------	21	15	----------	35	----------	60	----------	27	44	----------
Total	966	904	665	593	425	1,556	2,871	2,146	1,370	919	1,130	2,752
Mean	31.2	30.1	21.5	19.1	15.2	50.2	95.7	69.2	45.7	29.6	36.5	91.7

Calendar year : Max Min Mean
Water year 1965 : Max 187 Min 14 Mean 44.6

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, Dec. 1-9, 15-17, 25-27, Jan. 2-14, 27, 28, Feb. 13, 16, Mar. 20, 21, 27. No gage-height record Nov. 30, Jan. 29 to Feb. 8.

GPO 826-538-7

5-4008.7 Fourmile Creek near Kellner, Wis.

Location.--Lat 44°22'04", long 89°41'52", in SE 1/4 sec. 20, T. 22 N., R. 7 E., on left bank upstream from bridge on country road, 1.2 miles upstream from Buena Vista Creek, 1.5 miles northeast of Kellner, and 6.5 miles east of Wisconsin Rapids.

Drainage area.--Not determined.

Records available.--March 1964 to September 1965.

Gage.--Water-stage recorder. Prior to Aug. 26, 1964, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 230 cfs Apr. 12 (gage height, 8.25 ft); minimum recorded, 3.2 cfs Jan. 28 (gage height, 5.18 ft), result of freezeup.
1964-65: Maximum discharge, that of Apr. 12, 1965; minimum recorded, that of Jan. 28, 1965.

Remarks.--Records good except those for periods of ice effect or no gage height record, which are fair. Approximately 40 miles of drainage ditches and 18 check dams in the basin are used to control the water table. There is some sprinkler irrigation from ground-water sources in the upper portion of the basin.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

5.2	3.4	6.5	56
5.4	7.1	7.0	94
5.6	13	8.1	212
6.0	28		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	20	*10	6.5	4.2	8.0	10	98	56	27	21	33
2	30	20	10	6.5	4.1	32	10	93	54	26	21	32
3	29	21	11	6.3	4.1	*22	10	91	51	25	21	30
4	28	22	11	5.8	4.0	23	11	89	49	24	20	29
5	27	23	10	6.3	4.0	32	*20	86	58	24	19	38
6	26	23	9.5	6.3	4.2	24	58	84	69	24	18	40
7	*26	23	8.9	6.7	4.4	27	95	80	64	26	18	*48
8	26	23	8.7	*7.6	*4.4	29	130	79	63	25	23	55
9	25	23	8.4	7.5	4.4	30	120	78	57	26	31	60
10	25	23	8.4	7.6	5.0	38	110	72	52	25	29	65
11	25	23	9.4	7.6	5.4	32	140	*69	48	24	27	60
12	24	22	10	7.0	5.3	27	212	65	46	*22	26	56
13	24	22	10	7.0	5.2	25	181	62	43	25	*24	52
14	24	22	*11	7.0	5.0	23	155	60	40	31	22	51
15	*23	22	10	6.7	4.7	22	157	59	38	29	21	66
16	23	22	9.4	6.5	4.6	20	134	72	*37	28	20	66
17	22	22	8.6	6.5	4.6	19	127	67	35	29	29	71
18	22	*21	7.7	6.0	4.6	18	128	74	34	29	38	82
19	22	21	7.0	5.4	4.5	17	117	74	33	28	36	106
20	22	16	6.5	5.4	4.5	16	110	66	32	26	33	155
21	21	15	6.5	5.0	4.5	16	107	66	31	24	31	*158
22	21	14	6.3	4.8	4.5	*15	102	69	31	24	29	151
23	21	14	6.3	5.0	4.4	14	101	64	45	*23	28	134
24	21	14	6.3	5.2	4.4	14	98	61	43	26	26	120
25	20	17	6.3	5.0	4.3	13	111	60	38	25	*26	110
26	20	18	6.0	5.1	4.2	12	150	77	35	24	26	103
27	20	17	6.0	4.9	4.2	11	138	77	33	22	25	97
28	20	18	6.0	4.7	4.5	11	*122	*70	31	21	24	118
29	20	15	6.0	4.5	-------	10	113	66	29	20	23	140
30	*20	11	6.0	4.3	---------	10	104	62	28	19	28	134
31	20	----------	6.3	4.2	---------	10	----------	59	----------	20	33	----------
Total	729	587	253.5	184.9	126.2	620.0	3,181	2,249	1,303	771	796	2,460
Mean	23.5	19.6	8.18	5.96	4.51	20.0	106	72.5	43.4	24.9	25.7	82.0

Calendar year : Max - Min - Mean -
Water year 1964-65 : Max 212 Min 4.0 Mean 36.3

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20-22, Nov. 30 to Dec. 2, Dec. 5, 6, 14-19, 26, 27, Jan. 9, 12-14, 16, 17, 23-27, Feb. 12-14. No gage-height record Nov. 29, Jan. 30 to Feb. 7, Feb. 15 to Mar. 1, Mar. 11 to Apr. 11.

5-4010.2 Tenmile Creek Ditch 5 near Bancroft, Wis.

Location.--Lat 44°18'08", long 89°32'59", in NE 1/4 sec. 16, T. 21 N., R. 8 E., at bridge on country road, 1 1/4 miles west of U. S. Highway 51 and 1 3/4 miles southwest of Bancroft.

Drainage area.--Not determined.

Records available.--June 1964 to September 1965.

Gage.--Water-stage recorder and 90° V-notch sharp-crested weir.

Extremes.--Maximum discharge during year, 108 cfs Mar. 2 (gage height, 3.88 ft); minimum daily, 2.7 cfs Jan. 17-21, Jan. 30 to Feb. 5.
1964-65: Maximum discharge, that of Mar. 2, 1965; minimum, 2.0 cfs Aug. 15, 1964 (gage height, 0.81 ft).

Remarks.--Records good. There is approximately 2 miles of dredged drainage ditching above this gage. Sprinkler irrigation from ground-water wells is quite extensive in the basin.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 4-26)

0.9	2.5	2.4	27
1.2	4.8	2.8	42
1.6	9.2	3.2	63
2.0	15.2		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.7	3.7	3.5	3.3	2.7	3.8	4.0	11	6.9	5.2	5.2	5.7
2	4.6	4.0	3.3	3.3	2.7	*4.9	3.8	11	6.8	5.0	4.8	5.3
3	4.6	4.2	*3.2	3.3	2.7	17	3.9	11	6.5	5.0	4.9	4.9
4	4.6	4.3	3.1	*3.3	2.7	10	4.3	11	6.4	4.9	4.7	5.7
5	4.6	4.3	3.1	3.3	2.7	15	* 6.5	10	9.5	4.9	4.5	8.6
6	*4.5	4.2	3.1	3.4	2.9	25	*17	10	9.5	5.3	4.4	7.4
7	4.5	4.1	3.1	3.4	3.1	13	*58	9.8	8.6	5.8	5.5	*12
8	4.6	4.1	3.1	3.5	*3.4	8.3	42	9.6	8.2	5.4	8.8	11
9	4.7	4.0	3.1	3.4	3.5	* 6.2	25	9.5	7.6	6.0	7.7	12
10	4.6	4.0	3.3	3.3	3.5	5.7	15	8.9	7.0	5.6	7.1	12
11	4.6	4.1	3.6	3.2	3.3	5.4	25	*8.7	6.8	5.3	6.8	10
12	4.7	4.0	3.7	3.1	3.2	5.2	19	8.6	6.6	*5.2	6.0	9.7
13	4.7	3.9	3.7	3.0	3.2	5.1	14	8.2	6.2	5.8	*5.9	9.3
14	*4.6	3.9	3.4	2.9	3.1	4.9	14	7.9	6.1	6.2	5.6	9.8
15	4.6	4.0	*3.2	2.8	3.1	4.8	15	7.8	*5.9	5.5	5.2	13
16	4.5	4.0	3.2	2.8	3.0	4.6	14	8.8	5.7	5.6	5.3	11
17	4.4	4.0	3.1	2.7	3.0	4.5	14	8.2	5.6	6.2	7.0	13
18	4.4	*3.9	3.1	2.7	2.9	4.4	14	9.8	5.5	5.8	7.0	14
19	4.4	3.9	3.1	2.7	2.9	4.3	13	9.1	5.4	5.4	6.5	24
20	4.4	3.7	3.1	2.7	2.9	4.2	12	8.3	5.4	5.1	6.0	*25
21	4.3	3.5	3.2	2.7	2.9	4.2	12	8.2	5.2	4.8	5.8	24
22	4.2	3.6	3.2	2.8	2.9	4.1	12	8.0	5.4	4.6	5.6	*19
23	4.2	3.7	3.2	2.9	2.8	*4.1	12	7.7	11	*4.6	5.2	17
24	4.1	3.8	3.2	2.9	2.8	4.0	11	7.5	7.9	5.4	5.2	15
25	4.1	3.8	3.2	3.0	2.8	4.0	14	7.4	7.1	5.2	5.2	14
26	4.1	3.8	3.2	3.0	2.8	4.0	17	9.5	6.6	4.9	*5.2	14
27	3.9	3.9	3.2	3.0	2.8	4.0	14	8.6	6.1	4.7	5.2	13
28	3.9	3.9	3.3	2.9	2.9	4.0	*13	*7.9	5.8	4.4	5.0	20
29	3.7	3.8	3.3	2.8	---	4.0	12	7.6	5.7	4.4	4.9	22
30	*3.7	3.6	3.3	2.7	---	4.1	12	7.4	5.5	4.4	6.7	19
31	3.7	---	3.3	2.7	---	3.9	---	7.0	---	4.8	6.4	---
Total	135.4	117.7	100.7	93.5	83.2	244.8	462.5	274.0	202.5	161.4	179.3	400.4
Mean	4.37	3.92	3.25	3.02	2.97	7.90	15.4	8.84	6.75	5.21	5.78	13.3

Calendar year 1964 : Max — Min — Mean —
Water year 1965 : Max 58 Min 2.7 Mean 6.73

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 8, Mar. 17-18. No gage-height record Nov. 29 to Dec. 2, Dec. 5-8, 14, Dec. 16 to Jan. 3, Jan. 5-7, 9-20, Jan. 29 to Feb. 7, Feb. 9-28, Mar. 5-8, 19-22, 24-29, July 3-12.

5-4010.5 Tenmile Creek near Nekoosa, Wis.

Location.--Lat 44°15'44", long 89°48'38", in NE 1/4 sec. 32, T. 21 N., R. 6 E., on left bank upstream from bridge on State Highway 13, 5.8 miles southeast of Nekoosa.

Drainage area.--Not determined.

Records available.--Occasional low-flow measurements, water years 1962-63. October 1963 to September 1965.

Gage.--Water-stage recorder. Prior to May 13, 1964, staff gage at same datum.

Extremes.--Maximum discharge during year, 274 cfs Apr. 12 (gage height, 5.83 ft); minimum, 9.5 cfs Dec. 16 (gage height, 3.65 ft) result of freezeup.
1963-65: Maximum discharge, that of Apr. 12, 1965; minimum, that of Dec. 16, 1964.

Remarks.--Records good except those for periods of ice effect, or no gage-height record and those Mar. 20 to Apr. 2, which are fair. Approximately 40 miles of drainage ditches and 22 check dams are used to control the water table in the basin. Sprinkler irrigation from ground-water sources is developing rapidly in the area.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.65	9.5	4.8	99
4.0	28	5.3	172
4.4	60	5.9	289

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	28	* 19	13	11	12	22	118	79	58	48	51
2	38	29	20	13	10	46	17	113	77	56	46	49
3	37	32	19	13	10	* 49	17	111	74	54	45	46
4	36	34	18	12	10	44	26	112	72	53	44	47
5	35	33	17	12	11	44	* 28	108	80	52	42	51
6	34	34	16	13	12	36	36	104	93	51	42	54
7	34	33	15	14	12	36	52	100	91	54	43	* 62
8	34	32	14	* 14	* 12	36	99	95	86	52	59	71
9	34	31	14	14	12	43	123	94	82	55	64	76
10	32	30	14	15	11	37	172	87	77	52	58	80
11	33	30	14	15	10	31	189	* 84	72	49	54	75
12	33	30	15	14	10	28	273	81	71	* 46	* 51	71
13	32	30	16	13	11	28	232	79	68	52	50	69
14	* 32	30	* 17	12	11	28	189	77	66	58	48	69
15	32	30	18	12	12	22	172	76	65	54	46	79
16	31	29	17	12	12	22	172	91	* 63	54	46	81
17	31	* 30	15	12	12	22	156	87	62	62	54	84
18	30	29	14	12	12	22	156	92	61	60	54	95
19	30	28	14	12	12	17	150	94	59	57	53	119
20	30	21	13	12	12	17	141	87	59	54	50	154
21	31	24	13	12	12	12	135	87	58	52	48	* 174
22	30	24	13	12	11	* 24	126	92	58	50	47	177
23	30	24	12	12	11	16	99	82	85	50	46	159
24	30	24	12	14	11	12	112	80	85	* 54	44	150
25	30	26	12	* 13	11	12	112	81	76	52	42	140
26	29	27	12	13	11	12	141	103	71	49	* 42	129
27	29	26	12	11	11	12	* 167	* 100	68	47	42	122
28	28	25	12	11	11	17	148	93	65	46	40	135
29	* 28	20	12	11	----------	22	136	86	62	44	39	164
30	28	19	12	11	----------	17	125	83	61	43	47	169
31	28	----------	13	11	----------	22	----------	80	----------	47	53	----------
Total	988	842	454	390	314	798	3,723	2,857	2,146	1,617	1,487	3,002
Mean	31.9	28.1	14.6	12.6	11.2	25.7	124	92.2	71.5	52.2	48.0	100

Calendar year 1964 : Max 88 Min 10 Mean 29.4
Water year 1965 : Max 273 Min 10 Mean 51.0

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 4, 28, Jan. 21, 22, Jan. 28 to Feb. 5, Feb. 22-24. No gage-height record Dec. 5-13, 18-27, Dec. 29 to Jan. 7, Jan. 9-20, Feb. 25 to Mar. 1, Aug. 11.

5-4011. Fourteenmile Creek near New Rome, Wis.

Location.--Lat 44°12'15", long 89°48'29", in S 1/2 sec. 17. T. 20 N., R. 6 E., 50 feet above twin culverts on U. S. Highway 13, and 2.7 miles southeast of New Rome.

Drainage area.--Not determined.

Records available.--Annual maximum and occasional low-flow measurements, water years 1961-64. March 1964 to September 1965.

Gage.--Water-stage recorder and crest-stage gage. Prior to Mar. 2, 1964, crest-stage gage only at datum 7.03 ft lower, and Mar. 2, 1964, to Aug. 27, 1964, staff gage and crest-stage gage.

Extremes.--Maximum discharge during year, 194 cfs Apr. 12 (gage height, 4.33 ft); minimum daily, 9.0 cfs Feb. 27, 28.
1961-65: Maximum discharge, 260 cfs Mar. 28, 1961 (gage height, 12.36 ft, datum then in use).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight regulation by Deer Lodge Dam for short periods at low flows.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.8	6.8	3.0	86
2.0	15	4.0	168
2.4	39	4.5	208

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	20	* 14	10	9.3	12	20	92	67	36	31	33
2	28	22	13	10	9.2	71	39	88	64	35	28	31
3	26	24	13	10	9.2	* 62	22	85	56	32	35	30
4	24	27	13	10	9.2	40	22	102	54	32	33	31
5	24	25	12	10	9.2	60	* 30	88	64	33	27	38
6	24	23	12	10	9.2	54	54	93	72	33	31	37
7	24	22	12	11	9.3	51	72	82	70	38	28	* 46
8	24	22	12	11	* 9.7	46	136	80	65	36	42	48
9	24	22	12	11	11	32	118	76	60	40	45	55
10	23	22	12	11	13	29	92	71	54	36	39	55
11	22	21	12	* 11	11	27	161	* 67	50	33	42	56
12	23	21	12	11	10	26	187	64	50	* 31	* 42	52
13	23	21	12	10	11	25	144	60	48	37	38	52
14	* 22	21	* 13	9.8	10	24	122	54	46	40	38	51
15	22	20	13	9.8	9.8	25	129	59	45	36	30	61
16	22	21	13	9.8	9.8	24	120	73	43	38	30	55
17	21	* 20	12	9.8	9.8	25	118	75	* 41	42	36	66
18	21	20	12	9.8	9.8	25	122	78	40	39	40	63
19	21	20	11	9.8	9.8	24	111	88	39	38	37	76
20	20	18	11	9.8	10	21	104	82	40	36	33	121
21	20	16	11	9.8	10	20	99	76	38	37	32	* 155
22	20	16	10	9.8	10	* 18	94	76	39	33	32	172
23	20	16	10	9.4	9.8	18	83	70	63	31	30	163
24	20	16	10	9.8	9.8	19	88	67	56	* 35	29	149
25	20	18	10	9.8	9.8	19	103	67	50	30	28	128
26	20	20	10	* 9.8	9.4	20	155	92	46	27	* 28	114
27	20	18	10	9.7	9.0	20	* 146	* 96	43	27	28	106
28	20	17	10	9.6	9.0	20	136	88	39	25	27	106
29	* 20	16	10	9.5	-------	20	117	80	39	24	26	148
30	21	14	10	9.4	-------	20	98	74	39	25	38	168
31	21	-------	10	9.4	-------	20	-------	71	-------	28	38	-------
Total	689	599	357	310.6	276.1	917	3,042	2,414	1,520	1,043	1,041	2,466
Mean	22.2	20.0	11.5	10.0	9.86	29.6	101	77.9	50.7	33.6	33.6	82.2

Calendar year 1964 : Max Min Mean
Water year 1965 : Max 187 Min 9.0 Mean 40.2

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, Dec. 2-5, 14, Jan. 11, Jan. 27 to Feb. 8, Mar. 10, 11, 23-27. No gage-height record Dec. 6-13, Dec. 17 to Jan. 10, Jan. 12-20, 25, Feb. 9, Mar. 17.

5-4015.1 Big Roche a Cri Creek near Hancock, Wis.

Location.--Lat 44°10'15", long 89°34'59", in SE 1/4 sec. 30, T. 20 N., R. 8 E., at bridge on country road, four miles northwest of Hancock.

Drainage area.--Not determined.

Records available.--October 1963 to September 1965. Gage-heights and discharge measurements available in files of Wisconsin Conservation Department for the period August 1957 to September 1963.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge recorded during year, 63 cfs Apr. 7 (gage height, 3.32 ft); minimum daily, 4.1 cfs Jan. 31 to Feb. 2. 1963-65: Maximum discharge recorded, that of Apr. 7, 1965; minimum daily, that of Jan. 31 to Feb. 2, 1965.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. There is some sprinkler irrigation from ground-water sources in the basin.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 5-19, Nov. 5-29, Dec. 2-4, 10-13, 24-26, Dec. 30 to Jan. 6, Aug. 13 to Sept. 25)

0.9	4.0	2.0	21
1.1	5.5	2.5	33
1.5	11	3.0	50

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	6.4	6.2	5.4	4.1	7.2	7.1	14	9.8	8.4	8.4	6.7
2	7.9	6.6	5.9	5.4	4.1	*48	7.0	13	9.7	8.3	8.0	6.5
3	7.7	7.0	*5.9	5.4	4.2	*22	7.4	14	9.5	8.3	7.9	6.3
4	7.6	7.4	5.7	5.4	4.3	13	8.0	14	9.4	8.3	7.7	7.7
5	7.6	7.6	5.6	5.4	4.7	20	*11	13	12	8.4	7.6	8.8
6	7.6	7.2	5.4	5.4	5.0	23	*19	13	11	8.9	7.6	8.4
7	*7.6	7.1	5.3	5.6	*5.1	13	*48	12	11	9.0	7.6	*9.8
8	7.6	7.0	5.3	*6.0	*5.1	10	37	12	10	8.8	8.0	9.4
9	7.5	7.0	5.5	5.8	5.2	9.5	23	12	10	9.4	7.6	11
10	7.5	6.8	5.9	5.7	5.5	9.0	18	12	9.7	9.0	7.1	11
11	7.4	6.8	6.0	5.6	5.4	8.9	50	11	9.5	8.6	6.8	10
12	7.4	6.8	6.0	5.5	5.5	8.4	30	*11	9.2	*8.0	6.6	10
13	7.4	6.7	6.0	5.4	5.4	8.3	20	11	9.2	9.7	*6.2	10
14	*7.2	6.6	5.8	5.4	5.2	8.2	14	10	9.0	9.4	6.0	11
15	7.2	7.0	*5.4	5.4	5.1	8.2	15	10	*8.9	8.9	6.0	13
16	7.1	6.8	5.4	5.3	5.1	8.0	14	12	8.8	9.5	5.3	12
17	7.1	6.7	5.4	5.3	5.0	8.3	15	11	8.4	11	6.7	14
18	7.0	*6.5	5.3	5.3	5.0	8.0	15	13	8.2	10	7.0	14
19	7.0	6.3	5.3	5.2	4.9	7.8	14	12	8.2	9.7	6.7	20
20	6.8	6.3	5.3	5.2	4.9	7.4	14	11	8.3	9.5	6.3	*26
21	6.8	6.2	5.2	5.1	5.0	7.2	14	11	8.2	9.4	6.3	23
22	6.8	6.2	5.4	5.0	5.3	*7.0	14	11	8.2	9.2	6.3	20
23	6.8	6.2	5.4	5.1	5.2	*7.0	14	11	13	*9.0	6.2	18
24	6.6	6.2	5.4	5.0	4.8	6.8	13	11	11	8.9	6.1	17
25	6.6	6.3	5.4	5.0	4.7	6.8	16	10	9.8	8.8	6.1	16
26	6.6	6.3	5.3	5.0	4.7	6.8	17	12	9.4	8.8	*6.1	15
27	6.4	6.3	5.3	4.7	4.8	6.6	15	11	9.2	8.6	6.1	15
28	6.4	6.5	5.4	4.5	4.8	6.6	*14	*11	8.9	8.6	5.9	25
29	6.4	6.3	5.5	4.4	----------	6.6	14	11	8.9	8.4	5.7	22
30	*6.4	6.4	5.4	4.2	----------	6.8	14	10	8.6	8.6	7.6	19
31	6.4	----------	5.4	4.1	----------	7.0	----------	10	----------	9.0	7.1	----------
Total	220.4	199.5	171.7	161.2	138.1	331.4	531.5	360	285.0	278.4	210.6	415.6
Mean	7.11	6.65	5.54	5.20	4.93	10.7	17.7	11.6	9.50	8.98	6.79	13.9

Calendar year 1964 : Max 11 Min 5.2 Mean 6.77
Water year 1965 : Max 50 Min 4.1 Mean 9.05

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 9, 10, 13-15, 27 to Feb. 5, Mar. 19-29. No gage-height record Oct. 20 to Nov. 4, Nov. 30 to Dec. 1, Dec. 5-9, 14-23, 27-29, Jan. 7-8, 29-30, Apr. 10-13, July 10-12, Sept. 26-30.

5-4015.35 Big Roche a Cri Creek near Adams, Wis.

Location.--Lat 44°05'52", long 89°46'30", in SW 1/4 sec. 22, T. 19 N., R. 6 E., at culvert on Brown Deer Avenue, 1/2 mile upstream from Dry Creek, and 10 miles north of Adams.

Drainage area.--Not determined.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder. Prior to May 15, 1964, staff gage at same site at datum 1.71 ft higher.

Extremes.--Maximum discharge during year, 136 cfs Apr. 12 (gage height, 3.75 ft); maximum gage height, 3.87 ft Sept. 30 (backwater from debris); minimum, 24 cfs Dec. 31, result of freezeup.
1963-65: Maximum discharge, that of Apr. 12, 1965; maximum gage height, that of Sept. 30, 1965; minimum discharge, that of Dec. 31, 1964.

Remarks.--Records good except those for periods of ice effect, which are fair. There is some irrigation from ground-water sources in the upper portion of basin.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-4, Sept. 18-30)

1.5	28
3.0	99
3.7	134

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	36	*36	36	31	34	40	79	60	45	46	48
2	40	38	36	35	31	70	40	76	59	44	43	46
3	40	40	36	36	31	*106	41	76	58	44	40	44
4	39	42	36	36	31	80	42	80	56	42	40	46
5	39	44	35	35	30	62	*47	80	67	44	40	56
6	*40	42	35	35	33	71	60	78	75	44	38	54
7	40	41	34	36	33	72	104	75	67	52	42	*60
8	40	40	35	37	*33	60	128	72	62	48	46	60
9	40	40	35	34	34	60	126	71	58	54	48	66
10	40	40	36	35	35	50	109	68	55	48	42	73
11	40	40	38	*35	35	50	118	*67	54	44	39	64
12	40	40	40	34	33	49	134	66	52	*43	*38	61
13	41	40	40	34	35	48	111	64	51	47	38	60
14	*40	39	*30	34	36	48	87	62	50	54	37	60
15	40	40	29	34	35	48	85	62	49	48	36	71
16	40	41	30	34	35	46	84	71	48	58	40	70
17	40	*40	31	34	36	47	82	71	*48	64	54	70
18	39	39	32	34	34	44	88	72	47	57	52	78
19	38	38	33	34	33	42	85	80	46	52	48	86
20	38	36	33	33	36	42	81	71	46	49	46	110
21	38	37	33	33	32	42	80	67	49	48	44	*122
22	38	40	33	33	32	*42	80	71	48	46	45	127
23	38	39	34	32	31	42	79	67	66	45	44	120
24	38	40	35	32	31	41	77	64	69	44	42	106
25	38	40	32	*33	31	41	81	66	56	42	42	95
26	38	40	36	33	31	40	106	76	52	42	*43	88
27	38	39	36	33	32	40	*108	*80	50	41	42	82
28	38	37	33	33	33	40	96	70	48	40	42	91
29	*38	35	34	32	---	40	87	66	46	40	42	114
30	37	38	34	32	---	40	82	64	46	40	50	128
31	36	---	33	32	---	40	---	62	---	42	56	---
Total	1,209	1,181	1,063	1,053	923	1,577	2,568	2,194	1,638	1,451	1,345	2,356
Mean	39.0	39.4	34.3	34.0	33.0	50.9	85.6	70.8	54.6	46.8	43.4	78.5

Calendar year 1964 : Max 75 Min 29 Mean 39.9
Water year 1965 : Max 134 Min 29 Mean 50.8

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, Dec. 14-17, Jan. 13-17, 24, Jan. 27 to Feb. 7, Feb. 13, 22-28, Mar. 20 (no gage-height record Jan. 30 to Feb. 5). No gage height record Mar. 21, 22, 24-29.

5-4020. Yellow River at Babcock, Wis.

Location.--Lat 44°18'05", long 90°07'15", in NW 1/4 sec. 14, T. 21 N., R. 3 E., on right bank at downstream side of highway bridge at Babcock, 1.9 miles upstream from Hemlock Creek.

Drainage area.--223 sq mi.

Records available.--March 1944 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 954.75 ft above mean sea level, datum of 1929. Prior to Oct. 28, 1948, chain gage, and Oct. 29, 1948, to July 29, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--21 years, 121 cfs.

Extremes.--Maximum discharge during year, 6,320 cfs Apr. 12 (gage height, 14.61 ft); minimum, 6.0 cfs Aug. 27, 28 (gage height, 1.33 ft).
1944-65: Maximum discharge, 11,600 cfs Apr. 2, 1952 (gage height, 17.38 ft); minimum observed, 1.0 cfs Oct. 1, 1948 (gage height, 1.22 ft).

Remarks.--Records good except those for period of ice effect, which are fair. There is a large recreation dam about 5 miles upstream.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	5.1	2.0	45	9.0	1,350
1.4	8.0	4.0	272	11.0	2,550
1.6	17	7.0	693	13.0	4,260
1.8	28	8.0	950	15.0	6,960

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	17	16	12	8.8	16	26	275	115	20	21	25
2	57	18	16	12	8.7	60	27	214	98	20	20	24
3	47	17	16	12	8.7	150	30	185	*92	20	19	24
4	40	18	17	13	8.6	300	45	234	81	20	25	24
5	*35	18	17	13	8.6	400	60	242	73	21	23	24
6	30	17	18	13	8.8	450	100	225	72	20	19	25
7	26	20	18	13	9.2	500	400	189	93	21	20	31
8	25	38	18	13	9.6	450	1,200	158	140	21	22	27
9	24	35	18	14	10	400	1,800	161	125	22	84	30
10	22	32	18	13	11	320	2,640	159	95	18	100	24
11	21	30	18	12	11	230	4,140	134	73	12	77	40
12	22	30	17	11	11	160	5,830	114	57	11	50	125
13	22	*38	17	11	11	110	3,180	99	45	16	34	80
14	31	59	*16	11	11	80	1,410	81	37	16	25	54
15	24	59	15	11	11	*75	*832	68	31	58	21	51
16	20	59	14	10	11	66	657	118	27	65	*20	60
17	19	60	13	10	11	58	538	398	25	80	22	76
18	19	53	13	10	*11	52	499	364	24	136	14	94
19	19	45	14	10	11	46	533	368	23	*150	9.9	185
20	19	40	14	10	11	40	469	277	23	137	8.5	2,000
21	19	30	14	9.8	11	36	371	188	22	105	7.8	2,920
22	19	24	14	9.6	11	33	320	137	22	83	7.4	2,970
23	18	21	13	9.5	11	31	307	108	26	67	6.9	1,730
24	18	19	12	9.4	11	29	319	91	23	52	6.7	973
25	18	18	12	*9.3	11	28	323	80	22	41	6.5	547
26	18	17	12	9.3	12	27	*807	185	21	32	6.3	333
27	18	17	12	9.2	13	26	1,740	1,100	21	27	6.2	*222
28	17	16	12	9.1	14	25	1,390	691	21	23	18	231
29	17	16	12	9.0	------	25	709	417	20	21	23	935
30	17	16	12	8.9	------	25	408	242	20	20	28	1,550
31	17	------	12	8.8	------	25	------	153	------	22	26	------
Total	787	897	460	335.9	296	4,273	31,110	7,455	1,567	1,377	777.2	15,434
Mean	25.4	29.9	14.8	10.8	10.6	138	1,037	240	52.2	44.4	25.1	514
Cfsm	0.114	0.134	0.066	0.048	0.048	0.619	4.65	1.08	0.234	0.199	0.113	2.30
In.	0.13	0.15	0.08	0.06	0.05	0.71	5.19	1.24	0.26	0.23	0.13	2.57

Calendar year 1964: Max 1,890 Min 6.1 Mean 70.9 Cfsm 0.318 In. 4.32
Water year 1964-65: Max 5,830 Min 6.2 Mean 177 Cfsm 0.794 In. 10.80

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-12	0800	14.61	6,320	9-20	1900	12.01	3,370
4-27	1600	9.97	1,860	9-30	2300	9.53	1,620
5-27	1300	9.05	1,380				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Apr. 9 (no gage-height record Mar. 3-9).

5-4035. Lemonweir River at New Lisbon, Wis.

Location.--Lat 43°52'50", long 90°09'40", in sec. 8, T. 16 N., R. 3 E., near center of span on downstream side of bridge on State Highway 80 in New Lisbon, 200 ft downstream from recreation dam and 1 mile upstream from Webster Creek.

Drainage area.--500 sq mi, approximately.

Records available.--March 1944 to September 1965.

Gage.--Wire-weight gage read twice daily. Datum of gage is 867.05 ft above mean sea level, datum of 1929. Prior to May 5, 1948, chain gage at site 100 ft downstream at same datum. May 5, 1948, to June 30, 1958, chain gage at present site and datum.

Average discharge.--21 years, 335 cfs.

Extremes.--Maximum discharge during year, 4,840 cfs Sept. 23 (gage height, 12.42 ft, from graph based on gage readings); minimum daily, 69 cfs Jan. 31.
1944-65: Maximum discharge, 6,880 cfs May 8, 1960 (gage height, 12.94 ft, from graph based on gage readings); minimum observed, 36 cfs Aug. 15, 1944 (gage height, -0.06 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Occasional regulation by dam 200 ft upstream Water diverted periodically into the basin from the Yellow and Black River basins for cranberry culture.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 26, Aug. 4 to Sept. 30)

Oct. 1 to Apr. 13				Apr. 14 to Sept. 30			
1.0	98	7.0	1,120	1.4	100	7.0	1,120
2.0	176	9.0	1,970	2.0	143	9.0	1,970
3.0	292	10.0	2,620	3.0	238	10.0	2,620
5.0	608	11.0	3,570	5.0	573	11.0	3,570
						12.0	5,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	147	78	74	74	70	363	180	1,080	1,310	104	132	343
2	146	80	74	74	70	1,100	300	937	982	104	130	322
3	120	82	76	74	70	1,400	445	802	722	103	134	299
4	110	84	*80	74	70	1,030	622	673	571	101	148	316
5	115	93	82	74	70	1,120	863	621	522	100	147	343
6	106	95	84	74	72	1,640	1,120	621	526	101	128	295
7	100	95	86	78	100	1,660	1,450	634	544	104	129	378
8	116	95	86	86	150	1,390	*1,810	644	548	100	179	403
9	118	92	86	110	170	1,340	2,100	649	540	114	348	532
10	106	91	86	100	160	1,280	2,130	632	510	117	490	796
11	102	91	88	94	150	940	2,120	573	423	120	573	934
12	100	91	90	88	150	703	2,580	498	297	115	678	1,030
13	110	92	92	84	140	573	2,950	*398	242	113	658	1,040
14	103	92	92	80	130	423	2,710	370	213	111	528	970
15	102	94	88	76	124	357	2,340	312	169	100	359	911
16	102	92	84	74	120	317	1,980	299	153	115	254	824
17	101	90	82	74	116	280	1,680	362	162	183	327	818
18	102	90	80	72	112	230	1,480	488	162	280	311	1,020
19	97	88	80	72	*110	210	1,360	641	164	322	280	1,400
20	94	87	78	70	104	190	1,260	661	162	334	181	2,400
21	94	86	76	70	100	180	1,150	623	144	285	165	*3,570
22	*88	76	76	74	96	180	1,070	644	*139	228	174	4,440
23	87	82	76	72	92	170	1,020	581	145	193	166	4,620
24	84	86	76	72	90	160	988	514	145	171	158	3,860
25	83	94	74	*70	88	150	943	461	144	149	154	3,060
26	83	97	74	70	86	140	1,000	730	138	*132	*148	2,300
27	83	94	74	70	84	140	1,080	1,230	137	125	146	1,750
28	82	88	74	70	90	130	1,140	1,870	125	122	138	1,900
29	82	80	74	70	--------	130	1,210	2,170	111	111	135	2,420
30	80	76	74	70	--------	140	1,190	1,920	103	116	127	3,340
31	79	----------	74	69	----------	*150	----------	1,580	----------	128	305	----------
Total	3,122	2,651	2,490	2,379	2,984	18,216	42,271	24,218	10,253	4,601	7,930	46,634
Mean	101	88.4	80.3	76.7	107	588	1,409	781	342	148	256	1,554
Cfsm	0.202	0.177	0.161	0.153	0.214	1.18	2.82	1.56	0.684	0.296	0.512	3.11
In.	0.23	0.20	0.19	0.18	0.22	1.35	3.14	1.80	0.76	0.34	0.59	3.47

Calendar year 1964: Max 772 Min 44 Mean 156 Cfsm 0.312 In. 4.25
Water year 1964-65: Max 4,620 Min 69 Mean 460 Cfsm 0.920 In. 12.47

* Discharge measurements made on this date.
Note.--Stage-discharge relation affected by ice Nov. 27 to Feb. 28, Mar. 17 to Apr. 2.

5-4037. Dell Creek near Lake Delton, Wis.

Location.--Lat 43°33'05", long 89°51'55", in NW 1/4 sec. 2, T. 12 N., R. 5 E., on right bank 50 ft upstream from highway bridge, 6 miles southwest of Lake Delton, and 7 miles upstream from mouth.

Drainage area.--44.9 sq mi.

Records available.--September 1957 to September 1965 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 847.49 ft above mean sea level, datum of 1929. Prior to Oct. 4, 1957, wire-weight gage 50 ft downstream at same datum.

Average discharge.--8 years, 27.1 cfs.

Extremes.--Maximum discharge during year, 992 cfs Mar. 2 (gage height, 8.38 ft); minimum daily, 13 cfs many days.
1957-65: Maximum discharge, that of Mar. 2, 1965; minimum, 10.9 cfs Aug. 1, 2, 1959 (gage height, 1.75 ft).

Revisions.--The maximum discharge for the water year 1959 has been revised to 856 cfs May 11, 1959 (gage height, 8.04 ft), superseding figure published in WSP 1628 and 1728.

Remarks.--Records good except those for periods of ice effect, which are fair. Records of water temperatures and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	15	15	14	15	168	*97	24	27	14	16	21
2	15	17	15	15	15	*705	82	23	29	14	15	18
3	15	16	15	14	15	213	129	23	24	14	15	17
4	15	16	*14	14	15	46	118	22	22	14	21	22
5	15	17	14	14	15	184	140	33	37	14	16	40
6	16	16	14	14	16	256	125	29	29	17	15	26
7	16	16	14	20	80	75	135	24	25	22	16	59
8	16	16	14	35	96	98	105	23	22	19	25	36
9	16	15	14	24	57	73	96	22	20	26	37	85
10	15	15	14	17	99	36	59	20	19	18	18	154
11	15	15	16	*14	78	30	90	19	18	16	16	67
12	15	16	17	14	*27	27	116	19	18	16	15	28
13	15	16	16	14	23	26	44	*17	16	15	14	25
14	15	15	15	14	21	25	34	17	16	15	14	27
15	15	16	14	14	19	24	36	17	*16	14	13	76
16	15	17	13	14	18	24	32	22	16	19	17	32
17	15	16	13	14	17	22	33	19	16	17	68	147
18	15	15	13	14	17	20	33	21	15	16	42	80
19	15	15	13	14	16	19	28	20	15	15	44	54
20	15	15	13	14	26	18	27	17	21	14	22	164
21	15	15	14	16	32	18	27	17	21	14	19	196
22	*15	15	14	17	25	18	26	27	18	14	19	126
23	15	16	14	16	20	18	27	22	17	14	18	49
24	15	16	14	16	18	18	29	19	16	14	17	37
25	15	16	14	16	17	18	56	21	15	13	17	33
26	15	16	13	16	16	19	62	40	15	13	18	31
27	15	16	13	15	20	19	33	54	14	*13	*17	*30
28	15	15	13	15	42	19	28	30	15	13	17	100
29	15	15	14	15	------	19	26	25	15	13	16	153
30	15	15	14	15	------	24	24	21	15	14	30	93
31	15	------	14	15	------	65	------	25	------	16	27	------
Total	469	470	437	493	875	2,344	1,897	732	582	480	674	2,026
Mean	15.1	15.7	14.1	15.9	31.2	75.6	63.2	23.6	19.4	15.5	21.7	67.5
Cfsm	0.336	0.350	0.314	0.354	0.695	1.68	1.41	0.526	0.432	0.345	0.483	1.50
In.	0.39	0.39	0.36	0.41	0.72	1.94	1.57	0.61	0.48	0.40	0.55	1.68

Calendar year 1964: Max 130 Min 13 Mean 19.2 Cfsm 0.428 In. 5.83
Water year 1964-65: Max 705 Min 13 Mean 31.4 Cfsm 0.699 In. 9.51

Peak discharge (base, 110 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-7	2100	-	140	4-12	0700	5.09	141
2-10	1700	4.95	130	9-10	0700	5.51	185
3-2	1000	8.38	992	9-17	1100	5.87	237
3-5	2300	6.55	381	9-20	1700	5.73	216
4-3	1430	5.13	145	9-29	0600	5.35	166

*Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21, 22,28-30, Dec. 5-7, 14-22, 26-28, Jan. 8 to Feb. 8, Feb. 12-27, Mar. 18-24.

5-4040. Wisconsin River near Wisconsin Dells, Wis.

Location.--Lat 43°36'20", long 89°45'25", in extreme western part of sec. 14, T. 13 N., R. 6 E., on right bank 0.5 mile downstream from Dell Creek and 3 miles downstream from Wisconsin Dells.

Drainage area.--7,830 sq mi, approximately.

Records available.--October 1934 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 800 ft (from topographic map). Prior to Oct. 1, 1963 graphic water-stage recorder at same site at datum 5.00 ft higher.

Average discharge.--31 years, 6,574 cfs.

Extremes.--Maximum discharge during year, 50,200 cfs Apr. 15 (gage height, 18.95 ft); minimum daily 2,300 cfs Dec. 25.
1934-65: Maximum discharge, 72,200 cfs Sept. 14, 1938 (gage height, 23.83 ft present datum); minimum, 300 cfs Aug. 14, 1936; minimum daily, 1,060 cfs Aug. 19, 1936.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by 23 reservoirs above station (see p. 109). In 1938, when the maximum of record occurred, there were 21 reservoirs above station, the two large reservoirs, Petenwell and Castle Rock not yet in existence. Diurnal fluctuation caused by powerplant of Wisconsin Power & Light Co. at Wisconsin Dells, which shuts down frequently to 1,000 KWH, about 660 cfs, from powerplant records.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

5.0	2,100	12.0	19,600
7.0	6,180	15.0	30,400
9.0	10,900	19.0	50,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	8,980	2,720	3,920	3,900	3,200	5,200	4,460	16,800	10,400	3,430	3,590	3,290
2	8,160	2,760	4,000	3,700	3,400	5,400	4,430	12,600	12,400	3,520	3,580	3,380
3	7,190	3,040	3,960	3,600	3,700	6,000	3,930	13,300	17,500	3,420	3,610	3,310
4	6,230	3,740	4,100	3,700	4,200	7,400	3,670	20,700	17,300	3,350	3,570	3,470
5	5,560	4,060	3,800	4,000	3,600	9,100	4,080	18,100	16,600	3,330	3,630	3,420
6	5,540	4,840	3,500	4,100	4,000	9,440	5,220	14,100	13,600	3,400	3,590	3,420
7	4,860	5,240	3,600	4,200	4,100	8,820	6,720	10,900	10,200	3,760	3,680	4,370
8	3,880	5,150	3,500	4,100	3,700	7,680	7,460	10,000	10,100	3,680	3,590	4,670
9	4,000	5,370	3,620	3,800	4,100	8,200	8,360	10,400	10,700	3,390	3,600	5,190
10	3,380	5,240	3,400	4,200	4,400	8,740	8,940	11,000	10,400	3,400	3,620	5,250
11	3,320	5,090	3,300	4,700	4,300	9,370	10,400	14,100	9,990	3,940	4,080	5,700
12	2,930	4,800	3,500	4,600	4,700	9,820	11,800	15,100	9,960	4,020	4,960	5,540
13	2,740	5,520	3,100	4,400	5,000	9,760	19,800	11,500	9,900	3,730	5,130	5,380
14	3,240	5,740	3,200	4,200	5,200	9,830	*29,800	*11,100	9,960	3,470	5,220	5,110
15	3,260	6,940	3,100	4,400	5,200	9,860	*46,300	10,200	9,690	3,410	4,640	4,730
16	3,020	7,950	3,700	4,300	4,800	9,740	46,600	10,300	8,840	3,990	4,510	5,240
17	3,200	8,530	3,500	3,100	5,200	9,660	40,500	18,700	7,440	3,730	4,420	6,400
18	3,080	7,700	3,600	3,400	5,000	9,410	37,200	21,000	5,650	3,350	4,100	6,850
19	3,000	7,100	3,600	3,900	5,100	9,240	33,600	22,000	5,450	3,100	4,110	6,880
20	3,160	7,010	3,300	4,000	5,200	9,220	25,600	20,700	5,670	3,680	4,200	9,540
21	3,380	6,430	3,500	3,900	4,900	8,940	* 23,600	18,300	5,390	3,740	3,970	15,300
22	3,180	4,920	3,700	3,200	4,200	8,650	22,600	14,200	5,480	3,760	3,540	21,900
23	* 2,550	3,680	3,500	2,700	4,500	8,530	22,900	10,700	* 5,440	3,590	3,400	24,800
24	2,980	3,660	3,200	2,600	4,600	8,500	23,200	10,500	5,320	3,890	3,420	22,300
25	2,660	4,190	2,300	3,100	4,900	8,590	23,800	10,300	4,720	3,090	3,190	20,100
26	2,940	3,600	2,700	3,300	4,600	7,770	24,100	11,000	4,240	3,310	3,480	15,900
27	3,140	3,100	2,800	2,400	5,000	7,240	22,700	17,300	3,940	*3,780	2,850	* 13,500
28	3,120	3,120	3,300	2,300	4,900	7,120	22,900	18,100	4,030	3,570	2,610	14,500
29	3,040	2,510	4,200	3,300	------	5,940	22,200	14,600	3,740	3,440	2,850	22,900
30	2,870	2,740	4,100	3,200	------	4,310	23,800	11,200	3,910	3,620	3,110	24,600
31	2,890	------	4,000	3,100	------	4,130	------	11,600	------	3,650	*3,290	------
TOTAL	121,480	146,490	108,580	113,400	125,700	251,710	590,670	440,400	257,960	110,540	117,140	296,940
MEAN	3,919	4,883	3,503	3,658	4,489	8,120	19,690	14,210	8,599	3,566	3,779	9,898

CALENDAR YEAR 1964 MAX 15,500 MIN 1,520 MEAN 4,066
WATER YEAR 1964-65 MAX 46,600 MIN 2,300 MEAN 7,345

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 5 to Mar. 2.

5-4045. Devils Lake near Baraboo, Wis.

Location.--Lat 43°25'20", long 89°43'30", in S 1/2 sec. 13, T. 11 N., R. 6 E., in Devils Lake State Park, 3 miles south of Baraboo.

Drainage area.--5.64 sq mi. Area of Devils Lake, 361 acres.

Records available.--June 1922 to August 1930, June to August 1932, June 1934 to September 1965 (fragmentary).

Gage.--Reference mark read about twice a week except in winter. Datum is 956.39 ft above mean sea level, unadjusted.

Extremes.--Maximum gage height observed during year, 7.19 ft Sept. 27; minimum observed, 1.49 ft Feb. 8.
1922-30, 1932, 1934-65: Maximum gage height observed, 10.6 ft June 1, 1927; minimum observed, that of Feb. 8.

Remarks.--Lake has no surface outlet. Lake was ice covered Dec. 6 to Apr. 20.

Cooperation.--Observer services furnished by Ralph T. Tuttle, custodian, Devils Lake State Park.

Elevation, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									4.07			
2			1.75									
3												
4										3.80		3.30
5								4.20	4.09		3.39	
6		1.86								3.79		3.54
7												
8					1.49				4.04			
9	2.29						3.08				3.55	
10								4.19		3.77		5.00
11				1.80								5.13
12		1.84										5.20
13												
14							3.55			3.71		5.39
15	2.32		1.97						4.01			5.24
16										3.84	3.42	
17	2.15	2.00						4.19				5.30
18											3.89	5.47
19					2.08		3.72					5.70
20		1.81								3.77		6.07
21	1.94											6.63
22												6.97
23												7.06
24											3.34	7.11
25		1.79							3.84			
26	1.88						4.00				3.49	
27						2.59						7.19
28								4.10		3.59		
29					---------		4.12					
30					---------		4.15					
31		----------			---------		----------		----------			----------

Note.--Add 955 ft to obtain elevation above mean sea level.

5

5-4050. Baraboo River near Baraboo, Wis.

Location.--Lat 43°28'55", long 89°38'00", in NW 1/4 sec. 35, T. 12 N., R. 7 E., on left bank 50 ft downstream from highway bridge, 0.3 mile downstream from Rowley Creek and 4 miles east of Baraboo.

Drainage area.--600 sq mi.

Records available.--December 1913 to March 1922. September 1942 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 788.21 ft above mean sea level, datum of 1929. Dec. 18, 1913, to Mar. 31, 1922, chai gage at bridge 2.3 miles upstream at datum 7.6 ft higher. Sept. 24, 1942, to June 10, 1963, chain gage or wire-weight gage at present site and datum.

Average discharge.--30 years (1914-21, 1942-65), 369 cfs.

Extremes.--Maximum discharge during year, about 4,500 cfs Mar. 6 (gage height, 19.8 ft, backwater from ice); minimum, 21 cfs June 15 (gage height, 5.89 ft).

1913-22, 1942-65: Maximum discharge observed, 7,900 cfs Mar. 26, 1917 (gage height, 17.5 ft, estimated, site and datum then in use), from rating curve extended above 6,000 cfs; minimum observed, 9 cfs Feb. 17, 1944 (gage height, 5.08 ft); minimum daily, 26 cfs Oct. 6, 1950.

Flood of Aug. 6, 1935, reached a stage of 15.8 ft, from floodmarks, site and datum in use in 1922 (discharge, 5,100 cfs).

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal regulation from four powerplants at Baraboo.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

6.0	30	9.0	705
6.3	60	11.0	1,220
6.6	105	14.0	2,140
7.0	195	17.0	3,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	115	113	100	88	600	718	302	*198	83	85	235
2	129	129	115	105	88	*1,890	994	250	193	90	79	298
3	119	127	105	105	90	3,000	1,200	235	188	117	63	283
4	109	129	112	102	91	4,000	1,400	190	190	77	77	227
5	119	147	105	102	94	4,200	1,750	104	228	70	107	208
6	111	149	108	104	110	4,400	*2,290	188	205	*63	149	200
7	104	127	105	110	350	4,200	2,720	238	178	77	138	450
8	104	132	102	130	600	3,700	*3,070	242	202	86	173	715
9	119	145	106	170	800	*3,080	3,260	238	218	140	250	1,020
10	119	121	110	350	960	2,400	3,060	215	164	145	*395	2,460
11	109	145	125	*401	1,020	1,600	2,740	159	145	149	300	2,520
12	117	145	125	390	*1,010	1,300	2,420	183	129	121	220	2,370
13	102	136	119	280	900	700	2,040	173	111	107	161	1,490
14	105	143	119	190	600	300	*1,620	164	90	104	113	*1,240
15	*113	134	*120	145	400	220	1,320	143	33	107	117	897
16	132	132	125	130	250	180	970	123	93	235	73	528
17	132	*119	120	120	190	155	523	111	115	265	85	739
18	127	136	115	110	170	140	408	104	98	212	105	1,660
19	111	140	108	104	*148	130	362	98	107	166	235	1,700
20	111	132	100	98	138	125	332	169	100	136	302	1,670
21	107	140	98	*94	130	123	308	195	157	109	302	2,200
22	119	109	110	94	126	126	275	178	188	83	305	2,450
23	125	104	105	94	120	125	270	164	140	113	245	2,520
24	125	93	100	94	118	*176	260	134	119	91	138	2,460
25	123	154	105	92	115	154	332	190	100	74	111	2,140
26	136	147	96	90	112	136	627	220	98	77	171	1,670
27	102	129	93	90	110	138	671	181	109	82	134	1,180
28	107	120	100	90	120	127	640	320	70	70	98	866
29	119	110	100	88	--------	138	*533	440	76	68	88	1,030
30	127	115	104	88	---------	164	380	410	76	83	100	1,130
31	138	----------	104	88	---------	355	----------	282	----------	86	117	----------
Total	3,637	3,904	3,372	4,348	9,048	38,082	37,493	6,343	4,118	3,486	5,036	38,556
Mean	117	130	109	140	323	1,228	1,250	205	137	112	162	1,285
Cfsm	0.195	0.217	0.182	0.233	0.538	2.05	2.08	0.342	0.228	0.187	0.270	2.14
In.	0.23	0.24	0.21	0.27	0.56	2.36	2.32	0.39	0.26	0.22	0.31	2.39

Calendar year 1964 : Max 663 Min 72 Mean 172 Cfsm 0.287 In. 3.91
Water year 1964-65 : Max 4,400 Min 33 Mean 431 Cfsm 0.718 In. 9.76

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, 29, Dec. 2-10, 14-26, 28-31, Jan. 7 to Mar. 22 (no gage-height record Jan. 22-26, Jan. 28 to Feb. 3, Mar. 3-8).

5-4065. Black Earth Creek at Black Earth, Wis.

Location.--Lat 43°08'00", long 89°44'00", in SW 1/4 sec. 25, T. 8 N., R. 6 E., on right bank, 0.7 mile east of Black Earth and 2.1 miles upstream from Vermont Creek.

Drainage area.--46.4 sq mi (revised) of which 3.6 sq mi is probably non-contributing.

Records available.--February 1954 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 812.95 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 30.0 cfs.

Extremes.--Maximum discharge during year, 623 cfs Mar. 2 (gage height, 5.05 ft); minimum, 7.8 cfs Dec. 14 (gage height, 1.52 ft), result of freezeup.
1954-65: Maximum discharge, 1,750 cfs July 3, 1954 (gage height, 6.58 ft); minimum, 4.8 cfs Nov. 29, 1958 (gage height, 1.39 ft), result of freezeup.

Remarks.--Records good. Records of water temperatures and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 2 to Sept. 7)

1.6	11	2.5	100
1.8	24	3.5	248
2.0	42	4.5	454

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	16	16	14	15	333	143	21	17	*15	15	19
2	16	16	16	15	15	452	122	20	16	14	14	18
3	16	16	16	15	15	120	105	20	16	13	13	18
4	16	16	15	16	15	63	116	20	16	13	13	28
5	16	16	15	16	15	211	134	21	15	13	13	65
6	16	16	15	16	16	168	153	20	16	15	14	29
7	17	16	15	18	85	118	80	20	15	16	14	54
8	17	16	15	20	110	112	60	20	15	15	18	41
9	17	16	15	19	52	*75	48	19	15	15	19	48
10	17	16	15	17	*140	38	39	19	15	15	15	100
11	17	16	16	16	85	32	58	18	15	15	15	41
12	*17	16	17	15	28	28	44	18	14	15	*15	30
13	16	16	16	14	24	28	36	18	14	15	14	*28
14	16	16	15	15	22	27	34	18	13	15	14	25
15	16	18	14	15	21	26	33	18	14	15	14	25
16	16	18	*14	15	20	25	31	19	13	15	17	23
17	16	17	14	15	20	23	30	18	13	14	19	23
18	15	16	14	15	20	21	29	18	13	14	20	23
19	15	*16	14	15	18	20	28	18	13	13	21	50
20	15	16	14	15	50	19	27	18	15	14	17	174
21	16	16	15	*16	60	19	*25	17	15	13	16	157
22	16	16	15	16	24	19	24	18	14	14	16	75
23	16	16	15	16	20	19	23	18	14	14	16	54
24	16	17	15	16	20	*19	24	18	13	13	16	43
25	16	17	14	16	19	19	34	18	13	13	18	39
26	16	17	14	16	18	19	34	19	13	12	18	35
27	16	17	14	15	26	19	28	20	13	13	17	32
28	16	16	14	15	124	19	24	*18	15	13	16	31
29	16	16	14	15	------	20	23	18	15	12	17	29
30	16	16	14	15	------	22	22	17	15	13	21	28
31	16	------	14	15	------	101	------	17	------	15	20	------
Total	499	489	459	487	1,097	2,234	1,611	579	433	434	505	1,385
Mean	16.1	16.3	14.8	15.7	39.2	72.1	53.7	18.7	14.4	14.0	16.3	46.2
Cfsm	0.347	0.351	0.319	0.338	0.845	1.55	1.16	0.403	0.310	0.302	0.351	0.996
In.	0.40	0.39	0.37	0.39	0.88	1.79	1.29	0.46	0.35	0.35	0.40	1.11

Calendar year 1964: Max 41 Min 14 Mean 18.8 Cfsm 0.405 In. 5.56
Water year 1964-65: Max 452 Min 12 Mean 28.0 Cfsm 0.603 In. 8.18

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-2	0600	5.05	623	4-5	2130	3.50	248
3-5	2000	4.11	364	9-20	0500	3.46	241
3-31	2100	3.51	250				

*Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21 Dec. 10, Dec. 15 to Jan. 3, Jan. 9, 12, 14-20, Jan. 27 to Feb. 8, Feb. 12-14, 20-22, 25, Mar. 8-11, 16, 17, 19-28.

5

5-4070. Wisconsin River at Muscoda, Wis.

Location.--Lat 43°12'00", long 90°26'25", in sec. 1, T. 8 N., R. 1 W., on left bank at bridge on State Highway 80, 0.5 mile upstream from Eagle Mill Creek and 1 mile north of Muscoda.

Drainage area.--10,300 sq mi, approximately.

Records available.--December 1902 to December 1903, October 1913 to September 1965. Monthly discharge only for October and November 1913, published in WSP 1308. Gage-height records collected at same site November 1908 to December 1912 are contained in reports of U. S. Weather Bureau.

Gage.--Digital water-stage recorder. Datum of gage is 667.05 ft above mean sea level, datum of 1929. Prior to Nov. 22, 1929, chain gage on bridge 200 ft upstream at same datum. Nov. 22, 1929, to Mar. 15, 1930, chain gage and Mar. 16, 1930 to Apr. 21, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--52 years (1913-65), 8,423 cfs.

Extremes.--Maximum discharge during year, 48,500 cfs Apr. 18 (gage height, 8.95 ft); minimum, 3,090 cfs July 5 (gage height, 0.34 ft). 1902-3, 1913-65: Maximum discharge, 80,800 cfs Sept. 16, 1938 (gage height, 11.48 ft); minimum daily, 2,000 cfs Feb. 11, 1918.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by 23 reservoirs and many powerplants above station (see p. 109). In 1938 when the maximum of record occurred, there were 21 reservoirs above station, the two large reservoirs, Petenwell and Castle Rock not yet in existence. An average of about 10 to 15 cfs diverted out of basin through Portage canal to Fox River throughout the year.

Rating tables, except period of ice effect (gage height in feet, and discharge; in cubic feet per second)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30			
0.5	2,970	2.0	6,960	0.5	3,440	4.0	14,900
1.0	4,120	3.0	10,900	1.0	4,640	7.0	31,200
				2.0	7,460	9.0	49,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9,170	4,220	3,400	5,200	3,500	8,000	8,400	23,200	13,500	4,220	3,920	4,300
2	8,330	3,650	3,600	4,800	3,700	12,000	8,200	23,300	13,300	4,090	4,000	4,280
3	8,430	4,480	4,000	4,900	*3,380	16,000	7,800	18,800	12,500	4,980	4,140	4,750
4	8,190	3,700	4,700	4,900	4,100	14,000	7,800	14,900	12,500	3,740	4,140	4,390
5	6,660	4,060	4,600	4,800	4,100	13,000	7,600	16,200	15,600	3,560	4,420	5,460
6	6,490	5,070	4,700	4,800	4,500	14,000	9,000	20,400	16,800	4,120	4,720	5,630
7	6,180	4,960	4,300	5,200	4,700	15,000	*10,800	19,100	16,200	4,360	3,720	6,030
8	5,380	5,750	4,800	5,500	5,400	15,000	12,800	15,500	14,000	4,290	4,490	7,270
9	6,110	6,170	4,600	4,900	6,000	15,000	13,900	13,500	12,700	5,320	5,510	7,390
10	5,320	5,900	4,600	4,000	6,000	14,000	14,400	11,300	11,300	4,160	6,120	11,900
11	4,630	6,920	4,500	4,600	6,800	14,000	14,600	11,800	11,000	4,590	3,580	17,100
12	4,640	5,980	4,400	4,900	7,000	13,000	15,000	12,400	10,900	4,140	4,560	13,100
13	4,370	*5,500	4,300	4,900	6,800	14,000	14,600	13,800	9,950	4,540	4,850	10,700
14	3,910	6,540	4,000	4,800	6,600	14,000	15,400	14,100	11,300	4,360	6,120	9,370
15	4,050	6,510	3,700	4,300	6,600	13,000	20,400	13,400	10,600	4,240	4,820	9,580
16	4,120	7,550	3,900	5,000	6,900	12,000	25,200	12,600	10,200	4,540	5,590	8,220
17	4,160	7,630	4,100	4,900	6,400	11,000	32,000	11,900	9,710	4,140	6,610	8,470
18	4,110	8,430	3,600	4,800	6,400	10,000	45,900	11,800	9,030	4,900	5,730	9,270
19	*4,220	9,480	4,500	4,800	6,000	10,000	*46,900	15,700	7,180	*4,190	6,200	10,800
20	4,050	8,500	4,800	4,400	6,500	10,000	41,800	19,500	6,120	4,690	*5,070	12,700
21	3,790	7,900	4,800	4,800	6,600	10,000	38,000	20,600	7,680	4,040	5,340	14,400
22	3,660	6,930	4,900	5,400	6,600	11,000	32,400	20,300	7,560	3,580	5,470	15,200
23	4,300	6,510	4,100	5,500	6,000	12,000	*27,100	18,800	6,700	4,120	4,790	19,100
24	4,330	6,310	4,700	4,700	5,500	12,000	24,600	14,800	6,610	4,190	4,580	21,900
25	3,840	5,330	4,400	4,200	5,400	12,000	25,100	13,500	6,230	4,020	4,790	24,500
26	4,030	5,010	3,600	4,000	6,000	11,000	24,600	12,400	5,800	4,070	4,340	26,600
27	4,200	5,200	3,400	4,000	6,300	11,000	25,500	*12,500	5,400	3,720	5,020	*25,400
28	3,740	5,200	3,300	4,000	6,100	11,000	25,300	12,200	5,000	3,530	4,370	20,800
29	3,800	4,400	3,300	4,000	------	10,000	25,300	15,800	*4,600	3,900	3,740	18,800
30	4,020	3,200	*3,850	3,200	------	9,200	24,000	16,600	5,190	4,070	4,450	18,800
31	3,880	------	4,600	3,200	------	8,800	------	14,700	------	3,970	4,480	------
TOTAL	156,110	176,990	130,050	143,900	159,880	375,000	644,400	485,400	295,160	130,380	149,680	376,210
MEAN	5,036	5,900	4,195	4,642	5,710	12,100	21,480	15,660	9,839	4,206	4,828	12,540

CALENDAR YEAR 1964 MAX 17,500 MIN 2,290 MEAN 5,148
WATER YEAR 1964-65 MAX 46,900 MIN 3,200 MEAN 8,831

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28 to Apr. 7.

5-4080. Kickapoo River at La Farge, Wis.

Location.--Lat 43°34'30", long 90°38'35", on east-west quarter section line in W 1/2 sec. 29, T. 13 N., R. 2 W., on left bank 10 ft upstream from bridge on State Highway 82, in La Farge, 0.3 mile upstream from Otter Creek, and 1 mile downstream from powerplant.

Drainage area.--266 sq mi.

Records available.--October 1938 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 782.00 ft above mean sea level, adjustment of 1912. Prior to Dec. 4, 1939, chain gage on highway bridge at same datum. Dec. 4, 1939, to May 14, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--27 years, 166 cfs.

Extremes.--Maximum discharge during year, 3,990 cfs Sept. 20 (gage height, 11.46 ft); minimum, 8.8 cfs Mar. 27 (gage height 0.14 ft); minimum daily, 48 cfs July 28.
1938-65: Maximum discharge, 7,040 cfs Mar. 26, 1961 (gage height, 12.70 ft); maximum gage height, 12.90 ft Mar. 8, 1950 (backwater from ice); minimum discharge, 1.8 cfs Mar. 24, 1951; minimum daily, 36 cfs Nov. 3, 1939.

Remarks.--Records good except those for period of ice effect, which are fair. Considerable diurnal fluctuation caused by operation of powerplant 1 mile upstream.

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Rate of change in stage used as a factor Apr. 11, 12, May 26, 27, Sept. 19, 20, 28, 29)

Oct. 1 to Mar. 28, Sept. 28-30				Mar. 29 to Sept. 27			
1.2	62	5.0	706	1.0	36	6.0	962
2.0	150	7.0	1,260	1.5	79	8.0	1,570
3.0	303	10.0	2,380	2.0	139	10.0	2,380
				4.0	490		

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	80	92	*64	84	82	900	500	129	204	65	83	115
2	71	91	82	84	80	2,500	560	133	151	77	68	92
3	94	102	90	82	84	1,800	700	124	121	57	60	78
4	83	93	76	88	82	400	1,400	116	115	73	82	84
5	85	98	66	84	82	1,000	1,690	157	182	51	86	87
6	88	99	88	90	86	2,200	*2,330	153	248	91	66	121
7	77	85	78	88	360	700	1,890	129	170	102	108	278
8	86	99	80	200	700	1,000	1,620	128	138	113	235	173
9	91	88	90	280	380	660	2,350	138	120	163	218	971
10	96	83	86	110	620	340	652	*116	112	113	108	840
11	73	89	92	80	400	250	2,260	103	104	80	84	223
12	101	98	106	*62	210	210	1,970	104	100	80	71	163
13	96	77	92	68	160	180	332	93	95	67	78	142
14	89	92	78	70	130	160	238	91	*87	74	56	105
15	83	96	84	70	*108	150	336	86	88	69	71	254
16	74	103	80	70	100	140	239	227	76	203	64	166
17	87	86	84	70	96	130	206	152	81	120	153	314
18	85	94	74	76	92	120	223	188	80	88	86	574
19	*81	84	68	72	92	110	188	183	87	72	152	1,250
20	101	71	64	76	150	104	170	117	80	72	77	*2,980
21	73	75	72	76	320	100	120	126	96	71	85	1,210
22	102	74	80	74	280	96	154	338	85	65	77	604
23	92	86	86	76	220	92	159	149	89	65	*81	331
24	74	90	78	78	140	88	171	134	95	62	65	261
25	90	88	84	78	90	84	229	141	77	59	59	221
26	83	80	80	76	90	80	322	973	64	*67	92	187
27	89	94	82	76	92	78	214	576	72	62	75	165
28	84	86	82	76	200	80	177	239	80	48	77	*1,160
29	85	92	82	74	------	*88	141	178	74	69	62	2,320
30	85	76	82	76	------	130	137	157	71	55	178	712
31	85	------	80	74	------	350	------	145	------	69	190	------
TOTAL	2,663	2,661	2,510	2,738	5,526	14,320	21,678	5,823	3,242	2,522	3,047	16,181
MEAN	85.9	88.7	81.0	88.3	197	462	723	188	108	81.4	98.3	539
CFSM	.323	.334	.305	.332	.741	1.74	2.72	.707	.406	.306	.370	2.03
IN	.37	.37	.35	.38	.77	2.00	3.03	.81	.45	.35	.43	2.26

CALENDAR YEAR 1964 MAX 760 MIN 53 MEAN 106 CFSM .399 INCHES 5.43
WATER YEAR 1964-65 MAX 2,980 MIN 48 MEAN 227 CFSM .853 INCHES 11.59

Peak discharge (base, 1,700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-2	1415	12.78	3,600	4-11	1800	10.71	2,900
3-6	0900	11.87	2,600	9-20	0715	11.46	3,990
4-6	1100	10.57	2,780	9-29	0645	10.70	2,890
4-9	1200	11.15	3,410				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Apr. 4.

5-4085. Knapp Creek near Bloomingdale, Wis.

Location.--Lat 43°40'05", long 90°46'55", in NW 1/4 sec. 30, T. 14 N., R. 3 W. on right bank, 0.4 mile upstream from confluence with West Fork Kickapoo River, 1.7 miles north of Bloomingdale, and 4 miles east of Westby.

Drainage area.--8.47 sq mi.

Records available.--October 1954 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 960 ft (from topographic map).

Average discharge.--11 years, 5.01 cfs.

Extremes.--Maximum discharge during year, 614 cfs Apr. 10 (gage height, 3.62 ft); minimum, 0.8 cfs July 5 (gage height, 0.69 ft).
1954-65: Maximum discharge, 3,710 cfs Aug. 26, 1959 (gage height, 8.76 ft) from rating curve extended above 400 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.6 cfs Jan. 8-10, 17-27, Jan. 30 to Feb. 1, 1959.
Flood in July 1954 reached a stage of about 10.5 ft from floodmarks.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Two detention reservoirs completed during water year 1956 about three miles upstream control flood discharge from 3.88 sq mi of drainage area.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 1-12, May 26, Sept. 9, 17, 19-21, 28, 29.)

0.7	0.7	1.1	10	1.7	64
.8	1.8	1.3	21	2.0	118
.9	3.6	1.5	38	2.3	190

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.7	*1.2	1.8	1.1	*143	100	3.6	4.5	1.2	1.4	1.8
2	2.0	3.2	1.2	1.8	1.2	*98	103	3.4	3.4	1.2	1.2	1.5
3	1.8	2.3	1.1	1.9	1.2	7.0	35	3.2	3.1	1.2	1.2	1.5
4	2.0	2.9	1.8	2.2	1.2	3.0	104	3.1	2.7	1.2	1.1	1.8
5	1.8	2.7	2.0	2.2	1.4	120	96	10	4.8	1.2	1.1	1.5
6	2.0	2.5	2.0	2.3	5.0	18	*54	6.1	5.2	1.8	1.1	4.2
7	2.2	2.3	1.8	5.0	18	28	52	4.5	3.6	1.7	5.9	4.5
8	2.0	2.3	1.6	10	10	17	124	4.8	3.2	2.8	6.7	2.5
9	2.0	2.3	1.7	2.6	6.0	8.7	28	4.2	2.7	5.1	3.1	41
10	1.8	2.2	1.9	1.8	13	6.1	98	*3.2	2.3	1.5	1.8	9.9
11	1.8	2.3	4.0	*1.6	8.0	5.0	169	2.9	2.2	1.2	1.5	3.9
12	1.8	2.7	3.0	1.5	4.0	4.2	60	2.5	2.2	1.2	1.4	2.9
13	2.0	2.3	2.3	1.4	2.4	3.6	8.7	2.3	1.8	1.6	1.2	2.7
14	2.2	2.3	2.0	1.2	2.0	3.2	8.4	2.1	1.7	1.4	1.2	3.2
15	1.8	3.1	1.7	1.2	*1.9	3.5	9.7	2.0	*1.8	1.2	1.1	3.6
16	1.8	2.7	2.0	1.4	1.7	3.2	7.0	8.0	1.5	3.0	1.8	2.5
17	1.8	2.7	1.7	1.5	2.0	3.0	7.0	4.0	1.4	1.4	1.6	21
18	2.5	2.5	1.4	1.6	1.8	2.8	6.7	6.0	1.5	1.2	1.4	7.4
19	*1.5	2.2	1.2	1.6	1.6	2.7	5.5	5.0	1.4	1.2	1.2	134
20	1.5	2.0	1.0	1.7	2.0	2.6	5.2	3.6	2.3	1.2	1.0	17
21	1.5	1.7	3.0	1.8	3.4	2.5	4.8	3.5	1.8	*1.1	1.2	37
22	1.5	1.7	4.0	1.8	2.6	2.4	4.2	10	2.3	1.1	1.4	12
23	1.5	2.0	3.0	1.8	2.0	2.4	4.2	5.0	1.8	1.1	*1.1	8.4
24	1.5	2.2	2.0	1.7	1.7	2.4	5.2	4.0	1.6	1.1	1.1	6.7
25	1.6	2.5	1.8	1.6	1.6	2.4	9.0	3.0	1.5	1.0	1.4	6.1
26	1.6	2.3	1.7	1.5	1.6	2.4	7.7	*98	1.4	1.1	1.6	5.8
27	1.6	2.0	1.7	1.4	2.0	2.4	6.4	9.3	1.4	1.2	1.4	5.8
28	1.6	1.7	1.6	1.4	10	2.6	5.5	6.7	1.5	1.0	1.2	*114
29	2.2	1.4	1.9	1.3	-------	*2.9	4.5	5.2	1.4	1.0	1.5	46
30	2.2	1.3	1.9	1.2	------	10	3.9	3.6	1.5	1.1	6.4	15
31	1.7	------	1.9	1.2	-----	110	-----	5.2	----	2.0	2.9	------
Total	56.6	68.0	61.1	63.0	110.4	625.0	1,136.6	238.0	69.5	46.3	59.2	525.2
Mean	1.83	2.27	1.97	2.03	3.94	20.2	37.9	7.68	2.32	1.49	1.91	17.5
Cfsm	0.216	0.268	0.233	0.240	0.465	2.38	4.47	0.907	0.274	0.176	0.225	2.07
In.	0.25	0.30	0.27	0.28	0.48	2.74	4.99	1.04	0.31	0.20	0.26	2.31

Calendar year 1964: Max 20 Min 1.0 Mean 2.54 Cfsm 0.300 In. 4.08
Water year 1964-65: Max 169 Min 1.0 Mean 8.38 Cfsm 0.989 In. 13.43

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-1	2000	3.45	230	4-8	1630	3.16	430
3-5	1430	3.57	470	4-10	2030	3.62	614
4-2	1700	3.12	417	5-26	0400	2.75	252
4-5	1500	2.73	328	9-19	1300	3.57	469
				9-28	0500	3.62	488

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 19 to Dec. 19, Dec. 21 to Mar. 5, Mar. 11-31 (no gage-height record Jan. 31 to Feb. 4, Feb. 6-12, Mar. 26-28). No gage-height record May 13-19, 21-25.

GPO 826-536-8

5-4100. Kickapoo River at Gays Mills, Wis.

Location.--Lat 43°19'10", long 90°51'10", in NE 1/4 sec. 28, T. 10 N., R. 4 W., on upstream side of State Highway 171 bridge 300 ft downstream from dam in Gays Mills and 3.3 miles downstream from Taintor Creek.

Drainage area.--616 sq mi.

Records available.--December 1913 to September 1934. Monthly discharge only July to September 1934, published in WSP 1308. April 1964 to September 1965.

Gage.--Wire-weight gage read twice-daily. Datum of gage is 685.75 ft above mean sea level, datum of 1929. Prior to July 25, 1964, chain gage at present site and datum.

Average discharge.--21 years (1914-34, 1964-65), 421 cfs.

Extremes.--Maximum discharge during year, 6,920 cfs Mar. 3 (gage height, 15.05 ft); minimum observed, 144 cfs Dec. 4-7 (gage height, 3.01 ft).

1913-34, 1964-65: Maximum discharge, 9,800 cfs Mar. 24, 1917 (gage height, 15.05 ft, from floodmark); minimum observed, 48 cfs July 27, 1931 (gage height, 0.51 ft).

Flood in 1913 reached a stage of 15.2 ft, from floodmark (backwater from ice probable).

Remarks.--Records good except those for periods of ice effect, which are fair. Occasional regulation caused by dam 300 ft upstream.

Rating table except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 7, 9-13, 19-30.)

3.0	143	11.0	1,830
5.0	392	12.0	2,380
7.0	742	13.0	3,440
9.0	1,220	14.0	4,770

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	198	198	155	170	170	1,200	1,400	363	395	229	202	396
2	202	190	160	175	170	3,600	1,490	346	414	232	207	*300
3	181	199	150	180	175	*5,600	1,570	337	384	219	211	234
4	176	205	144	180	175	4,650	2,060	335	337	208	202	226
5	184	207	144	190	180	3,190	2,760	428	338	212	202	238
6	199	188	144	217	190	3,360	*3,300	536	480	222	214	248
7	195	205	144	320	700	3,500	3,080	413	472	246	195	1,270
8	175	193	170	350	1,000	2,650	3,160	406	375	253	423	737
9	190	196	180	300	1,000	1,730	3,060	365	330	804	447	1,300
10	195	207	195	260	1,100	1,030	2,500	351	312	361	368	*1,830
11	169	210	207	220	1,100	506	2,320	325	283	286	280	*1,830
12	174	*199	217	180	1,000	389	3,040	294	277	260	224	1,470
13	195	190	229	165	700	355	3,360	282	266	253	214	730
14	196	200	211	170	440	338	1,560	278	254	248	201	494
15	182	174	180	175	320	*339	859	270	246	236	181	455
16	181	216	175	175	280	317	704	325	248	238	190	381
17	183	207	170	180	*240	300	608	386	246	241	234	662
18	175	192	165	*185	230	270	568	375	226	309	230	771
19	172	199	160	175	230	250	472	378	226	234	263	1,030
20	*189	190	150	180	300	230	*461	371	222	*228	237	*1,350
21	170	157	160	175	540	220	450	304	*258	219	253	1,690
22	193	157	165	170	500	210	407	392	258	217	213	2,760
23	168	180	170	170	320	200	422	359	250	217	200	*2,160
24	187	212	175	175	280	210	422	337	232	214	202	1,570
25	181	200	170	180	250	220	536	312	237	205	200	852
26	183	195	170	175	240	210	615	*633	226	195	385	608
27	193	186	170	170	230	200	608	943	216	207	222	519
28	173	170	170	170	350	210	490	1,040	231	205	214	845
29	195	150	165	165	---	220	432	626	234	183	212	1,440
30	181	165	165	165	---	256	377	455	234	202	256	1,710
31	190	---	165	170	---	599	---	413	---	218	328	---
Total	5,725	5,737	5,295	6,032	12,410	36,559	43,091	12,978	8,707	7,801	7,610	30,106
Mean	185	191	171	195	443	1,179	1,436	419	290	252	245	1,004
Cfsm	0.300	0.310	0.278	0.317	0.719	1.91	2.33	0.680	0.471	0.409	0.398	1.63
In.	0.35	0.35	0.32	0.36	0.75	2.21	2.60	0.78	0.53	0.47	0.46	1.82

Calendar year 1964 : Max —— Min —— Mean —— Cfsm —— In. ——
Water year 1964-65 : Max 5,600 Min 144 Mean 499 Cfsm 0.810 In. 11.00

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, Nov. 30 to Dec. 3, Dec. 8, 9, Dec. 16 to Jan. 2, Jan. 7 to Mar. 3, Mar. 17-29.

5-4105. Kickapoo River at Steuben, Wis.

Location.--Lat 43°11'25", long 90°52'30", in NW 1/4 sec. 8, T. 8 N., R. 4 W., on right bank 0.8 mile upstream from Duffy Creek, 1 mile northwest of Steuben and 14 miles upstream from mouth.

Drainage area.--690 sq mi.

Records available.--May 1933 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 657.82 ft above mean sea level, adjustment of 1912. Prior to Oct. 20, 1938, chain gage at site 1 mile upstream at datum 1.3 ft higher.

Average discharge.--32 years, 453 cfs.

Extremes.--Maximum discharge during year, 6,500 cfs Mar. 4 (gage height, 11.18 ft backwater from ice); minimum, 197 cfs Nov. 22.
1933-65: Maximum discharge, 10,800 cfs Mar. 28, 1961 (gage height, 12.33 ft); minimum observed 161 cfs Aug. 9, 1936 (gage height, 0.76 ft, site and datum then in use).

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

Rating table, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)
(Shifting-control method used Mar. 11-16, 19, Mar. 27 to Apr. 2, Apr. 18-25, Sept. 7-30)

2.4	205	8.0	1,260
3.0	277	8.5	1,440
4.0	423	9.0	2,080
6.0	755	10.0	4,570

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	259	251	230	230	220	800	1,250	466	476	268	243	426
2	268	251	220	240	220	2,000	1,510	447	471	264	241	*357
3	264	268	230	250	225	5,000	1,710	429	470	256	245	302
4	250	268	225	240	230	5,500	2,040	420	424	259	239	284
5	256	273	220	240	235	3,900	2,470	430	416	235	223	278
6	261	270	220	240	240	3,700	*2,740	631	454	250	243	298
7	264	268	215	270	600	3,200	2,820	539	450	290	249	730
8	260	267	220	400	1,000	3,600	2,820	476	478	305	370	926
9	254	255	240	500	1,000	2,670	2,800	459	423	653	485	877
10	259	269	260	440	1,100	2,140	2,700	446	459	594	453	*1,250
11	267	264	278	360	1,200	1,020	2,700	423	363	398	382	1,420
12	265	*259	290	300	1,150	505	2,540	393	345	330	291	1,610
13	255	260	300	270	800	452	3,180	370	333	305	268	1,480
14	272	254	280	250	500	402	2,660	364	322	292	252	863
15	268	259	260	240	400	386	2,030	354	312	274	244	566
16	258	261	240	230	320	*339	1,080	366	305	274	222	505
17	259	283	230	*225	*280	340	786	444	301	268	264	714
18	256	274	220	*220	270	310	643	483	291	370	270	936
19	249	264	220	220	260	295	592	450	288	*294	320	934
20	*259	250	210	220	280	300	*537	468	352	270	280	1,200
21	254	225	210	220	600	300	507	410	*424	258	308	1,310
22	260	217	220	220	580	300	488	378	318	247	255	1,450
23	254	270	220	230	500	290	458	470	311	249	254	2,060
24	254	294	230	230	400	280	486	471	299	243	251	1,820
25	267	298	240	230	340	270	557	417	290	237	246	1,570
26	243	280	230	225	300	270	683	*773	285	217	405	1,080
27	260	270	230	220	280	270	721	873	277	239	302	697
28	255	260	230	220	400	263	634	1,020	263	233	269	694
29	258	251	225	210	-------	272	544	922	281	225	258	1,070
30	259	240	225	210	-------	304	493	609	272	206	294	1,250
31	249	-------	225	220	-------	660	-------	499	-------	249	348	-------
Total	8,016	7,873	7,293	8,020	13,930	40,338	45,179	15,700	10,753	9,052	8,974	28,957
Mean	259	262	235	259	498	1,301	1,506	506	358	292	289	965
Cfsm	0.375	0.380	0.341	0.375	0.722	1.89	2.18	0.733	0.519	0.423	0.419	1.40
In.	0.43	0.42	0.39	0.43	0.75	2.17	2.44	0.85	0.58	0.49	0.48	1.56

Calendar year 1964 : Max 888 Min 210 Mean 310 Cfsm 0.449 In. 6.10
Water year 1964-65 : Max 5,500 Min 206 Mean 559 Cfsm 0.810 In. 10.99

Peak discharge (base, 1,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 4	0700	11.18	6,500	9-23	1200	9.39	2,300
4-13	1200	9.65	3,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20, 23, 27, 28, Nov. 30 to Dec. 9, Dec. 13 to Mar. 8, Mar. 17, 18, 20-26.

Reservoirs in Wisconsin River Basin

The 24 reservoirs listed below are used to stabilize the flow of the Wisconsin and Tomahawk Rivers for power utilization and are also used for recreational purposes. The first 21 reservoirs are owned and operated by the Wisconsin Valley Improvement Co., which furnished the gage heights and capacity tables. Revised capacity tables for all 21 reservoirs were received from the company in April 1957 and were used to compute month-end usable contents beginning Sept. 30, 1955. Another revised capacity table for Burnt Rollways Reservoir was used to compute month-end usable contents beginning Sept. 30, 1964. Lake Dubay is owned by the Consolidated Water Power Co. Petenwell and Castle Rock are owned and operated by the Wisconsin River Power Co., which furnished the gage heights and capacity tables for these two reservoirs. Month-end contents are computed by the U. S. Geological Survey. The usable capacity of these reservoirs is usually less in summer than in winter because the allowable summer drawdown is limited in the interest of riparian property owners. There are occasionally formal or informal changes in capacity and in minimum drawdown levels. Usable capacity figures listed below are for winter regulation.

5-3901. Lac Vieux Desert on Wisconsin River, lat 46°07'20", long 89°09'10", in SE 1/4 NE 1/4 sec. 17, T. 42 N., R. 11 E., 4.8 miles northwest of Phelps, Wis., used as a reservoir since 1908, has a usable capacity of 652,000,000 cu ft. Datum of gage is 1,679.53 ft above mean sea level, datum of 1929.

5-3901.5. Twin Lakes on Twin River, lat 46°01'20", long 89°10'10", in SW 1/4 NE 1/4 sec. 19, T. 41 N., R. 11 E., 5.0 miles southwest of Phelps, Wis., used as a reservoir since 1908, has a usable capacity of 313,000,000 cu ft. Altitude of gage is 1,640 ft (from river-profile map).

5-3902. Buckatabon Lakes on Buckatabon Creek, lat 46°01'15", long 89°18'35", in SE 1/4 NE 1/4 sec. 24, T. 41 N., R. 9 E., 3.3 miles southwest of Conover, Wis., used as a reservoir since 1908, has a usable capacity of 130,000,000 cu ft. Datum of gage is 1,637.85 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3902.5 Sevenmile Lake on Sevenmile Creek, lat 45°52'30", long 89°04'10", in SE 1/4 NE 1/4 sec. 11, T. 39 N., R. 11 E., 9.1 miles southeast of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 93,000,000 cu ft. Datum of gage is 1,646.30 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3903. Lower Ninemile Lake on Ninemile Creek, lat 45°53'35", long 89°07'15", in NE 1/4 NW 1/4 sec. 4, T. 39 N., R. 11 E., 6.6 miles southeast of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 121,000,000 cu ft. Datum of gage is 1,638.27 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3903.5. Burnt Rollways Reservoir on Eagle River, lat 45°53'40", long 89°08'30", in NE 1/4 NW 1/4 sec. 5, T. 39 N., R. 11 E., 5.3 miles southeast of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 779,000,000 cu ft (revised). This reservoir includes 18 lakes controlled by the same dam. Altitude of gage is 1,620 ft (from river-profile map).

5-3904. Long Lake on Deerskin River, lat 46°02'45", long 89°02'35", in NW 1/4 SE 1/4 sec. 7, T. 41 N., R. 12 E., 2.5 miles southeast of Phelps, Wis., used as a reservoir since 1908, has a usable capacity of 400,000,000 cu ft. Datum of gage is 1,695.14 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3906. Deerskin Lake on Deerskin Creek, lat 45°59'05", long 89°09'40", in SE 1/4 sec. 31, T. 41 N., R. 11 E., 6.3 miles northeast of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 22,000,000 cu ft. Datum of gage is 1,640.16 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3906.5. Sugar Camp Reservoir on Sugar Camp Creek, lat 45°52'15", long 89°23'35", in NE 1/4 sec. 17, T. 39 N., R. 9 E., 7.6 miles southwest of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 471,000,000 cu ft. Datum of gage is 1,591.94 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3907. Little St. Germain Lake on Little St. Germain Creek, lat 45°53'55", long 89°27'00", in SE 1/4 sec. 35, T. 40 N., R. 8 E., 9.6 miles west of town of Eagle River, Wis., used as a reservoir since 1908, has a usable capacity of 79,000,000 cu ft. Datum of gage is 1,611.54 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3907.5. Big St. Germain Lake on St. Germain River, lat 45°55'10", long 89°31'55", in SE 1/4 sec. 30, T. 40 N., R. 8 E., 5.0 miles south of Sayner, Wis., used as a reservoir since 1908, has a usable capacity of 202,000,000 cu ft. Datum of gage is 1,588.32 ft above mean sea level (levels by Public Service Commission of Wisconsin).

5-3908. Pickerel Lake on St. Germain River, lat 45°52'20", long 89°31'45", in NE 1/4 sec. 18, T. 39 N., R. 8 E., 5.0 miles northeast of town of Lake Tomahawk, Wis., used as a reservoir since 1935, has a usable capacity of 338,000,000 cu ft. Datum of gage is 1,582.00 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3909. Rainbow Lake on Wisconsin River, lat 45°50'00", long 89°32'40", in SW 1/4 sec. 30, T. 39 N., R. 8 E., 800 ft upstream from U. S. Geological Survey river gaging station, 2.7 miles northeast of town of Lake Tomahawk, Wis., used as a reservoir since 1935, has a usable capacity of 2,181,000,000 cu ft. Datum of gage is 1,570.00 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3911. Pelican Lake on Pelican River, lat 45°31'45", long 89°12'20", in S 1/2 sec. 11, T. 35 N., R. 10 E., 2.8 miles northwest of town of Pelican Lake, Wis., used as a reservoir since 1909, has a usable capacity of 305,000,000 cu ft. Datum of gage is 1,589.98 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3913. North Pelican Lakes (includes Moen Lakes) on North Branch Pelican River, lat 45°38'05", long 89°14'35", in SE 1/4 sec. 4, T. 36 N., R. 10 E., 8.0 miles east of Rhinelander, Wis., city limits, used as a reservoir since 1908, has a usable capacity of 218,000,000 cu ft. Datum of gage is 1,569.10 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3921. Minocqua Lake on Tomahawk River, lat 45°52'35", long 89°43'40", on line between secs. 10 and 15, T. 39 N., R. 6 E., 1 mile west of Minocqua, Wis., used as a reservoir since 1910, has a usable capacity of 628,000,000 cu ft. Datum of gage is 1,584.56 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3922. Squirrel Lake on Squirrel River, lat 45°50'35", long 89°54'15", in NE 1/4 sec. 30, T. 39 N., R. 5 E., 9.4 miles west of Minocqua, Wis., used as a reservoir since 1908, has a usable capacity of 182,000,000 cu ft. Datum of gage is 1,560.93 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-3923. Willow Reservoir on Tomahawk River, lat 45°42'45", long 89°50'40", in NE 1/4 sec. 10, T. 37 N., R. 5 E., 8.8 miles southwest of Hazelhurst, Wis., used as a reservoir since 1927, has a usable capacity of 3,302,000,000 cu ft. Datum of gage is 1,505.87 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

Reservoirs in Wisconsin River Basin--Continued

5-3925. Lake Nokomis on Tomahawk River, lat 45°32'20", long 89°44'45", in NW 1/4 sec. 9, T. 35 N., R. 6 E., at U. S. Geological Survey river gaging station, 0.5 mile east of Bradley, Wis., used as a reservoir since 1912, has a usable capacity of 1,808,000,000 cu ft. Datum of gage is 1,448.24 ft above mean sea level, datum of 1929.

5-3936. Spirit River Flowage on Spirit River, lat 45°26'20", long 89°44'30", in SE 1/4 sec. 9, T. 34 N., R. 6 E., 2.0 miles south of Tomahawk, Wis., used as a reservoir since 1923, has a usable capacity of 756,000,000 cu ft. Datum of gage is 1,420.53 ft above mean sea level, datum of 1929.

5-3996. Big Eau Pleine Reservoir on Big Eau Pleine River, lat 44°43'50", long 89°45'35", in SW 1/4 sec. 14, T. 26 N., R. 6 E., 3 miles northeast of Dancy, Wis., used as a reservoir since 1937, has a usable capacity of 4,457,000,000 cu ft. Datum of gage is 1,115.00 ft above mean sea level (levels by Wisconsin Valley Improvement Co.).

5-4002.95. Lake Dubay on Wisconsin River, lat 44°39'50", long 89°39'05", in sec. 10, T. 25 N., R. 7 E., 1 1/2 miles downstream from Little Eau Pleine River and 10 1/2 miles northwest of Stevens Point, has a usable capacity of 2,117,000,000 cu ft. Datum of gage is at mean sea level (power company levels).

5-4014. Petenwell Flowage on Wisconsin River, lat 44°03'25", long 90°01'15", in SE 1/4 sec. 4, T. 18 N., R. 4 E., 5 1/4 miles upstream from Roche a Cri Creek, 2.4 miles west of Strongs Prairie, Wis., and 3.5 miles northeast of Necedah, Wis., used as a reservoir since 1950, has a total capacity of 19,880,000,000 cu ft. Datum of gage is 790.2 ft above mean sea level (levels by Wisconsin River Power Co.).

5-4032. Castle Rock Flowage on Wisconsin River, lat 43°51'50", long 89°57'35", in sec. 13, T. 16 N., R. 4 E., 4 1/2 miles upstream from Duck Creek, and 2 miles south of Germantown, Wis., and 7 miles northeast of Mauston, Wis., used as a reservoir since 1950, has a total capacity of 7,630,000,000 cu ft. Datum of gage is 790.2 ft above mean sea level (levels by Wisconsin River Power Co.).

Month-end contents, in millions of cubic feet, water year October 1964 to September 1965

	Lac Vieux Desert	Twin Lakes	Buckatabon Lake	Sevenmile Lake	Lower Ninemile Lake	Burnt Rollways Reservoir	Long Lake	Deerskin Lake
Sept. 30	252	172	92	69	103	705	123	12
Oct. 31	138	107	58	43	48	500	84	6
Nov. 30	94	54	38	14	18	427	45	4
Dec. 31	70	0	2	0	0	242	0	1
Jan. 31	16	0	0	0	0	0	0	0
Feb. 28	4	0	0	0	0	19	0	0
Mar. 31	20	5	12	1	15	117	5	0
Apr. 30	218	130	82	62	116	738	256	6
May 31	404	286	118	88	132	779	315	11
June 30	365	270	119	88	126	779	282	11
July 31	325	257	119	86	120	745	239	11
Aug. 31	312	244	118	87	119	725	218	10
Sept. 30	252	197	101	74	115	651	173	10

	Sugar Camp Reservoir	Little St. Germain Lake	Big St. Germain Lake	Pickerel Lake	Rainbow Lake	Pelican Lake	North Pelican Lakes	Minocqua Lake
Sept. 30	359	66	125	250	917	228	133	380
Oct. 31	319	36	83	213	1,170	172	101	258
Nov. 30	359	26	55	218	1,831	146	88	178
Dec. 31	338	7	14	165	1,804	114	3[illegible]	88
Jan. 31	193	3	0	153	1,352	44	27	0
Feb. 28	56	6	0	135	624	13	27	0
Mar. 31	56	6	58	11	137	0	34	10
Apr. 30	423	53	142	220	1,606	225	15[illegible]	216
May 31	423	76	156	268	2,117	267	136	496
June 30	407	75	151	274	1,825	219	130	508
July 31	395	74	154	268	1,101	206	122	502
Aug. 31	367	70	157	276	554	210	128	511
Sept. 30	383	59	140	274	1,148	267	149	469

	Squirrel Lake	Willow Reservoir	Lake Nokomis	Spirit Lake Flowage	Big Eau Pleine Reservoir	Lake Dubay	Petenwell Flowage	Castle Rock Flowage
Sept. 30	161	1,145	1,495	402	4,454	4,530	18,81[illegible]	6,650
Oct. 31	100	1,135	1,177	463	3,700	4,258	18,74[illegible]	6,636
Nov. 30	65	1,839	1,624	711	3,780	4,194	18,65[illegible]	6,520
Dec. 31	17	1,462	1,427	392	2,582	4,493	18,89[illegible]	6,606
Jan. 31	2	812	1,075	110	656	4,465	18,89[illegible]	6,736
Feb. 28	0	41	764	31	128	3,738	17,896	5,210
Mar. 31	8	201	54	1	1,495	2,840	14,690	3,422
Apr. 30	134	2,259	1,586	704	4,428	4,570	19,781	7,592
May 31	173	3,209	1,724	722	4,361	4,830	19,736	7,524
June 30	140	2,894	1,752	478	4,086	4,396	18,566	6,459
July 31	169	2,074	1,391	370	3,870	4,421	18,710	6,466
Aug. 31	168	970	1,049	344	3,395	4,301	18,58[illegible]	6,452
Sept. 30	155	990	1,372	639	4,437	4,421	18,468	6,527

5-4135. Grant River at Burton, Wis.

Location.--Lat 42°43'10", long 90°49'10", in sec. 23, T. 3 N., R. 4 W., on right bank at downstream side of highway bridge at Burton, 6 miles northwest of Potosi and 9.5 miles upstream from mouth.

Drainage area.--267 sq mi.

Records available.--October 1934 to September 1965. Published as "near Burton" October 1934 to September 1947. Records published for both sites March to September 1947. October 1934, monthly discharge only, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 606.89 ft above mean sea level, adjustment of 1912. Oct. 17, 1934, to Sept. 30, 1947, wire-weight gage at site 6 miles upstream at datum 33.18 ft higher. Mar. 18, 1947, to July 27, 1949, wire-weight gage at present site and datum.

Average discharge.--31 years, 164 cfs.

Extremes.--Maximum discharge during year, about 7,000 cfs Mar. 1 (gage height, 22.05 ft, backwater from ice); minimum, 37 cfs Nov. 21, result of freezeup.

1934-65: Maximum discharge, 25,000 cfs July 16, 1950 (gage height, 24.82 ft), from rating curve extended above 18,000 cfs on basis of slope-area measurement of peak flow; minimum, 21 cfs Mar. 4, 1954, result of freezeup.

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

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating table, except periods of ice effect or backwater from Mississippi River
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 11-25)

4.3	39	9.0	445
5.0	77	13.0	1,000
7.0	225	15.0	1,300

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	55	*53	56	44	5,000	3,000	100	75	54	70	*73
2	57	56	54	80	43	1,700	607	92	78	52	50	58
3	57	*59	56	120	42	900	258	92	72	50	45	54
4	57	58	55	86	41	200	721	107	69	48	46	53
5	56	58	54	72	*40	1,000	541	96	128	47	46	54
6	57	56	53	*66	43	2,000	596	98	118	47	44	60
7	57	56	51	150	1,600	1,700	246	89	85	50	44	212
8	57	56	50	700	1,400	1,200	203	87	75	50	52	139
9	57	57	51	200	400	800	195	88	71	68	67	475
10	57	56	52	130	1,300	453	140	81	67	74	60	1,300
11	57	57	56	90	600	305	239	74	64	53	49	159
12	57	58	84	68	200	229	177	74	61	49	44	106
13	57	56	60	54	150	136	134	70	59	48	42	91
14	57	55	53	50	130	115	126	69	57	48	42	89
15	56	63	*51	48	120	110	120	70	56	44	42	93
16	56	86	54	50	110	*97	115	84	55	44	42	81
17	55	63	50	52	105	85	105	81	54	44	44	77
18	54	58	48	54	100	80	95	69	54	42	50	76
19	53	*57	47	*56	110	75	90	63	52	42	61	275
20	*52	56	46	54	600	70	80	*58	58	42	53	207
21	52	54	46	52	2,000	66	*76	57	76	*43	46	*358
22	52	52	48	52	500	64	80	80	*65	42	46	267
23	52	58	52	54	220	62	94	78	58	42	44	181
24	52	60	54	56	160	62	130	70	54	40	43	147
25	52	61	50	56	130	62	175	69	51	40	48	130
26	53	61	48	52	120	62	160	106	50	40	83	117
27	53	61	47	50	110	66	150	167	49	42	187	111
28	54	56	46	48	2,000	70	130	93	54	42	66	119
29	54	55	50	47	------	75	120	81	56	41	54	109
30	54	54	56	46	------	120	110	80	*58	42	115	102
31	54	------	54	45	------	1,700	------	76	------	58	126	------
Total	1,705	1,748	1,629	2,794	12,418	18,664	9,013	2,599	1,979	1,468	1,851	5,373
Mean	55.0	58.3	52.5	90.1	444	602	300	83.8	66.0	47.4	59.7	179
Cfsm	0.206	0.218	0.197	0.337	1.66	2.25	1.12	0.314	0.247	0.178	0.224	0.670
In.	0.24	0.24	0.23	0.39	1.73	2.60	1.26	0.36	0.28	0.20	0.26	0.75

Calendar year 1964: Max 2,010 Min 46 Mean 78.1 Cfsm 0.293 In. 3.98
Water year 1964-65: Max 5,000 Min 40 Mean 168 Cfsm 0.629 In. 8.54

Peak discharge (base, 2,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2- 7	2200	20.59	5,400	3- 6	0200	22.71	6,500
2-21	0800	21.22	5,800	4- 1	0300	20.34	6,500
3- 1	0800	22.05	7,000	9-10	0100	18.80	5,920

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21-23, Nov. 29 to Mar. 9, Mar. 14 to Apr. 1 and by backwater from Mississippi River Apr. 15 to May 3.

5-4140. Platte River near Rockville, Wis.

Location.--Lat 42°43'55", long 90°38'25", in SW 1/4 sec. 17, T. 3 N., R. 2 W., on right bank just downstream from highway bridge, 0.8 mile upstream from Blakely Branch, 2.2 miles east of Rockville, 4.5 miles northeast of Potosi, and 15.2 miles upstream from mouth.

Drainage area.--139 sq mi.

Records available.--October 1934 to September 1965. Monthly discharge only for October and November 1934, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 642.95 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1941, chain gage at site 1.3 miles upstream at datum 12.55 ft higher. Oct. 1, 1941, to June 29, 1949, chain gage at present site and datum.

Average discharge.--31 years, 95.0 cfs.

Extremes.--Maximum discharge during year, about 3,000 cfs Feb. 28 (gage height, 10.86 ft backwater from ice); minimum, 10 cfs Nov. 29, (gage height, 3.29 ft) result of freezeup.
1934-65: Maximum discharge, 43,500 cfs July 16, 1950 (gage height, 17.26 ft), from rating curve extended above 7,000 cfs on basis of slope-area measurement of peak flow; no flow Nov. 24, 1950.

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

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 7		Feb. 8 to Sept. 30			
3.5	23	2.8	20	4.5	228
3.7	38	3.1	39	5.0	351
4.0	74	3.4	60	6.0	640
4.4	147	3.7	85	7.0	1,000
4.8	241	4.0	128	8.0	1,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	30	31	32	24	1,600	1,080	60	43	29	34	49
2	32	33	*33	80	24	960	336	57	42	29	27	42
3	31	*33	33	90	23	387	240	54	41	28	26	38
4	31	33	32	50	23	82	467	52	40	27	27	39
5	31	33	30	34	*23	828	474	132	59	27	26	43
6	31	33	29	*29	40	468	748	72	57	26	27	45
7	31	33	28	90	720	549	207	59	46	25	24	196
8	31	33	29	220	400	413	177	62	42	25	93	97
9	31	33	30	56	150	224	139	55	40	45	73	355
10	30	33	31	48	520	72	92	50	39	42	56	449
11	30	33	36	38	380	61	191	47	38	35	28	120
12	30	34	49	34	90	52	125	45	37	30	27	81
13	30	33	37	29	64	55	84	44	35	27	27	70
14	30	33	27	28	54	54	75	42	34	24	25	67
15	30	46	*30	27	48	69	76	44	33	25	25	66
16	30	44	32	28	44	56	69	50	33	26	35	58
17	30	36	26	28	42	*66	66	47	32	25	33	54
18	29	*33	27	29	*40	52	63	45	32	25	39	54
19	29	33	27	*30	42	47	64	42	31	25	35	245
20	29	32	26	31	760	45	57	* 40	39	25	33	290
21	*29	30	27	30	200	46	*54	40	44	*26	33	*367
22	29	29	28	29	50	45	52	47	*37	23	31	253
23	29	31	31	30	42	43	51	47	33	23	32	295
24	29	33	30	31	38	43	56	43	30	23	31	137
25	30	34	28	30	36	42	92	42	30	22	36	113
26	30	34	27	29	35	42	110	47	29	22	*44	95
27	30	33	26	28	62	43	81	77	34	22	52	89
28	30	32	26	27	800	46	85	55	33	21	40	87
29	30	29	27	27	------	50	72	48	32	21	34	80
30	30	28	28	26	------	115	65	46	*31	21	98	75
31	30	------	29	25	------	968	------	45	------	45	84	------
Total	934	997	930	1,343	4,774	7,623	5,548	1,636	1,126	839	1,235	4,049
Mean	30.1	33.2	30.0	43.3	170	246	185	52.8	37.5	27.1	39.8	135
Cfsm	0.217	0.239	0.216	0.312	1.22	1.77	1.33	0.380	0.270	0.195	0.286	0.971
In.	0.25	0.27	0.25	0.36	1.28	2.04	1.48	0.44	0.30	0.22	0.33	1.08

Calendar year 1964: Max 499 Min 26 Mean 42.7 Cfsm 0.307 In. 4.19
Water year 1964-65: Max 1,600 Min 21 Mean 85.0 Cfsm 0.612 In. 8.30

Peak discharge (base, 2,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	2200	10.86	3,000	9-9	2200	9.40	2,230
3-31	2200	9.30	2,810				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 22, 23, 30, Dec. 1, 6-11, 15, 16, Dec. 18 to Jan. 6, Jan. 14 to Mar. 2, Mar. 19-28 (no gage-height record Dec. 25 to Jan. 1). No gage-height record July 11-19, July 30 to Aug. 5.

5-4150. Galena River at Buncombe, Wis.

Location.--Lat 42°30'50", long 90°22'40", near center of sec. 33, T. 1 N., R. 1 E., on left bank at Buncombe, 0.6 mile upstream from Coon Branch, 1.5 miles upstream from Scrabble Branch, 2 miles upstream from Wisconsin-Illinois State Line, and 3.5 miles southeast of Hazel Green.

Drainage area.--128 sq mi.

Records available.--September 1939 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 682.77 ft above mean sea level, adjustment of 1912 (Corps of Engineers bench mark). Prior to Dec. 1, 1939, wire-weight gage at same site and datum.

Average discharge.--26 years, 75.0 cfs.

Extremes.--Maximum discharge during year, 6,280 cfs Sept. 21 (gage height, 13.19 ft); minimum discharge, 8.2 cfs Nov. 29 (gage height, 2.33 ft) result of freezeup.

1939-65: Maximum discharge, 12,400 cfs Feb. 20, 1953 (gage height, 15.68 ft), from rating curve extended above 8,100 cfs on basis of slope-area measurement of peak flow; minimum, 0.8 cfs Mar. 3, 1954.

Flood in February 1937 reached a stage of about 17.1 ft, from information by local resident (discharge, 18,000 cfs, from rating curve extended above 8,100 cfs by logarithmic plotting and on basis of slope-area measurement at gage height 15.68 ft for peak of Feb. 20, 1953).

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 7		Feb. 8 to Sept. 30			
2.5	13	2.3	8.0	4.0	192
2.6	16	2.5	13	5.0	456
2.7	20	2.7	23	6.0	803
2.8	25	3.0	45	7.0	1,200
		3.5	104	9.0	2,160

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	18	18	30	23	890	919	37	27	14	26	32
2	18	19	18	300	22	910	210	35	25	13	16	27
3	17	20	18	120	21	353	118	34	23	13	13	23
4	17	20	18	50	21	65	140	33	22	12	12	150
5	17	19	17	32	25	178	330	40	24	12	12	156
6	18	20	17	26	80	265	279	34	31	14	14	59
7	18	19	18	80	450	192	98	32	25	14	16	96
8	18	19	18	110	241	310	66	31	23	14	16	85
9	16	22	18	35	120	163	64	28	24	26	53	290
10	15	18	18	30	776	54	54	26	18	18	25	501
11	18	19	22	26	176	43	98	25	18	13	16	106
12	18	18	27	23	64	36	65	24	18	13	14	77
13	17	18	22	22	43	35	48	23	16	11	13	67
14	18	16	21	18	35	39	43	23	16	10	13	76
15	18	19	21	18	31	42	47	23	14	11	12	101
16	17	21	*22	18	27	40	43	24	15	12	13	61
17	17	20	16	19	53	*47	47	24	14	11	28	56
18	17	17	16	18	*126	30	42	22	14	9.8	22	243
19	18	*18	17	18	104	26	38	*20	14	11	37	109
20	18	17	17	*18	717	25	31	18	14	12	25	806
21	*19	16	18	20	185	24	31	19	16	*12	16	2,210
22	18	17	18	30	50	23	30	20	18	12	16	*305
23	18	19	18	43	32	22	29	28	*18	12	14	205
24	18	18	18	32	27	22	35	26	16	11	*13	159
25	18	21	17	28	24	22	64	22	13	9.6	16	140
26	18	18	17	25	23	22	75	31	12	9.4	151	120
27	19	24	16	22	35	23	*53	114	12	11	255	107
28	18	21	17	21	705	25	53	37	11	12	45	106
29	18	17	18	21	------	29	45	26	13	12	28	96
30	18	18	19	22	------	137	41	25	13	12	61	90
31	18	------	19	23	------	1,370	------	23	------	35	55	------
Total	547	566	574	1,299	4,236	5,468	3,236	927	538	411.8	1,066	6,659
Mean	17.6	18.9	18.5	41.9	151	176	108	29.9	17.9	13.3	34.4	222
Cfsm	0.138	0.148	0.145	0.327	1.18	1.38	0.844	0.234	0.140	0.104	0.269	1.73
In.	0.16	0.16	0.17	0.38	1.23	1.59	0.94	0.27	0.16	0.12	0.31	1.93

Calendar year 1964: Max 847 Min 15 Mean 33.0 Cfsm 0.258 In. 3.51
Water year 1964-65: Max 2,210 Min 8.6 Mean 69.9 Cfsm 0.546 In. 7.42

Peak discharge (base, 3000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-20	2100	11.25	3,350	9-21	0800	13.19	6,280
3-31	2000	11.82	3,800				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 25-28, Nov. 30 to Dec. 14, Dec. 20-26, Dec. 28 to Jan. 13, Jan. 15 to Feb. 7, Feb. 22-25, Mar. 19-27. No gage-height record May 5-18.

5-4155. East Fork Galena River at Council Hill, Ill.

Location.--Lat 42°28'05", long 90°20'20", in W 1/2 sec. 31, T. 29 N., R. 2 E., on left bank at Council Hill, 3 miles upstream from mouth and 6 miles northeast of Galena. Records include flow of unnamed creek which enters just below gage.

Drainage area.--20.1 sq mi, includes that of unnamed creek.

Records available.--September 1939 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 686.59 ft above mean sea level, adjustment of 1912 (Corps of Engineers benchmark). Prior to Dec. 1, 1939, wire-weight gage at same site and datum.

Average discharge.--26 years, 12.6 cfs.

Extremes.--Maximum discharge during year, 6,650 cfs Sept. 21 (gage height, 11.42 ft); minimum daily 2.3 cfs Dec. 17 (result of freezeup).

1939-65: Maximum discharge, 16,600 cfs Apr. 29, 1947 (gage height, 15.3 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area measurements of peak flow at gage heights 9.33 and 15.3 ft and contracted-opening measurements at gage height 9.85 and 15.3 ft; minimum, 0.3 cfs June 22, 1940.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Nov. 2-20, Sept. 4-20)

Oct. 1 to Sept. 18				Sept. 19 - 30			
1.8	2.7	2.1	9.6	2.9	7.4	5.0	372
1.9	4.2	2.3	20	3.0	13	6.0	777
2.0	6.4	2.5	32	4.0	167	7.0	1,310

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	3.8	3.6	10	4.5	112	152	6.7	3.4	3.2	5.3	6.4
2	3.8	17	3.6	100	4.5	154	31	6.7	3.4	3.2	2.7	5.3
3	3.9	4.2	3.6	20	4.4	34	25	6.4	3.4	2.7	2.7	5.1
4	4.0	3.9	3.6	8.0	4.4	7.0	43	6.7	3.4	3.0	2.7	84
5	3.6	4.2	3.6	6.0	5.0	78	109	9.6	3.4	2.7	2.8	16
6	4.0	4.4	3.5	5.0	50	36	62	7.7	3.6	2.7	3.0	7.4
7	4.0	4.2	3.5	22	280	48	11	6.4	3.4	3.3	3.4	48
8	4.2	4.2	3.5	16	40	41	12	6.4	3.3	3.9	5.7	12
9	3.4	4.2	3.5	6.0	92	11	7.4	6.2	3.3	7.4	19	327
10	3.8	4.2	3.6	5.5	232	5.1	8.2	5.3	3.3	4.2	3.8	70
11	3.8	4.4	10	5.1	31	4.4	37	4.4	3.3	3.5	2.7	17
12	3.8	4.4	7.0	4.0	16	3.9	12	4.4	3.2	3.0	2.7	9.3
13	3.4	4.4	5.0	3.8	7.0	3.8	6.7	4.6	3.0	2.7	2.6	6.7
14	3.8	4.4	4.6	3.3	5.6	3.9	6.2	4.2	2.8	3.0	2.5	29
15	3.8	9.0	4.0	3.6	5.0	3.8	8.3	4.6	2.8	3.3	2.4	23
16	3.8	3.9	3.0	3.9	4.5	3.9	6.0	5.5	2.8	3.3	2.5	6.7
17	3.8	4.0	*2.3	3.6	10	*4.0	8.3	4.9	2.6	2.9	12	6.0
18	3.8	4.0	4.0	4.0	*23	3.7	6.4	5.1	2.8	2.7	3.3	198
19	3.8	*4.0	3.7	4.1	17	3.5	5.7	*4.0	2.8	2.8	3.3	28
20	3.8	3.6	3.5	*4.2	42	3.3	5.5	4.4	2.7	3.0	3.0	301
21	*3.9	3.5	3.5	4.3	34	3.2	5.5	3.9	2.7	2.7	2.7	814
22	3.9	3.6	3.5	7.0	4.4	3.1	4.4	3.9	2.7	*2.6	2.7	*60
23	4.0	4.0	3.5	10	4.9	3.0	4.4	3.9	*2.7	2.7	2.7	39
24	4.0	3.9	3.5	8.0	5.1	3.0	9.0	3.9	3.8	3.0	*3.0	27
25	4.0	4.3	3.4	6.4	5.1	3.0	20	3.8	3.4	3.0	3.3	20
26	3.9	4.6	3.3	5.6	5.1	3.1	16	4.0	3.0	2.7	210	14
27	3.9	4.2	3.0	5.0	27	3.2	12	5.7	2.7	2.8	46	12
28	3.9	3.4	2.8	4.6	93	3.4	10	3.9	2.7	2.7	8.0	8.2
29	3.6	3.5	2.9	4.4	------	7.7	*8.3	3.6	2.9	2.6	5.7	11
30	3.8	3.7	3.1	4.4	------	85	7.4	3.6	3.2	3.0	25	13
31	3.8	------	3.3	4.5	------	179	------	3.4	------	12	9.6	------
Total	118.8	139.1	118.5	302.5	1,056.5	861.0	659.7	157.8	92.7	106.3	406.8	2,227.9
Mean	3.83	4.64	3.82	9.76	37.7	27.8	22.0	5.09	3.09	3.43	13.1	74.3
Cfsm	0.191	0.231	0.190	0.486	1.88	1.38	1.09	0.253	0.154	0.171	0.652	3.70
In.	0.22	0.26	0.22	0.56	1.95	1.59	1.22	0.29	0.17	0.20	0.75	4.12

Calendar year 1964: Max 144 Min 2.3 Mean 6.82 Cfsm 0.339 In. 4.63
Water year 1964-65: Max 814 Min 2.3 Mean 17.1 Cfsm 0.851 In. 11.55

Peak discharge (base, 700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-10	0030	6.50	1,030	9-18	1530	8.72	2,740
8-26	2130	9.70	3,980	9-21	0330	11.42	6,650
9- 9	2130	9.38	3,530				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21 to Jan. 8, Jan. 18 to Feb. 9, Feb. 14-19, Mar. 16-27. No gage-height record Apr. 25-28, June 25-29, July 11, 17-19.

5-4230. West Branch Rock River near Waupun, Wis.

Location.--Lat 43°40'05", long 88°39'10", in SW 1/4 sec. 24, T. 14 N., R. 15 E., on right bank 700 ft downstream from bridge on U. S. Highway 151, 4 miles upstream from South Branch Rock River, and 4.5 miles northeast of Waupun.

Drainage area.--41.4 sq mi.

Records available.--January 1949 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 870.53 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 19.9 cfs.

Extremes.--Maximum daily discharge during year, 240 cfs Mar. 2; no flow on many days.
1949-65: Maximum discharge, 949 cfs Mar. 27, 1950 (gage height, 6.56 ft); no flow Dec. 5, 1949, Feb. 6-13, 1959, Dec. 20-22, 1963, and many days in 1964-65.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or those below 1.0 cfs, which are poor.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 21 to Sept. 30.)

1.4	0	2.0	7.3
1.5	0.1	2.2	16
1.6	.3	2.6	44
1.7	1.0	3.0	79
1.8	2.4	3.8	161
1.9	4.5	4.3	245

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	0.2	0.2	0	100	35	16	2.6	1.0	0.3	.1
2	.1	.3	.2	.2	0	240	*49	15	2.6	.9	.3	0
3	0	.3	.2	.2	0	130	68	13	2.3	.7	.3	0
4	0	.3	.2	.3	0	117	82	13	2.0	.7	.2	0
5	0	.3	.2	.4	0	200	96	13	2.0	.7	.2	.2
6	0	.2	.1	.5	0	160	115	12	2.6	.8	* .2	.2
7	0	.2	.1	.6	0	120	118	11	2.6	1.0	.2	1.6
8	**0	.2	.1	.7	.1	90	91	10	2.1	.9	.3	3.7
9	.1	.2	.1	.5	.2	60	89	10	1.8	.8	.7	36
10	.1	.2	.2	.2	1.0	45	63	9.1	1.4	.7	.5	62
11	.1	.2	.4	.1	7.0	32	117	7.7	1.0	.5	.3	46
12	.1	.2	.4	.1	40	26	109	7.0	1.0	.4	.2	29
13	.1	*.2	.4	0	20	21	72	5.9	.9	.4	.2	*16
14	.1	.2	.3	0	3.0	17	51	*5.3	.9	.3	.1	12
15	.1	.2	.2	0	* .6	14	49	5.3	.9	.3	0	13
16	.1	.2	.1	0	.4	15	41	5.3	.8	.6	0	13
17	.1	.2	*0	0	.5	11	41	5.6	.8	.7	.1	14
18	.1	.2	0	0	4.0	6.0	42	5.1	.8	.6	.3	19
19	.1	.2	0	0	5.0	2.0	33	4.3	.8	.4	.3	18
20	.1	.2	0	*0	10	1.5	27	3.9	.9	.3	.2	48
21	.1	.2	0	0	15	1.3	22	3.9	2.0	.3	.2	91
22	.1	.2	0	0	11	1.0	19	4.8	1.6	.3	.2	107
23	.1	.2	0	0	3.0	.6	18	4.3	1.0	.3	.1	90
24	.1	.3	0	0	1.0	.7	17	4.1	.9	.3	.1	74
25	.1	.3	0	0	.7	.6	22	3.7	.9	.2	.1	61
26	.2	.5	0	0	.6	.6	45	3.0	.7	.2	.2	50
27	.2	.5	0	0	10	.5	35	3.4	.8	.2	.1	39
28	.2	.6	0	0	40	.5	27	3.2	*.8	.1	.1	53
29	.2	.5	0	0	-------	1.5	22	3.2	.7	.1	.1	69
30	.2	.3	.1	0	------	5.0	19	3.0	1.0	.1	.1	71
31	.2	------	.1	0	------	20	------	2.8	------	.2	.1	-------
Total	3.1	8.2	3.6	4.0	173.1	1,440.0	1,634	216.9	41.2	15.0	6.3	1,036.8
Mean	0.10	0.27	0.12	0.13	6.18	46.5	54.5	7.00	1.37	0.48	0.20	34.6
Cfsm	0.0024	0.0065	0.0029	0.0031	0.149	1.12	1.32	0.169	0.033	0.012	0.0048	0.836
In.	0.003	0.007	0.003	0.004	0.16	1.29	1.47	0.19	0.04	0.01	0.005	0.93

Calendar year 1964: Max 63 Min 0 Mean 2.23 Cfsm 0.054 In. 0.74
Water year 1964-65: Max 240 Min 0 Mean 12.6 Cfsm 0.304 In. 4.11

Peak discharge (base, 250 cfs).--Mar. 2 (time and discharge unknown).
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Dec. 1 to Jan. 9, Feb. 10-28, Mar. 19 to Apr. 5 (no gage-height record Dec. 30 to Jan. 8, Feb. 13, 14, 21-28). No gage-height record Mar. 1-3, 5-10, 12-18.

5-4235. South Branch Rock River at Waupun, Wis.

Location.--Lat 43°38'30", long 88°43'15", in NW 1/4 sec. 33, T. 14 N., R. 15 E., on left bank 100 ft upstream from U. S. Highway 151 at Waupun and 3 miles upstream from mouth.

Drainage area.--62.8 sq mi.

Records available.--October 1948 to September 1965. Monthly discharge only for October 1948, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 683.46 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 23.8 cfs.

Extremes.--Maximum discharge during year, 371 cfs Mar. 2 (gage height, 5.39 ft); minimum, 0.1 cfs on many days.
1948-65: Maximum discharge, 1,500 cfs Apr. 3, 1959 (gage height, 7.97 ft), from rating curve extended above 650 cfs; no flow at times in 1949, 1953-54, 1958-59, 1963-64.

Remarks.--Records fair except those for periods of ice effect or those below 1.0 cfs, which are poor. Occasional regulation at dam two-thirds of a mile upstream.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 3-7, 10-22, Sept. 21-30.)

Oct. 1 to Jan. 31		Feb. 1 to Sept. 30			
1.2	0.1	1.23	0.1	1.7	6.6
1.3	.4	1.3	.2	2.0	26
1.4	1.0	1.4	1.0	3.0	112
1.6	2.9	1.6	2.9	5.0	322

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	0.5	0.2	0.1	0.2	165	42	18	12	0.9	1.0	0.2
2	1.0	.9	.2	.6	.2	291	*42	19	11	.8	.3	1.0
3	.9	.7	.2	.4	.2	119	56	17	4.8	.4	.8	1.0
4	.9	.6	.2	.3	.2	106	62	16	4.8	.2	1.1	6.5
5	.8	.6	.1	.6	.2	256	68	17	6.6	.1	.8	8.2
6	.8	.7	.1	.7	5.0	225	72	17	11	3.3	**1.4	2.2
7	.7	.5	.1	1.0	35	156	65	9.0	6.6	2.4	1.6	37
8	*1.4	.4	.1	1.2	20	119	56	12	4.0	.6	4.3	25
9	*.8	.3	.1	.6	16	87	61	12	2.7	.7	4.1	118
10	.5	.4	.2	.2	30	57	52	11	2.3	.6	.9	177
11	.3	.6	.6	.2	71	47	88	8.4	2.0	.2	.7	108
12	.2	.7	.4	.2	43	39	63	6.6	2.4	.1	.7	71
13	.4	*.4	.3	.1	16	32	47	*5.9	1.5	.1	.6	*51
14	.6	.2	.2	.1	4.3	28	39	4.4	1.2	.1	.5	47
15	.9	.2	.4	.1	*.8	25	37	2.9	1.2	1.7	.2	64
16	1.2	.2	.6	.1	.7	25	34	5.5	1.3	4.6	.1	50
17	.8	.4	*.8	.1	.6	19	34	6.0	1.1	6.9	2.7	55
18	.6	.4	.5	.2	.6	9.8	32	6.6	1.0	.8	2.1	69
19	.4	.5	.2	.3	.6	4.0	30	4.8	1.0	.5	1.4	62
20	.3	.6	.1	*.4	2.0	1.7	27	3.6	9.4	1.7	.8	149
21	.3	.4	.1	.3	14	1.2	25	7.8	4.0	1.5	.8	241
22	.4	.2	.1	.2	10	1.0	22	6.6	3.3	1.0	1.4	200
23	.5	.2	.1	.1	3.5	.8	22	3.3	2.4	.9	.4	129
24	.6	.3	.2	.1	2.2	.7	20	4.4	1.6	1.2	.8	92
25	.5	.7	.1	.1	1.0	.6	27	4.4	1.4	.4	.7	67
26	.4	.6	.1	.1	.8	.6	33	5.5	1.2	.1	.9	53
27	.4	.3	.1	.1	22	.5	30	14	.6	.2	.5	43
28	.4	2.6	.1	.1	79	.5	26	5.5	*.6	.6	.3	79
29	.4	.6	.3	.1	-------	.6	22	3.3	1.0	.6	.2	111
30	.5	.2	.5	.1	------	5.0	21	2.6	1.2	.9	.2	104
31	.6	------	.3	.1	------	38	------	7.2	------	1.4	.2	-------
Total	19.6	15.9	7.6	8.9	379.1	1,861.0	1,255	267.3	105.2	35.5	32.5	2,221.1
Mean	0.63	0.53	0.25	0.29	13.5	60.0	41.8	8.62	3.51	1.15	1.05	74.0
Cfsm	0.010	0.008	0.0040	0.0046	0.215	0.955	0.666	0.137	0.056	0.018	0.017	1.18
In.	0.01	0.01	0.004	0.005	0.22	1.10	0.74	0.16	0.06	0.02	0.02	1.32

Calendar year 1964: Max 36 Min 0 Mean 2.39 Cfsm 0.038 In. 0.50
Water year 1964-65: Max 291 Min 0.1 Mean 17.0 Cfsm 0.271 In. 3.67

Peak discharge (base, 400 cfs).--No peak above the base.
* Discharge measurement made on this day.
** Field estimate.
Note.--Stage-discharge relation affected by ice Dec. 1-6, 8-12, 18, 19, 23, 24, 29-31, Jan. 2, 3, 5-9, 18-23, Feb. 5-10, 15-20, 23, 24, Mar. 22 to Apr. 5.

5-4240. East Branch Rock River near Mayville, Wis.

Location.--Lat 43°31'45", long 88°34'00", in NE 1/4 sec. 10, T. 12 N., R. 16 E., on left bank 500 ft downstream from Kekoskee dam, 0.5 mile upstream from Gill Creek, and 2 miles northwest of railroad bridge in Mayville.

Drainage area.--179 sq mi.

Records available.--May 1949 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 857.20 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 85.3 cfs.

Extremes.--Maximum discharge during year, 2,180 cfs Sept. 20 (gage height, 8.82 ft); minimum, 2.7 cfs July 6 (gage height, 2.24 ft). 1949-65: Maximum discharge, 3,400 cfs Apr. 3, 1959; maximum gage height, 11.02 ft April 3 (backwater from ice); minimum discharge, 0.1 cfs June 6, 1949, Aug. 22, 23, 1962.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 1-16)

2.2	2.2	4.0	192
2.3	4.0	5.0	352
2.5	12	6.0	615
2.8	30	7.0	1,020
3.0	48	8.0	1,580

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	12	15	6.8	5.4	220	*178	88	22	6.9	5.8	13
2	24	16	13	7.2	5.2	520	154	77	25	6.2	4.4	10
3	21	15	12	8.2	4.8	360	307	90	28	5.1	9.4	12
4	16	16	11	8.6	4.7	510	356	70	28	4.4	16	17
5	16	17	10	8.8	4.6	1,010	466	48	27	5.1	* 8.9	19
6	15	19	10	9.2	10	750	706	58	32	5.1	11	16
7	16	17	10	10	30	750	820	54	24	11	17	47
8	*14	16	10	11	45	800	*816	52	22	13	15	42
9	14	16	10	11	40	750	943	48	21	11	14	292
10	12	15	10	11	55	580	832	44	19	10	10	806
11	14	16	12	10	65	470	820	40	19	9.4	8.0	214
12	13	15	14	9.4	60	370	713	38	16	8.5	7.6	315
13	13	* 12	14	9.0	60	270	646	36	14	7.6	7.6	*382
14	13	16	15	8.6	65	160	643	*37	13	6.9	8.5	398
15	12	18	14	8.0	*83	120	520	35	12	5.8	6.9	394
16	12	18	14	7.8	90	72	392	35	11	13	8.5	356
17	12	18	*12	7.0	85	60	328	35	9.8	38	19	278
18	11	18	9.4	6.5	80	46	269	37	8.9	21	26	254
19	11	17	7.2	6.2	75	50	240	33	8.5	13	18	221
20	12	17	6.2	* 6.2	80	45	195	32	9.4	12	14	1,210
21	11	16	5.4	6.2	80	40	174	32	9.8	10	12	1,600
22	10	16	5.2	6.4	60	32	149	30	11	8.5	14	839
23	11	14	5.2	7.0	30	27	106	26	12	7.6	12	744
24	12	14	5.4	7.0	25	24	111	26	13	6.5	12	668
25	11	14	5.4	6.8	22	19	108	24	12	5.4	11	598
26	11	14	5.2	7.4	20	18	120	24	12	4.7	11	502
27	12	16	5.2	7.2	22	18	129	26	12	4.7	12	396
28	12	27	5.4	7.0	30	18	129	22	*10	4.4	9.4	408
29	12	21	5.6	6.6	------	19	117	21	7.6	3.8	7.2	382
30	12	18	5.8	6.2	------	51	99	21	6.9	4.7	8.9	309
31	12	------	6.4	6.0	------	157	------	22	------	6.2	10	------
Total	428	494	289.0	244.3	1,236.7	8,336	11,586	1,261	475.9	279.5	355.1	11,742
Mean	13.8	16.5	9.32	7.88	44.2	269	386	40.7	15.9	9.02	11.5	391
Cfsm	0.077	0.092	0.052	0.044	0.247	1.50	2.16	0.227	0.089	0.050	0.064	2.18
In.	0.09	0.10	0.06	0.05	0.26	1.73	2.41	0.26	0.10	0.06	0.07	2.44

Calendar year 1964: Max 169 Min 1.9 Mean 27.1 Cfsm 0.151 In. 2.07
Water year 1964-65: Max 1,600 Min 3.8 Mean 101 Cfsm 0.564 In. 7.63

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	1830	7.70	1,100	9- 9	2330	7.33	1,180
4-9	1130	6.95	992	9-20	2130	8.82	2,180

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 18-21, Nov. 30 to Dec. 9, Dec. 19 to Jan. 17, Jan. 22 to Mar. 20. No gage-height record May 3, 4, 6-12.

5-4255. Rock River at Watertown, Wis.

Location.--Lat 43°11'25", long 88°43'35", in sec. 4, T. 8 N., R. 15 E., on left bank at Watertown, 700 ft downstream from Milwaukee Street Bridge and 1.1 mile downstream from Silver Creek.

Drainage area.--971 sq mi.

Records available.--June 1931 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 792.58 ft above mean sea level, datum of 1929. Prior to Sept. 26, 1933, chain gage at site 700 ft upstream at different datum. Sept. 26, 1933, to Apr. 20, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--34 years, 417 cfs.

Extremes.--Maximum discharge during year, 2,140 cfs Sept. 21, 30 (gage height 4.44 ft); minimum, 9.8 cfs Oct. 16 (gage height, 0.66 ft).
1931-65: Maximum discharge, 5,030 cfs Apr. 4, 1959 (gage height, 6.32 ft); minimum daily, 0.9 cfs Oct. 15, 1933, Sept. 9, 1944.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight intermittent regulation caused by a small feed mill 0.2 mile upstream; considerable diurnal regulation caused by powerplant 1.6 miles upstream.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 20-30)

0.6	8.0	1.4	111	3.0	936
.7	14	1.7	185	3.5	1,370
.9	31	2.0	274	4.0	1,860
1.1	56	2.5	546	4.5	2,380

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	30	21	56	29	25	300	540	983	105	29	34	48
2	24	27	50	40	24	1,000	760	844	*102	25	34	47
3	21	26	46	41	24	900	880	708	108	22	48	45
4	18	24	42	41	24	1,400	920	569	113	21	61	55
5	18	25	36	40	26	1,700	943	448	112	20	57	63
6	17	27	33	41	36	1,500	995	382	121	44	44	78
7	17	27	32	46	100	1,300	1,090	359	114	41	39	226
8	17	27	31	53	130	1,150	1,080	358	113	*39	47	*268
9	13	26	31	31	147	1,220	1,070	355	112	42	*74	569
10	13	26	34	30	224	1,180	1,060	346	107	37	125	1,480
11	15	27	*40	28	258	1,240	1,240	341	103	36	97	1,370
12	16	30	43	27	*282	1,280	1,430	325	93	35	72	1,280
13	*14	26	45	27	323	1,350	1,320	308	81	36	59	1,230
14	14	31	40	27	310	1,350	1,350	271	75	35	50	1,170
15	29	40	33	*28	290	*1,360	1,440	244	73	35	43	1,110
16	12	35	30	27	270	1,370	1,530	219	74	66	44	1,080
17	12	37	28	27	250	1,350	1,590	201	69	75	64	1,040
18	12	35	26	26	238	1,360	1,620	189	59	76	88	1,050
19	13	35	25	25	229	1,130	1,630	184	57	75	91	1,030
20	14	37	24	25	224	1,000	1,630	175	55	76	88	1,490
21	15	25	23	28	210	980	1,600	157	49	72	78	2,000
22	13	25	22	33	190	920	1,570	143	62	63	67	*1,830
23	15	25	24	34	170	840	1,540	136	54	56	60	1,700
24	18	*25	27	33	150	740	1,520	126	58	47	53	1,710
25	14	26	25	33	140	620	1,510	130	68	42	64	1,780
26	16	28	22	32	120	480	*1,480	122	66	40	67	1,850
27	15	38	19	30	100	360	1,430	115	52	36	61	1,910
28	16	58	20	29	120	260	1,350	110	40	32	52	2,000
29	16	43	21	28	------	210	1,260	111	36	32	52	2,070
30	17	46	22	27	------	200	1,140	107	32	32	48	2,100
31	20	------	24	26	------	300	------	107	------	34	52	------
TOTAL	514	928	974	992	4,634	30,350	38,518	9,173	2,363	1,351	1,913	33,679
MEAN	16.6	30.9	31.4	32.0	166	979	1,284	296	78.8	43.6	61.7	1,123
CFSM	.017	.032	.032	.033	.171	1.01	1.32	.305	.081	.045	.064	1.16
IN	.02	.04	.04	.04	.18	1.16	1.48	.35	.09	.05	.07	1.29

CALENDAR YEAR 1964 MAX 351 MIN 9.8 MEAN 65.8 CFSM .068 INCHES .92
WATER YEAR 1964-65 MAX 2,100 MIN 12 MEAN 344 CFSM .354 INCHES 4.80

Peak discharge (base, 1,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	-	4.08	1,940	9-21	1115	4.44	2,140
3-18	1815	3.69	1,550	9-30	1645	4.44	2,140
4-20	1500	3.84	1,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22, 23, Nov. 30 to Dec. 10, Dec. 16-20, 25-31, Jan. 10-14, 17-21, Jan. 25 to Feb. 8, Feb. 14-17, 21-28, Mar. 20 to Apr. 4. No gage-height record Mar. 2-4, 6, 7.

5

5-4260. Crawfish River at Milford, Wis.

Location.--Lat 43°06'00", long 88°51'00", in sec. 4, T. 7 N., R. 14 E., near left bank on upstream side of highway bridge in Milford, 1 mile downstream from Rock Creek and 8 miles upstream from mouth.

Drainage area.--732 sq mi.

Records available.--June 1931 to September 1965.

Gage.--Wire-weight gage read once daily. Datum of gage is 779.40 ft above mean sea level, datum of 1929. Prior to Nov. 19, 1959, chain gage at present site and datum.

Average discharge.--34 years, 329 cfs.

Extremes.--Maximum discharge during year, 1,890 cfs Sept. 27 (gage height, 6.16 ft from graph based on gage readings); minimum daily, 12 cfs July 4, 5, 30, 31.
1931-65: Maximum discharge, 6,140 cfs Apr. 6, 1959 (gage height, 11.15 ft); minimum observed, 0.2 cfs Sept. 15, 1958 (gage height, 1.11 ft).

Remarks.--Records poor. Some diurnal fluctuation at low flow possible, due to small dams upstream.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 10-30)

1.4	9.0	1.9	86	4.0	960
1.5	18	2.3	224	5.0	1,450
1.7	45	2.8	432	6.0	2,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	23	28	20	17	250	400	476	74	15	13	44
2	36	24	27	24	16	450	700	436	*68	14	15	46
3	30	25	28	28	16	600	900	384	70	13	20	42
4	28	28	30	29	16	800	1,020	344	68	12	19	40
5	28	28	29	30	16	1,000	1,090	306	68	12	18	48
6	26	30	28	32	25	1,200	1,180	302	68	14	19	63
7	28	34	27	34	40	1,400	1,320	294	65	32	22	89
8	25	33	26	35	60	1,600	1,350	282	61	*24	28	*175
9	28	33	25	32	70	1,700	1,350	278	63	23	*72	258
10	29	32	25	28	90	1,800	1,300	274	61	23	52	617
11	29	33	*24	25	110	1,800	1,260	266	61	19	39	872
12	29	36	26	22	*117	1,700	1,250	258	58	16	34	1,060
13	*30	38	28	20	130	1,600	1,240	251	56	16	29	1,330
14	28	39	30	19	140	1,500	1,180	239	54	14	26	1,500
15	26	39	28	*18	150	*1,370	1,130	232	50	14	24	1,500
16	25	49	26	17	150	1,200	1,050	220	50	14	22	1,410
17	24	52	24	17	140	1,100	982	205	49	24	45	1,360
18	24	49	23	17	140	1,000	916	178	47	40	56	1,320
19	23	45	22	17	140	900	846	163	40	28	59	1,290
20	23	35	21	17	140	800	797	145	33	24	58	1,370
21	23	29	20	18	130	700	740	121	29	21	56	1,600
22	23	24	21	20	120	640	683	121	26	18	50	*1,760
23	22	22	21	24	110	560	626	114	25	17	44	1,840
24	23	*24	20	25	100	500	582	121	30	16	38	1,850
25	22	30	20	27	90	440	573	111	27	15	42	1,850
26	23	38	19	25	80	380	*542	89	24	14	56	1,870
27	24	46	18	23	90	320	520	92	21	14	54	1,890
28	24	52	17	22	120	270	511	89	19	13	46	1,810
29	22	42	17	20	------	230	494	86	17	13	40	1,780
30	22	34	17	19	------	200	485	81	16	12	36	1,760
31	23	------	18	18	------	300	------	79	------	12	38	------
Total	809	1,046	733	722	2,563	28,310	27,017	6,637	1,398	554	1,170	32,444
Mean	26.1	34.9	23.6	23.3	91.5	913	901	214	46.6	17.9	37.7	1,081
Cfsm	0.036	0.048	0.032	0.032	0.125	1.25	1.23	0.292	0.064	0.024	0.052	1.48
In.	0.04	0.05	0.04	0.04	0.13	1.44	1.37	0.34	0.07	0.03	0.06	1.65

Calendar year 1964: Max 357 Min 11 Mean 62.9 Cfsm 0.086 In. 1.18
Water year 1964-65: Max 1,890 Min 12 Mean 283 Cfsm 0.387 In. 5.26

Peak discharge (base, 1,250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	2200	6.80	1,800	9-27	0900	6.16	1,890
4- 9	0900	4.82	1,350				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20-27, Nov. 29 to Apr. 3. No gage height record June 23-30, July 2-6, 18, 21-29, Aug. 2-4, 13-16, 22-25, Aug. 28 to Sept. 5.

5-4280. Lake Mendota at Madison, Wis.

Location.--Lat 43°05'40", long 89°22'10", in SE 1/4 sec. 12, T. 7 N., R. 9 E., attached to left wall of lock of dam at outlet, in Madison.

Drainage area.--254 sq mi. Area of Lake Mendota, 15.2 sq mi.

Records available.--December 1902 to May 1903, January 1916 to September 1965 (incomplete).

Gage.--Staff gage read almost daily during periods of open water. Datum of gage is 847.65 ft above mean sea level, datum of 1929, or 2.00 ft above city of Madison datum.

Extremes.--Maximum gage height observed during year, 2.80 ft Sept. 23; minimum observed, 1.36 ft Nov. 1.
1916-65: Maximum gage height observed, 4.19 ft Apr. 5, 1959; minimum observed, 0.20 ft Feb. 24 to Mar. 10, 1920.

Remarks.--Lake level regulated by concrete dam with two 12-foot tainter gates and 20-foot lock at outlet.

Cooperation.--Gage-height record furnished by city engineer of Madison.

Gage height, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.68	1.36			1.84	1.80	1.74	2.20	1.94	1.82	1.67	1.72
2	1.68	1.40					1.84	2.20	1.94	1.80	1.62	1.70
3	1.67	1.40				2.35	1.88	2.20	1.96	1.80	1.60	1.68
4	1.65	1.42				2.46		2.20	1.94	1.78	1.58	1.68
5	1.62	1.40		1.58		2.59	2.05	2.18	1.94	1.76	1.56	1.68
6	1.60	1.40				2.64		2.20	1.96	1.74	1.58	1.66
7	1.58	1.38						2.20	2.00	1.82	1.58	1.90
8	1.58	1.38				2.72		2.20	2.00	1.82	1.58	1.98
9	1.58	1.38			1.88			2.20	2.00	1.86	1.70	2.06
10	1.56	1.38			2.04	2.76		2.20	2.00	1.86	1.70	2.20
11	1.50	1.38			2.08	2.70		2.20	1.98	1.84	1.68	2.24
12	1.50	1.40			2.14	2.71	2.18	2.18	1.98	1.82	1.67	2.26
13	1.50	1.42				2.67	2.14	2.16	1.98	1.82	1.66	2.28
14	1.50	1.44						2.14	1.94	1.82	1.64	2.28
15	1.50	1.44			2.06	2.57		2.12	1.94	1.82	1.64	2.30
16	1.50	1.52					1.98	2.10	1.92	1.84	1.62	2.24
17	1.50	1.50			2.01		2.00	2.12	1.90	1.86	1.66	2.22
18	1.50	1.50					2.00	2.10	1.90	1.86	1.66	2.20
19	1.48	1.50			1.91		2.04	2.10	1.86	1.84	1.76	2.20
20	1.48						2.04	2.08	1.90	1.80	1.76	2.44
21	1.48						2.04	2.08	1.90	1.78	1.75	2.70
22	1.44						2.04	2.06	1.90	1.76	1.74	2.74
23	1.44				1.83	2.14	2.06	2.06	1.92	1.76	1.72	2.80
24	1.42						2.06	2.02	1.92	1.76	1.72	2.76
25	1.40					2.01	2.12	2.00	1.90	1.76	1.74	2.68
26	1.40					1.94	2.18	2.06	1.88	1.74	1.78	2.66
27	1.40	1.47					2.20	2.08	1.88	1.72	1.76	2.64
28	1.40						2.20	2.06	1.86	1.72	1.74	2.56
29	1.40				-------		2.18	2.02	1.84	1.70	1.70	2.58
30	1.38				---------		2.18	1.96	1.82		1.70	2.58
31	1.38	----------			---------	1.65	----------	1.94	----------	1.67	1.72	----------

5-4290. Lake Monona at Madison, Wis.

Location.--Lat 43°03'50", long 89°23'45", in NW 1/4 sec. 23, T. 7 N., R. 9 E., at end of concrete storm sewer in Brittingham Park, in Madison.

Drainage area.--273 sq mi. Area of Lake Monona, 5.3 sq mi.

Records available.--September 1915 to September 1965 (fragmentary) in reports of the Geological Survey. For 1856 to March 1917 in reports of Wisconsin Railroad Commission, Volume 19.

Gage.--Reference point by which the stage is read almost daily during periods of open water. Datum of gage is 843.61 ft above mean sea level, datum of 1929, or 2.00 ft below city of Madison datum.

Extremes.--Maximum gage height observed during year, 2.06 ft Apr. 12-14; minimum observed, -0.39 ft Jan. 20.
1915-65: Maximum gage height observed, 3.66 ft July 28, 1929; minimum observed, that of Jan. 20, 1965.

Remarks.--Lake level regulated by concrete dam with four 12-foot stop-log sections and 12-foot lock at outlet of Lake Waubesa.

Cooperation.--Gage-height record furnished by city engineer of Madison

Gage height, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.18					0.75	1.88	1.32	1.42	1.07		1.28
2	1.16	1.07		-0.23		.96	1.93		1.42		1.06	
3		1.08				1.15	1.93	1.32			1.06	
4		1.09				1.25	1.90	1.34			1.06	
5		1.09		- .25	-0.33	1.42	1.89	1.42	1.39		1.06	
6	1.10	1.09				1.60	1.94	1.42				
7		1.09		- .28			1.94	1.44	1.39		1.06	1.57
8	1.10				- .22	1.82	1.94		1.38	1.20	1.06	
9	1.05	1.11	0.19			1.90	1.96		1.34	1.25	1.21	1.50
10		1.11				1.92	1.98	1.38	1.31		1.21	1.69
11		1.12		- .31		1.94		1.38	1.30	1.25		
12	1.05				.12		2.06	1.38		1.24		
13	1.06				.20		2.06			1.24	1.18	1.63
14	1.07	1.12	.07		.27		2.06	1.36	1.30		1.18	
15	1.09				.32	1.94	2.05	1.38	1.24	1.20	1.18	1.59
16		1.20	.01		.40		2.03		1.20	1.26	1.18	
17		1.18			.42			1.35	1.16	1.25	1.25	1.52
18		1.13		- .37	.50		1.78		1.15		1.29	1.49
19		1.11			.51		1.65	1.32	1.14	1.24	1.38	
20	1.07			- .39		1.95	1.57					1.69
21	1.07		- .09				1.44		1.14	1.22		1.96
22	1.05		- .20		.67	1.92	1.36		1.14	1.18		2.05
23		.80	- .23		.70		1.28		1.17	1.18	1.33	
24	1.05					1.92		1.38	1.15	1.17		
25						1.90		1.38	1.14			1.91
26	1.05						1.37			1.14		
27	1.05	.65		- .26			1.37				1.38	1.92
28	1.05						1.37	1.42	1.11	1.12	1.32	
29					--------		1.35	1.39		1.09		1.67
30	1.05				---------	1.83	1.33		1.11	1.09	1.30	1.65
31		----------	- .23		---------	1.82	----------		----------	1.07	1.30	----------

5-4295. Yahara River near McFarland, Wis.

Location.--Lat 43°00'30", long 89°18'15", in SW 1/4 sec. 3, T. 6 N., R. 10 E., on left bank just upstream from bridge on U. S. Highway 51, at dam at outlet of Lake Waubesa and 1 mile southwest of McFarland.

Drainage area.--351 sq mi.

Records available.--September 1930 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 840.40 ft above mean sea level, datum of 1929 (levels by Public Service Commission of Wisconsin). Prior to Dec. 23, 1934, chain gage at same site and datum.

Average discharge.--35 years, 150 cfs.

Extremes.--Maximum discharge during year, 504 cfs Apr. 12 (gage height, 4.87 ft); minimum 1.0 cfs Oct. 18.
1930-65: Maximum discharge, 867 cfs Apr. 10, 1959 (gage height, 5.82 ft); maximum gage height, 6.33 ft July 23, 24, 1950 (backwater from aquatic vegetation); minimum discharge, that of Oct. 18, 1964.

Remarks.--Records fair Nov. 16 to May 31, and poor Oct. 1 to Nov. 15, June 1 to Sept. 30. Flow regulated by dams at outlets of Lake Mendota and Lake Waubesa. See record for Badfish Creek near Stoughton, Wis., (p. 123) for mean monthly pumpage into that basin; this flow was included in the Yahara records prior to December 1958.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*10	5.2	118	49	34	222	467	60	99	13	10	23
2	7.0	5.2	*114	54	33	240	477	60	93	12	10	22
3	5.8	5.5	112	52	33	260	474	58	84	12	9.0	20
4	4.6	5.2	110	52	32	280	469	60	70	13	8.5	24
5	3.7	5.2	108	51	33	320	464	89	58	13	8.5	45
6	3.4	5.8	107	50	36	370	466	127	63	13	8.5	54
7	6.1	6.1	106	51	39	407	466	127	70	16	8.5	142
8	3.4	6.4	104	52	*45	425	469	127	68	18	11	212
9	2.2	7.0	102	51	49	*443	474	133	66	*20	16	210
10	3.1	7.0	101	49	60	451	472	127	61	22	15	242
11	4.0	8.0	*91	48	73	451	490	127	60	22	*15	235
12	3.1	8.0	95	46	88	451	495	120	58	20	14	232
13	3.1	7.0	93	45	91	451	495	116	54	20	14	*228
14	3.4	9.0	89	45	99	451	485	114	50	21	14	220
15	3.4	8.5	88	44	110	451	487	114	46	19	14	215
16	*3.1	30	80	44	120	451	477	114	42	21	15	203
17	2.8	42	80	42	129	459	464	116	40	23	18	191
18	3.4	156	73	42	140	464	438	108	38	22	23	198
19	4.0	200	71	*41	147	469	412	82	34	20	32	198
20	3.4	248	70	39	156	459	386	80	30	18	30	238
21	3.4	225	66	38	177	451	363	80	29	*16	27	322
22	2.8	200	64	36	196	451	198	80	23	16	27	355
23	2.8	*186	63	42	198	*454	66	84	20	16	25	358
24	3.1	172	63	44	203	448	64	*89	19	15	24	355
25	3.7	174	61	41	205	446	95	95	16	13	25	342
26	4.6	161	58	40	200	443	122	99	14	12	31	335
27	4.6	149	56	38	196	438	118	118	13	11	*29	320
28	4.6	154	55	37	196	433	110	118	12	10	25	305
29	*4.3	114	52	36	-------	428	105	105	12	10	21	*302
30	4.6	118	52	35	---------	428	*78	108	13	9.0	23	302
31	5.2	----------	49	34	---------	441	----------	101	----------	10	24	----------
Total	126.7	2,428.1	2,551	1,368	3,118	12,836	10,646	3,136	1,355	496.0	575.0	6,448
Mean	4.09	80.9	82.3	44.1	111	414	355	101	45.2	16.0	18.5	215
Cfsm	0.012	0.230	0.234	0.126	0.316	1.18	1.01	0.288	0.129	0.046	0.053	0.613
In.	0.01	0.26	0.27	0.14	0.33	1.36	1.13	0.33	0.14	0.05	0.06	0.68

Calendar year 1964: Max 248 Min 2.2 Mean 62.5 Cfsm 0.178 In. 2.41
Water year 1964-65: Max 495 Min 2.2 Mean 124 Cfsm 0.353 In. 4.76

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice or aquatic vegetation Oct. 1 to Dec. 9, Jan. 13, 14, Jan. 26 to Feb. 5, May 5 to Sept. 30.

GPO 826-538-0

5-4301. Badfish Creek near Stoughton, Wis.

Location.--Lat 42°53'28", long 89°17'23", in SW 1/4 sec. 14, T. 5 N., R. 10 E., on left bank 10 ft downstream from highway bridge, 4 miles southwest of Stoughton, and 9 miles upstream from mouth.

Drainage area.--43.5 sq mi.

Records available.--May 1956 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 873.2 ft above mean sea level, unadjusted. Prior to May 25, 1956, staff gage at site 0.5 mile upstream at different datum. May 25, 1956, to June 21, 1956, wire-weight gage and June 22, 1956, to Aug. 10, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--6 years (1959-65), 52.4 cfs (unadjusted).

Extremes.--Maximum discharge during year, 545 cfs Sept. 20 (gage height, 4.25 ft); minimum, 20 cfs Jan. 17; minimum gage height, 0.26 ft Mar. 22.
1956-65: Maximum discharge, 871 cfs Jan. 13, 1960 (gage height, 4.60 ft); minimum, 3.4 cfs Nov. 26, 1958, result of freezeup.

Remarks.--Records fair. Madison Metropolitan Sewerage District discharged an average of 22.56 million gallons per day into the basin during 1965. The Sewerage District began discharging into the basin in December 1958.

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	*44	37	48	35	42	208	199	49	45	47	36	45
2	47	46	*46	60	45	238	139	44	46	44	39	48
3	45	45	47	35	45	106	87	50	46	45	42	51
4	36	44	47	39	45	68	65	49	47	45	42	68
5	34	45	41	42	47	159	75	51	45	46	44	91
6	47	44	37	42	47	135	79	51	49	48	58	43
7	42	40	42	46	133	96	63	53	52	55	50	105
8	45	36	46	46	*88	114	70	51	56	*45	44	71
9	46	47	41	38	50	*81	68	44	55	54	52	106
10	42	47	43	34	153	58	57	47	52	50	50	154
11	36	45	44	38	69	52	173	45	51	50	*49	66
12	36	45	42	41	48	49	93	45	50	50	51	51
13	*47	46	38	41	39	45	67	46	44	55	53	*55
14	49	44	41	40	33	42	61	46	46	52	46	56
15	48	40	46	40	38	46	68	44	49	50	40	53
16	*52	46	*46	36	40	51	57	40	52	54	47	51
17	49	46	44	32	43	51	52	42	52	48	64	51
18	40	46	44	36	43	46	47	44	52	48	63	57
19	40	45	39	*41	42	49	47	44	50	48	59	57
20	49	46	34	40	124	48	49	44	47	47	51	332
21	48	45	39	40	63	44	50	45	52	*48	45	305
22	48	41	42	43	46	43	50	43	56	43	37	99
23	46	*39	43	38	45	46	50	56	58	47	40	71
24	41	45	41	34	44	*46	54	*46	58	46	46	59
25	34	44	33	38	44	45	85	50	56	40	46	55
26	39	38	29	43	43	46	68	56	56	42	52	47
27	48	38	31	43	54	42	61	55	50	43	*47	50
28	44	46	36	42	111	37	56	50	53	43	39	54
29	*45	34	42	42	------	44	54	43	54	42	33	*55
30	45	40	41	39	------	57	*54	38	53	41	45	58
31	43	------	40	35	------	157	------	36	------	40	45	------
TOTAL	1,355	1,290	1,273	1,239	1,664	2,349	2,198	1,447	1,532	1,456	1,455	2,464
MEAN	43.7	43.0	41.1	40.0	59.4	75.8	73.3	46.7	51.1	47.0	46.9	82.1
+	33.3	33.1	31.4	30.8	35.0	36.0	34.3	33.6	36.3	39.6	36.7	39.1

CALENDAR YEAR 1964 MAX 120 MIN 16 MEAN 43.8 + 34.3
WATER YEAR 1964-65 MAX 332 MIN 29 MEAN 54.0 + 34.9

Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2- 7	2000	2.26	262	4-11	1900	2.95	470
2-20	1900	2.59	360	9- 5	0100	2.75	201
3- 2	0500	2.57	377	9- 7	1100	2.50	159
3- 5	1900	2.12	280	9-10	0100	3.41	336
3-31	2000	2.37	338	9-20	1400	4.25	545

* Discharge measurement made on this day.
\+ Discharge into basin, equivalent in cfs, by disposal plant, furnished by Madison Metropolitan Sewerage District.
Note.--Stage-discharge relation affected by backwater from aquatic vegetation Oct. 1 to Feb. 27, May 10 to Sept. 30.

5-4305. Rock River at Afton, Wis.

Location.--Lat 42°36'40", long 89°04'10", in sec. 27, T. 2 N., R. 12 E., on right bank at Afton, 0.3 mile downstream from highway bridge and 0.8 mile upstream from Bass Creek.

Drainage area.--3,300 sq mi, approximately.

Records available.--January 1914 to September 1965. Monthly discharge only for January 1914, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 742.36 ft above mean sea level, datum of 1929. Prior to Aug. 21, 1932, a chain gage, and Aug. 21, 1932, to Sept. 30, 1933, water-stage recorder, at same site at datum 1 ft higher.

Average discharge.--51 years, 1,703 cfs.

Extremes.--Maximum discharge during year, 5,990 cfs Sept. 26 (gage height, 8.11 ft); minimum, 121 cfs Oct. 7 (gage height, 1.78 ft); minimum daily, 231 cfs Aug. 3.

1914-65: Maximum discharge, 13,000 cfs Mar. 23, 24, 1929 (gage height, 11.81 ft, present datum); maximum gage height observed, 13.05 ft, Feb. 5, 1916, present datum (backwater from ice); minimum discharge, 22 cfs Sept. 9, 1964, minimum daily, 42 cfs Aug. 25, 26, 1934; minimum gage height, 0.09 ft Aug. 26, 1934.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation caused by powerplants above station. Records of water temperature and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	217	5.0	2,450
2.5	488	6.0	3,420
3.0	816	7.0	4,600
4.0	1,600	8.0	5,920

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	338	354	520	382	350	1,400	4,200	3,190	867	422	290	550
2	260	359	540	614	300	2,000	4,200	2,970	*950	354	416	494
3	285	422	540	494	300	2,100	3,840	2,760	816	316	231	241
4	260	376	600	494	310	2,300	3,680	2,840	767	255	482	306
5	275	321	500	359	330	2,800	3,840	2,700	733	321	246	311
6	290	343	480	416	400	4,000	4,190	2,500	672	393	416	405
7	376	354	470	422	1,000	4,400	4,130	2,200	726	*494	270	428
8	316	393	460	422	1,700	4,700	4,340	1,750	646	531	428	753
9	311	387	460	410	1,000	5,000	4,540	1,760	686	338	774	*660
10	327	285	460	380	1,700	5,400	4,580	1,680	672	538	563	1,110
11	348	440	500	320	1,600	5,440	4,740	1,640	739	306	*538	1,500
12	*370	416	520	*280	1,400	5,430	5,070	1,610	576	482	428	1,820
13	338	348	540	350	1,300	5,300	4,950	1,600	672	327	458	2,380
14	327	306	520	380	1,200	5,180	4,850	1,550	544	452	531	2,490
15	393	488	480	430	1,100	5,070	4,950	1,440	519	507	494	3,070
16	359	452	460	380	1,100	*4,940	4,890	1,260	525	428	519	3,270
17	316	327	440	420	1,050	4,990	4,870	753	488	434	919	3,340
18	321	531	380	370	1,050	4,370	4,780	831	458	476	1,110	3,270
19	359	482	450	400	1,050	3,570	4,590	845	348	550	1,170	3,320
20	338	*531	440	380	1,100	4,000	4,540	897	311	519	1,050	3,950
21	316	440	400	440	1,400	4,000	4,350	802	365	576	1,030	5,000
22	327	400	350	430	1,300	3,900	4,220	996	354	640	957	5,020
23	338	400	400	480	1,250	3,700	4,110	980	270	428	965	4,870
24	382	480	430	520	1,250	3,400	4,140	1,100	470	393	904	5,110
25	316	600	450	540	1,200	3,200	4,020	1,020	296	376	874	5,280
26	338	540	420	520	1,200	3,000	3,890	935	434	348	889	5,880
27	376	520	400	480	1,200	2,800	3,710	726	332	393	845	5,880
28	348	620	360	380	1,250	2,700	3,630	719	255	316	563	5,650
29	382	560	340	420	-------	2,600	3,360	795	327	416	588	5,630
30	306	500	320	330	-------	2,500	*3,240	774	405	316	588	5,610
31	338	-------	330	310	-------	3,000	-------	634	-------	525	556	-------
Total	10,274	12,975	13,960	12,953	29,390	117,190	128,440	46,257	16,223	13,170	20,092	87,598
Mean	331	432	450	418	1,050	3,780	4,281	1,492	541	425	648	2,920
Cfsm	0.100	0.131	0.136	0.127	0.318	1.15	1.30	0.452	0.164	0.129	0.196	0.885
In.	0.12	0.15	0.16	0.15	0.33	1.32	1.45	0.52	0.18	0.15	0.23	0.99

Calendar year 1964: Max 2,310 Min 90 Mean 567 Cfsm 0.172 In. 2.35
Water year 1964-65: Max 5,880 Min 231 Mean 1,393 Cfsm 0.422 In. 5.75

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21 to Dec. 31, Jan. 9 to Mar. 10, Mar. 20-30.

5-4315. Turtle Creek near Clinton, Wis.

Location.--Lat 42°35'55", long 88°51'50", in SE 1/4 sec. 29, T. 2 N., R. 14 E., on left bank 15 ft downstream from highway bridge, 2.5 miles north of Clinton, 11 miles northeast of Beloit, and 14 miles upstream from mouth.

Drainage area.--186 sq mi.

Records available.--September 1939 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 817.00 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--26 years, 103 cfs.

Extremes.--Maximum discharge during year, 1,800 cfs Feb. 8 (gage height, 9.73 ft); minimum, 11 cfs Nov. 21 (gage height, 2.21 ft), result of freezeup.

1939-65: Maximum discharge, 6,560 cfs Feb. 24, 1949 (gage height, 10.22 ft); minimum, 8 cfs Dec. 29, 1956 (gage height, 2.04 ft), result of freezeup.

Maximum stage known, 12.09 ft in February 1938, from floodmarks (discharge, 10,700 cfs, from rating curve extended above 5,500 cfs by logarithmic plotting).

Remarks.--Records good except those for periods of ice effect, which are poor. Some seasonal regulation caused by dams used to maintain levels of Turtle and Delavan Lakes.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 20)

Oct. 1 to Feb. 28		Mar. 1 to Sept. 30			
2.2	20	2.2	20	4.0	415
2.4	42	2.4	38	5.0	813
2.6	70	2.8	100	6.0	1,360
		3.4	236		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	34	37	40	50	1,000	915	138	39	27	33	64
2	34	36	36	400	49	1,300	775	131	43	28	31	54
3	32	37	34	100	50	900	544	120	46	27	29	48
4	31	36	*33	86	50	800	384	114	43	26	30	50
5	32	35	33	78	50	1,080	462	122	41	26	29	80
6	34	35	32	74	58	710	644	118	51	27	29	76
7	34	35	33	70	900	322	347	110	44	34	35	91
8	34	34	33	66	1,000	316	301	93	42	32	62	118
9	*32	*34	34	58	500	313	289	80	39	*33	89	116
10	31	34	35	54	1,000	206	252	71	37	31	*79	406
11	31	54	37	50	600	164	316	66	36	30	69	263
12	31	64	40	47	500	133	286	63	35	29	66	204
13	31	58	44	*45	400	124	241	58	34	30	62	*221
14	31	43	42	44	300	120	218	54	*34	32	57	226
15	31	45	40	42	250	112	255	51	33	29	52	173
16	31	48	38	41	230	114	173	58	33	32	60	131
17	31	43	36	41	220	122	140	57	33	32	76	114
18	31	40	34	42	240	110	122	58	32	34	95	114
19	32	41	33	44	200	100	102	50	32	30	110	138
20	31	26	32	47	240	92	89	47	32	28	91	197
21	32	34	31	52	400	86	84	44	32	27	77	310
22	32	37	32	140	350	82	77	43	31	27	72	239
23	32	37	33	600	120	78	166	46	33	26	66	209
24	35	41	33	240	130	77	182	64	32	26	56	164
25	34	41	32	180	140	76	216	57	30	26	58	142
26	32	40	32	140	140	*75	209	47	28	26	102	120
27	34	39	32	110	140	74	171	47	28	27	244	110
28	34	80	31	70	180	75	151	44	27	26	124	104
29	34	60	31	58	------	76	*140	44	27	26	79	98
30	34	42	32	52	------	100	138	42	29	26	68	114
31	34	------	34	50	------	423	------	41	------	33	69	------
Total	1,006	1,263	1,069	3,161	8,487	9,360	8,389	2,178	1,056	893	2,199	4,494
Mean	32.5	42.1	34.5	102	303	302	280	70.3	35.2	28.8	70.9	150
Cfsm	0.175	0.226	0.185	0.548	1.63	1.62	1.51	0.378	0.189	0.155	0.381	0.806
In.	0.20	0.25	0.21	0.63	1.70	1.87	1.68	0.44	0.21	0.18	0.44	0.90

Calendar year 1964 : Max 1,430 Min 26 Mean 62.4 Cfsm 0.335 In. 4.57
Water year 1964-65 : Max 1,300 Min 26 Mean 119 Cfsm 0.640 In. 8.71

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-8	1700	9.73	1,800	3-5	0100	5.81	1,250
3-1	0700	8.02	1,200	4-1	2300	6.27	1,540

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21 to Mar. 4, Mar. 18-30.

5-4325. Pecatonica River at Darlington, Wis.

Location.--Lat 42°40'30", long 90°06'55", in NE 1/4 sec. 3, T. 2 N., R. 3 E., on right bank in Darlington, 3 miles upstream from Otter Creek.

Drainage area.--274 sq mi.

Records available.--September 1939 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 802.42 ft above mean sea level, datum of 1929.

Average discharge.--26 years, 183 cfs.

Extremes.--Maximum discharge during year, 4,540 cfs Mar. 2 (gage height, 14.70 ft); minimum, 23 cfs July 26, 30 (gage height, 2.17 ft).
1939-65: Maximum discharge, 22,000 cfs July 16, 1950 (gage height, 20.71 ft), from rating curve extended above 11,000 cfs on basis of slope-area determination of peak flow; minimum, 19 cfs Mar. 4, 1954 (gage height, 1.92 ft), result of freezeup.
Flood of Feb. 21, 1937, reached a stage of 17.6 ft, from floodmarks.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Rate of change of stage used as a factor Mar. 3-5, 31, Apr. 3, 7, Sept. 9, 11, 20-22.)
(Shifting-control method used Mar. 2-8, Sept. 4, 5, 7-11, 20-23.)

Oct. 1 to Feb. 28				Mar. 1 to Sept. 30					
2.1	28	3.2	163	2.1	18	4.0	286	11.0	2,000
2.4	48	4.0	307	2.7	70	6.0	666	13.0	3,290
2.8	95	6.0	667	3.3	161	9.0	1,370	14.0	4,340

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	42	38	56	34	3,000	2,050	93	56	38	55	72
2	39	42	38	653	35	*4,300	2,130	83	56	36	45	51
3	38	43	37	464	35	*2,440	1,080	77	54	35	39	44
4	37	44	37	170	36	763	778	83	51	34	45	173
5	37	43	35	80	37	655	1,210	90	67	31	40	208
6	38	43	34	64	40	1,160	1,660	156	59	31	45	107
7	38	44	34	114	700	672	1,060	95	54	34	62	303
8	39	44	35	501	1,300	824	339	90	49	39	52	334
9	41	44	36	372	1,000	700	301	78	46	52	92	280
10	40	44	40	130	1,100	210	200	69	45	57	57	1,000
11	39	43	47	70	1,200	152	297	63	42	44	42	380
12	39	43	65	52	600	115	225	61	40	35	36	188
13	40	42	62	42	190	106	163	59	38	31	32	146
14	40	41	45	36	90	106	138	56	37	32	29	126
15	40	44	37	32	70	109	147	56	36	36	27	141
16	41	73	36	32	66	112	141	59	36	36	27	115
17	42	*57	*35	34	62	*107	133	62	35	30	31	101
18	41	46	30	36	*80	64	117	57	36	27	46	99
19	40	44	28	38	80	74	104	54	35	28	55	102
20	39	40	29	*39	400	65	95	51	34	27	43	697
21	40	35	32	39	1,200	59	90	*51	37	27	37	*1,160
22	*39	41	33	40	700	64	85	58	44	27	35	750
23	39	41	35	44	240	61	81	74	*42	*27	33	413
24	39	42	37	44	140	65	95	70	38	27	31	315
25	41	45	36	44	80	62	166	58	35	24	30	259
26	42	46	35	43	60	63	228	62	31	24	41	217
27	42	42	35	38	60	56	*163	120	30	24	197	197
28	42	40	35	36	600	58	138	96	31	27	76	204
29	42	38	36	35	------	60	122	66	35	27	46	185
30	42	38	37	34	------	81	106	60	38	24	55	170
31	42	------	39	34	------	769	------	57	------	43	*98	------
Total	1,238	1,314	1,168	3,446	10,235	17,132	13,642	2,264	1,267	1,014	1,579	8,537
Mean	39.9	43.8	37.7	111	366	553	455	73.0	42.2	32.7	50.9	285
Cfsm	0.146	0.160	0.138	0.405	1.34	2.02	1.66	0.266	0.154	0.119	0.186	1.04
In.	0.17	0.18	0.16	0.47	1.39	2.33	1.85	0.31	0.17	0.14	0.21	1.16

Calendar year 1964: Max 1,430 Min 28 Mean 64.3 Cfsm 0.235 In. 3.18
Water year 1964-65: Max 4,300 Min 24 Mean 172 Cfsm 0.628 In. 8.54

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-2	0900	14.70	4,540	4-1	2000	11.63	2,320

* Discharge measurement made on this date.

Note.--Stage-discharge relation affected by ice Nov. 28-30, Dec. 2-9, 22-31, Jan. 11-19, Jan. 27 to Mar. 1.

5-4330. East Branch Pecatonica River near Blanchardville, Wis.

Location.--Lat 42°47'10", long 89°51'40", in SE 1/4 sec. 26, T. 4 N., R. 5 E., on left bank at downstream side of bridge on State Highway 78, 1.5 miles south of Blanchardville and 3.5 miles upstream from Sawmill Creek.

Drainage area.--221 sq mi.

Records available.--September 1939 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 796.8 ft above mean sea level, unadjusted. Prior to Dec. 20, 1939, wire-weight gage at bridge 50 ft upstream at same datum. Dec. 20, 1939, to Sept. 20, 1964, graphic water-stage recorder at present site and datum. Auxiliary staff gage 2.7 miles upstream at same datum read every six hours or more often when stages exceed 10 ft.

Average discharge.--26 years, 139 cfs.

Extremes.--Maximum discharge during year, 5,800 cfs Mar. 2 (gage height, 14.96 ft backwater from ice); minimum 32 cfs Nov. 21, result of freeze up.
1939-65: Maximum discharge, 11,700 cfs Feb. 28, 1948 (gage height, 15.74 ft); minimum, 23 cfs Nov. 28, 1940, Dec. 8, 1949.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 2		Mar. 3 to Sept. 30			
2.6	52	2.5	33	9.0	704
2.8	66	3.0	67	11.0	1,250
3.0	82	5.0	257	12.0	1,860

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	55	56	50	62	54	1,500	1,270	107	83	57	61	64
2	55	56	52	300	54	*4,500	1,210	103	80	57	54	57
3	55	56	54	260	54	*1,890	871	98	76	57	53	55
4	54	56	52	140	54	423	686	93	76	54	52	94
5	53	56	50	100	54	745	907	360	75	54	51	440
6	53	56	49	90	60	1,080	1,300	325	77	54	64	109
7	53	57	50	110	400	436	771	166	75	103	57	155
8	53	56	52	220	800	593	340	141	71	71	119	164
9	54	56	53	120	440	575	301	129	70	77	119	134
10	55	56	54	90	580	204	181	116	68	69	66	710
11	55	56	64	*66	900	166	322	110	66	57	55	260
12	55	56	88	60	360	129	202	104	66	55	53	131
13	55	56	76	54	200	125	154	99	64	57	48	114
14	55	56	64	52	150	118	137	95	63	58	45	103
15	55	56	54	50	120	125	156	93	62	57	46	105
16	55	70	50	52	110	118	138	92	61	53	46	100
17	56	60	46	52	100	110	125	92	61	53	63	83
18	56	*58	*44	52	120	86	122	89	61	52	71	90
19	56	58	41	52	120	78	115	85	61	52	75	95
20	55	52	41	54	200	76	111	83	61	51	57	692
21	55	50	43	54	700	74	108	*82	64	52	52	*1,270
22	*55	52	47	56	560	74	104	83	62	52	54	941
23	55	56	50	58	240	*74	100	99	61	*51	56	374
24	55	56	54	58	150	74	112	91	*58	49	54	249
25	55	58	53	58	100	74	202	84	57	47	54	208
26	55	58	52	58	86	76	269	90	56	47	71	181
27	56	54	52	56	90	78	156	127	56	48	78	165
28	56	52	52	54	250	82	*133	99	59	47	61	164
29	56	50	52	54	------	90	120	87	54	46	52	153
30	56	50	54	54	------	110	113	85	59	47	62	148
31	56	------	56	54	------	512	------	82	------	66	*85	------
TOTAL	1,703	1,675	1,649	2,650	7,106	14,395	10,836	3,589	1,965	1,750	1,936	7,608
MEAN	54.9	55.8	53.2	85.5	254	464	361	116	65.5	56.5	62.5	254
CFSM	.248	.253	.241	.387	1.15	2.10	1.63	.525	.296	.256	.283	1.15
IN	.29	.28	.28	.45	1.20	2.42	1.82	.60	.33	.29	.33	1.28

CALENDAR YEAR 1964 MAX 652 MIN 41 MEAN 72.9 CFSM .330 INCHES 4.49
WATER YEAR 1964-65 MAX 4,500 MIN 41 MEAN 156 CFSM .706 INCHES 9.57

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-2	1330	14.96	5,800	4- 6	0915	11.58	1,540
3-6	0530	11.46	1,470	9-21	2400	11.75	1,660
4-2	0700	11.81	1,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 21 to Mar. 2, Mar. 17-30.

5

5-4335. Yellowstone River near Blanchardville, Wis.

Location.--Lat 42°46'55", long 89°59'50", in NE 1/4 sec. 34, T. 4 N., R. 4 E., on right bank 0.6 mile upstream from highway bridge, 7 miles southwest of Blanchardville, and about 9 miles upstream from mouth.

Drainage area.--29.1 sq mi.

Records available.--July 1954 to September 1965 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 840 ft (from topographic map).

Average discharge.--11 years, 15.9 cfs.

Extremes.--Maximum discharge during year, 1,820 cfs Sept. 4 (gage height 9.64 ft); minimum, 3.2 cfs Dec. 14 (gage height, 1.21 ft), result of freezeup.
1954-65: Maximum discharge, 2,240 cfs Mar. 29, 1960 (gage height, 10.47 ft); minimum, 1.6 cfs Nov. 30, 1957 (gage height, 1.12 ft), result of freezeup.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-22)

Oct. 1 to Feb. 28		Mar. 1 to Sept. 30			
1.2	3.0	1.2	2.8	2.3	46
1.3	5.0	1.3	4.6	3.0	95
1.4	7.8	1.5	9.4	4.0	208
1.5	11	1.7	16	5.0	338

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	5.3	4.5	17	5.0	700	282	10	8.4	5.3	5.5	*6.1
2	5.3	5.3	4.6	110	5.1	500	123	9.4	8.1	5.3	4.6	5.9
3	5.3	5.3	4.7	20	5.2	43	52	9.1	7.8	5.0	5.0	5.7
4	5.6	5.0	4.7	9.0	5.4	12	92	8.6	7.6	4.6	5.0	247
5	5.8	5.0	4.6	7.6	5.6	119	98	129	7.1	4.6	5.0	30
6	6.4	4.8	4.6	8.4	6.0	53	82	28	7.6	4.8	9.4	16
7	6.7	5.0	4.6	22	200	96	24	20	7.1	5.0	5.3	150
8	7.2	5.0	4.7	13	84	113	34	18	6.8	4.6	26	22
9	7.0	5.0	4.7	9.0	15	29	20	15	6.6	7.8	10	216
10	6.7	5.0	4.9	7.2	250	15	20	13	6.4	5.3	6.4	55
11	6.4	5.0	8.8	6.4	40	12	31	12	6.1	4.6	5.5	26
12	6.4	5.0	7.0	5.6	18	9.1	18	11	5.9	4.6	5.0	20
13	6.4	5.0	5.6	5.2	13	12	14	11	5.9	4.8	4.6	18
14	6.1	5.0	5.4	4.8	10	11	14	10	5.9	4.6	4.4	16
15	6.1	8.1	5.4	4.6	7.8	12	16	10	5.9	4.2	4.4	15
16	6.1	6.7	5.6	4.6	6.6	13	14	11	5.7	4.2	4.4	14
17	5.8	5.6	*4.9	4.7	7.8	11	14	9.4	5.5	4.2	5.3	13
18	5.6	*5.6	4.5	4.8	10	6.8	12	9.7	5.5	4.1	8.9	13
19	5.3	5.3	4.1	4.9	*6.4	6.6	9.7	8.6	5.5	4.2	5.9	12
20	5.3	5.3	4.0	*5.0	200	6.2	9.4	8.4	5.5	4.2	5.0	67
21	5.6	4.8	4.1	5.4	60	6.0	9.4	*8.9	5.7	4.6	4.8	*326
22	*5.6	4.8	4.4	6.0	18	7.0	8.9	8.9	5.7	4.2	4.8	47
23	5.3	5.6	4.7	9.8	11	*7.1	8.6	18	5.5	*3.9	4.6	40
24	5.3	5.6	4.8	8.4	8.6	6.7	12	10	*5.0	3.7	4.6	28
25	5.3	5.8	4.8	6.8	8.3	6.4	30	9.1	5.0	3.5	5.0	25
26	5.3	5.8	4.7	6.2	6.5	6.2	21	12	4.8	3.5	6.1	22
27	5.3	5.6	4.7	5.8	20	6.2	16	13	4.8	3.7	10	22
28	5.3	6.0	4.7	5.4	*170	6.6	*14	9.7	5.7	3.5	5.7	20
29	5.3	4.5	4.7	5.2	-------	8.6	12	9.4	5.7	3.7	5.3	19
30	5.3	4.5	4.8	5.1	-------	18	11	8.9	5.5	4.1	8.6	19
31	5.3	----------	5.1	5.0	----------	232	----------	8.6	----------	10	7.1	----------
Total	179.4	160.3	153.4	342.9	1,203.3	2,090.5	1,122.0	477.7	184.3	144.4	202.2	1,535.7
Mean	5.79	5.34	4.95	11.1	43.0	67.4	37.4	15.4	6.14	4.66	6.52	51.2
Cfsm	0.199	0.184	0.170	0.381	1.48	2.32	1.29	0.529	0.211	0.160	0.224	1.76
In.	0.23	0.20	0.20	0.44	1.54	2.67	1.43	0.61	0.24	0.18	0.26	1.96

Calendar year 1964: Max 240 Min 3.8 Mean 8.32 Cfsm 0.286 In. 3.90
Water year 1964-65: Max 700 Min 3.5 Mean 21.4 Cfsm 0.735 In. 9.96

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 2	0300	-	500	3-31	1900	7.37	880
2- 7	1600	-	750	5- 5	0530	7.28	853
2-10	0600	-	700	9- 4	1900	9.64	1,820
2-20	1730	-	1,100	9- 7	0700	8.08	1,130
3- 1	1830	-	1,000	9- 9	2100	9.20	1,600
3- 8	1730	5.59	442	9-21	0430	9.26	1,630

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 28 to Mar. 2, Mar. 19-28.

5-4345. Pecatonica River at Martintown, Wis.

Location.--Lat 42°30'35", long 89°48'00", in SE 1/4 sec. 32, T. 1 N., R. 6 E., on right bank about 400 ft downstream from highway bridge in Martintown, 0.3 mile upstream from Wisconsin-Illinois State line and 9 miles downstream from Skinner Creek.

Drainage area.--1,040 sq mi, approximately.

Records available.--October 1939 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 757.9 ft above mean sea level, datum of 1929. Prior to Jan. 6, 1940, wire-weight gage at same site and datum. Auxiliary wire-weight gage 1 1/4 miles downstream read several times daily during high water.

Average discharge.--26 years, 695 cfs.

Extremes.--Maximum discharge during year, 11,300 cfs Mar. 4 (gage height, 19.94 ft, backwater from ice); minimum, 131 cfs July 30 (gage height, 2.44 ft).
1939-65: Maximum discharge, 14,200 cfs Apr. 3, 1959 (gage height, 20.23 ft); maximum gage height, 20.24 ft Feb. 29, 1948; no flow for part of Dec. 14, 1939.

Remarks.--Records good except those for periods of ice effect, which are fair. Slight diurnal fluctuation from powerplant upstream.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Fall used as a factor Mar. 10-12, 31, Apr. 1, 2, 9, 10, 13, Sept. 9, 13, 14, 19-21, 26-28.)

Oct. 1 to Mar. 2		Mar. 3 to Sept. 30			
2.5	162	2.5	140	11.0	2,710
3.0	235	4.0	384	14.0	4,180
3.5	320	7.0	1,250	17.0	7,890

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	220	196	185	200	180	2,000	3,470	457	296	196	233	312
2	212	202	185	1,200	180	3,000	4,350	421	292	194	210	314
3	212	216	190	1,500	190	5,000	5,300	393	287	185	204	244
4	210	216	190	1,400	190	11,000	5,450	372	271	190	186	250
5	199	211	185	1,000	200	10,000	4,800	469	271	180	188	479
6	194	208	185	700	220	8,400	4,240	879	296	182	186	1,080
7	194	208	180	400	1,700	6,920	3,960	948	323	185	185	1,060
8	194	205	180	400	2,500	4,660	3,610	831	276	194	226	1,280
9	194	208	180	600	2,600	3,770	3,080	698	262	234	305	1,650
10	193	208	185	700	3,000	2,910	1,930	541	252	222	355	2,690
11	204	208	195	*470	3,400	1,710	1,600	457	242	238	294	2,810
12	199	208	220	320	3,500	877	1,760	413	238	209	233	2,810
13	196	205	290	260	3,200	605	1,240	384	230	194	209	2,100
14	198	205	250	220	2,700	508	891	364	222	192	196	1,250
15	199	223	210	190	1,800	460	735	346	218	198	188	846
16	199	248	185	185	1,300	440	689	342	214	185	188	658
17	199	*253	175	180	800	410	653	344	210	182	233	580
18	193	266	*170	185	600	390	586	337	204	174	266	511
19	190	244	165	185	500	370	519	324	203	172	257	717
20	194	230	160	185	520	350	476	308	204	167	245	2,820
21	189	205	160	190	1,300	340	439	297	208	166	233	3,900
22	186	175	165	240	2,400	330	417	273	202	*162	210	*4,010
23	*184	190	170	340	2,000	*320	399	310	204	161	196	4,870
24	186	200	175	280	1,200	310	406	319	204	158	196	5,450
25	187	205	180	240	540	300	521	*332	*206	152	196	5,110
26	193	210	185	230	300	300	855	314	197	149	*230	3,740
27	196	210	185	220	250	300	*930	323	190	160	501	2,340
28	196	200	180	210	500	300	732	378	188	154	544	1,520
29	196	190	185	190	------	300	580	388	185	148	393	1,190
30	196	180	185	190	------	310	506	332	188	148	276	1,000
31	196	------	190	180	------	1,810	------	303	------	188	292	------
Total	6,098	6,333	5,825	12,990	37,770	68,700	55,124	13,197	6,983	5,619	7,854	57,591
Mean	197	211	188	419	1,349	2,216	1,837	426	233	181	253	1,920
Cfsm	0.189	0.203	0.181	0.403	1.30	2.13	1.77	0.410	0.224	0.174	0.243	1.85
In.	0.22	0.23	0.21	0.46	1.35	2.46	1.97	0.47	0.25	0.20	0.28	2.06

Calendar year 1964: Max 2,060 Min 160 Mean 283 Cfsm 0.272 In. 3.71
Water year 1964-65: Max 11,000 Min 148 Mean 778 Cfsm 0.748 In. 10.16

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1100	19.94	11,300	9-24	1500	15.22	5,490
4-4	0300	15.28	5,570				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Mar. 6, Mar. 15-30.

5

5-4360. Mount Vernon Creek near Mount Vernon, Wis.

Location.--Lat 42°55'20", long 89°37'30", in SW 1/4 sec. 12, T. 5 N., R. 7 E., on right bank 400 ft downstream from bridge on State Highway 92, 0.9 mile upstream from West Branch Sugar River, and 2.5 miles southeast of Mount Vernon.

Drainage area.--16.1 sq mi.

Records available.--January 1954 to September 1965 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 875 ft (from topographic map).

Average discharge.--11 years, 16.5 cfs.

Extremes.--Maximum discharge during year, 306 cfs Mar. 2 (gage height, 5.68 ft); minimum, 8.2 cfs Dec. 17 (gage height, 0.75 ft). 1954-65: Maximum discharge, 940 cfs Apr. 1, 1959 (gage height, 6.32 ft); maximum gage height, 7.00 ft Jan. 12, 1960, from floodmark (backwater from ice); minimum discharge, 7.1 cfs Jan. 31, 1959, result of freezeup.

Remarks.--Records fair.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used June 18 to Sept. 30)

Oct. 1 to Jan. 1		Jan. 2 to Sept. 30			
0.8	8.4	0.5	7.4	2.0	47
.9	10	1.0	16	4.0	151
1.0	13	1.5	27	5.0	230

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	10	10	10	9.4	*157	108	14	12	*9.2	8.8	10
2	10	11	10	24	9.4	195	59	15	12	9.3	8.8	9.8
3	10	11	10	16	9.4	43	34	15	12	9.2	8.8	10
4	10	10	10	13	9.4	17	31	14	12	9.2	8.8	17
5	10	10	10	13	10	79	43	15	12	9.2	9.0	32
6	10	10	10	13	12	58	42	14	12	10	9.3	13
7	10	10	10	17	90	44	20	14	11	11	9.0	17
8	10	10	10	16	*56	56	20	14	11	9.3	9.2	14
9	10	10	10	15	19	32	*17	13	11	10	9.8	*17
10	10	10	10	13	*110	16	15	13	11	9.2	*8.8	34
11	10	10	10	13	*36	14	24	12	11	9.2	8.8	15
12	*10	10	11	12	15	13	17	12	11	9.2	9.0	13
13	10	10	10	11	13	13	15	12	11	9.3	8.8	13
14	10	10	10	10	12	13	15	12	11	9.2	8.8	13
15	10	11	9.4	10	12	13	16	12	11	9.2	8.8	13
16	10	11	*9.6	10	12	*12	14	12	11	9.2	9.3	12
17	10	10	9.4	10	13	12	14	12	10	9.3	14	12
18	10	10	9.4	10	13	11	14	12	10	9.3	11	12
19	10	*11	9.2	*10	12	11	14	12	10	9.3	10	13
20	10	11	9.3	10	50	11	14	12	10	9.3	8.7	79
21	10	10	9.4	10	60	11	14	12	9.8	9.3	8.5	151
22	10	10	9.4	10	14	11	14	12	10	9.3	8.5	24
23	10	10	9.6	10	16	11	14	12	9.8	9.3	8.5	17
24	10	10	9.8	10	13	11	16	*12	9.7	9.2	8.5	16
25	10	10	9.6	10	12	11	23	12	9.5	9.0	9.2	15
26	10	10	9.6	10	11	11	18	12	9.3	8.8	10	14
27	10	10	9.4	9.8	22	11	16	12	9.3	8.8	9.5	14
28	10	10	9.4	9.7	73	11	15	12	9.5	8.7	9.3	14
29	10	10	9.4	9.6	------	12	14	12	9.7	8.5	9.2	14
30	10	10	9.4	9.5	------	37	*14	12	9.5	8.8	11	16
31	10	------	9.6	9.4	------	107	------	12	------	9.5	11	------
Total	310	306	301.9	364.0	743.6	1,064	704	393	318.1	287.3	290.7	663.8
Mean	10.0	10.2	9.74	11.7	26.6	34.3	23.5	12.7	10.6	9.27	9.38	22.1
Cfsm	0.621	0.634	0.605	0.727	1.65	2.13	1.46	0.789	0.658	0.576	0.583	1.37
In.	0.72	0.71	0.70	0.84	1.72	2.46	1.63	0.91	0.73	0.66	0.67	1.53

Calendar year 1964: Max 34 Min 9.2 Mean 11.6 Cfsm 0.720 In. 9.79
Water year 1964-65: Max 195 Min 8.5 Mean 15.7 Cfsm 0.975 In. 13.28

Peak discharge (base, 90 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-10	1300	4.52	192	3- 5	2230	3.86	141
2-20	2400	-	180	3-31	2130	4.62	200
3- 2	0100	5.68	306	9-21	0830	4.93	224

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21, 27-30, Dec. 5, 6, 14-20, 27, Jan. 2, 8, 9, Jan. 13 to Feb. 8, Feb. 13, 20-26, Mar. 13-20.

5-4365. Sugar River near Brodhead, Wis.

Location.--Lat 42°36'40", long 89°23'50", in SW 1/4 sec. 26, T. 2 N., R. 9 E., on left bank at downstream side of highway bridge, 2 miles upstream from Jordan Creek, and 2 miles southwest of Brodhead.

Drainage area.--527 sq mi.

Records available.--January 1914 to September 1965. Monthly discharge only for January and February 1914, published in WSP 1308.

Gage.--Digital water-stage recorder. Datum of gage is 768.14 ft above mean sea level, datum of 1929. Prior to Oct. 17, 1938, chain gage at same site and datum. Oct. 17, 1938, to July 21, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 336 cfs.

Extremes.--Maximum discharge during year, 5,500 cfs Mar. 3 (gage height, 8.24 ft, ice affected); minimum 92 cfs Nov. 1, Aug. 14.
1914-65: Maximum discharge, 14,800 cfs Sept. 13, 1915 (gage height, 11.4 ft, from floodmarks), from rating curve extended above 7,500 cfs; minimum, 35 cfs Sept. 19, 1959 (gage height, -0.16 ft).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3 to June 4, Sept. 5-27)

0.0	94	3.0	944
.5	164	4.0	1,390
1.0	257	6.0	2,550
2.0	552	7.0	3,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	107	125	138	130	700	1,780	246	166	134	134	179
2	125	121	130	267	130	1,800	3,510	239	165	117	128	170
3	124	135	130	319	130	4,400	2,700	218	163	122	113	146
4	120	133	125	375	135	3,310	1,790	204	149	122	124	160
5	121	130	120	369	140	1,510	1,360	223	155	120	119	227
6	120	123	115	245	140	1,290	1,230	252	172	120	110	414
7	121	125	115	197	400	1,880	1,160	260	186	139	107	526
8	123	127	112	211	1,200	1,820	1,040	253	168	146	173	507
9	124	126	112	199	1,800	1,530	825	325	165	165	199	497
10	125	126	120	180	2,000	1,320	608	274	157	132	189	741
11	125	126	137	185	1,800	1,020	597	226	152	124	147	801
12	128	130	153	*175	1,400	490	946	201	145	125	136	827
13	131	128	163	155	1,000	336	1,080	195	144	129	130	579
14	132	125	172	140	600	302	606	173	153	129	104	279
15	129	129	160	135	460	285	477	183	134	153	113	251
16	127	154	145	130	370	282	469	193	130	128	116	194
17	125	*126	130	130	340	299	409	190	136	104	140	194
18	125	126	120	130	350	278	342	179	140	109	191	178
19	123	128	110	125	*380	250	314	166	141	103	204	243
20	121	126	110	125	440	220	288	138	139	107	182	*708
21	125	120	*112	130	600	210	273	156	134	108	166	1,620
22	124	115	115	130	1,000	200	258	165	140	*108	137	2,020
23	*121	112	120	135	1,100	190	254	176	139	112	148	2,070
24	127	149	125	135	1,050	*190	261	219	130	109	136	1,570
25	129	140	125	135	700	185	407	*207	*130	102	136	947
26	132	138	120	130	270	185	665	190	131	99	*162	517
27	122	133	120	130	230	180	*734	182	129	100	217	427
28	119	125	115	130	210	180	474	188	128	99	176	419
29	126	120	115	130	------	175	328	167	127	102	169	379
30	133	120	115	130	------	190	291	174	129	102	152	379
31	155	------	120	130	------	321	------	168	------	120	185	------
Total	3,908	3,823	3,906	5,375	18,505	25,528	25,476	6,330	4,377	3,689	4,643	18,169
Mean	126	127	126	173	661	823	849	204	146	119	150	606
Cfsm	.239	.241	.239	.328	1.25	1.56	1.61	.387	.277	.226	.285	1.15
In.	.28	.27	.28	.38	1.31	1.80	1.80	.45	.31	.26	.33	1.28

Calendar year 1964: Max 940 Min 107 Mean 176 Cfsm .334 In. 4.57
Water year 1964-65: Max 4,400 Min 99 Mean 339 Cfsm .643 In. 8.75

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-10	1700	6.55	2,400	4- 2	0300	7.07	3,700
3- 3	1230	8.24	5,500	9-23	0300	5.89	2,160
3- 8	0200	5.31	2,050				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 28 to Dec. 10, Dec. 15-31, Jan. 10 to Mar. 3, Mar. 19-30.

5-4375. Rock River at Rockton, Ill.

Location.--Lat 42°27'05", long 89°04'20", in SE 1/4 NW 1/4 sec. 24, T. 46 N., R. 1 E., on left bank at upstream side of bridge on State Highway 2 in Rockton, 0.8 mile downstream from Pecatonica River.

Drainage area.--6,290 sq mi, approximately.

Records available.--June 1903 to July 1906, October 1906 to March 1909, July 1914 to September 1919, October 1939 to September 1965. Published as "below mouth of Pecatonica River at Rockton" 1903-09; as "at Rockford" 1914-19. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Water-stage recorder (digital). Datum of gage is 707.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1906, chain gage at same site at datum about 1 ft higher. Oct. 1, 1906, to Mar. 31, 1909, chain gage at same site at datum about 2 ft higher. July 30, 1914, to Apr. 30, 1919, chain gage at site at Rockford about 21 miles downstream, at different datum.

Average discharge.--33 years (1903-5, 1914-19, 1939-65), 3,695 cfs (discharge for site at Rockford adjusted for difference in drainage area).

Extremes.--Maximum discharge during year, 14,500 cfs Sept. 27 (gage height, 9.84 ft); minimum daily, 733 cfs Oct. 21.
1903-9, 1914-19, 1939-65: Maximum discharge, 32,500 cfs Mar. 30, 1916 (gage height, 13.06 ft, site and datum then in use); minimum daily, 501 cfs Sept. 14, 1958.
Flood in February 1937 reached a stage of 14.6 ft (backwater from ice), from painted floodmark.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Low flow regulated by powerplants above station.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-7)

2.1	670	7.0	8,400
3.0	1,660	10.0	14,900
4.0	3,040		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,130	891	1,200	1,140	1,100	5,270	9,610	5,160	1,880	1,130	1,010	2,090
2	736	1,010	1,200	2,020	1,000	7,030	11,600	4,720	2,040	899	1,160	1,940
3	887	983	1,300	3,110	1,000	8,010	12,100	4,390	1,910	969	1,000	1,490
4	880	1,130	1,200	3,310	1,000	9,390	12,700	4,180	1,840	950	1,190	1,440
5	908	1,130	1,100	3,170	1,100	10,800	12,800	4,310	1,740	901	971	1,710
6	827	1,000	1,100	2,910	1,100	11,500	13,800	4,860	1,710	1,020	1,030	1,630
7	928	1,000	1,100	2,800	3,500	11,700	13,300	4,480	1,790	1,120	1,000	2,000
8	861	1,000	1,100	2,490	6,000	11,800	12,900	4,260	1,730	1,250	990	2,820
9	882	956	1,200	2,250	7,060	13,200	12,900	5,350	1,760	1,200	1,670	3,520
10	742	969	1,200	1,910	7,820	14,200	12,400	5,290	1,710	1,300	1,780	4,790
11	860	958	1,370	1,750	8,500	14,100	12,200	4,700	1,680	1,250	1,720	5,940
12	790	1,070	1,390	1,700	8,820	13,600	11,700	3,890	1,610	1,050	1,570	6,320
13	871	988	1,470	*1,600	8,940	12,600	11,200	*3,380	1,550	1,160	1,530	6,900
14	871	987	1,400	1,400	8,440	11,300	10,600	3,060	1,470	*1,170	1,390	7,790
15	860	1,070	1,200	1,300	7,680	9,420	9,990	2,860	1,390	1,200	1,330	8,060
16	840	1,240	1,200	1,200	7,310	7,630	8,920	2,660	1,370	1,130	1,270	7,600
17	830	1,050	1,100	1,100	6,820	7,240	7,950	2,130	1,300	1,170	*1,740	7,000
18	860	1,270	1,100	1,100	6,390	6,370	7,440	2,070	1,310	1,050	2,070	6,600
19	780	*1,230	1,100	1,000	6,090	5,040	6,880	2,130	1,080	1,210	2,300	6,400
20	840	1,200	1,200	1,050	5,440	5,440	6,490	2,150	1,090	1,050	2,460	7,000
21	733	1,100	1,220	1,050	5,000	5,690	6,210	1,820	1,070	1,040	2,370	8,900
22	880	1,100	1,020	1,500	4,000	5,630	5,890	2,090	1,160	1,200	2,230	11,000
23	800	1,140	1,070	3,500	3,700	5,340	5,760	2,130	1,130	851	1,980	12,000
24	770	1,250	1,220	4,100	3,500	4,970	5,830	2,180	1,070	810	1,820	*12,300
25	770	1,420	1,150	3,800	3,200	4,800	5,910	2,160	1,150	1,010	1,910	13,000
26	891	1,550	1,100	3,500	3,000	4,540	6,220	2,040	1,050	1,000	1,860	13,800
27	850	1,510	1,000	2,700	3,200	4,330	6,110	1,930	1,010	916	2,170	14,400
28	927	1,710	1,000	1,800	3,560	4,230	6,190	1,920	995	826	2,080	14,300
29	895	1,500	1,030	1,500	----------	4,090	6,010	1,870	955	1,010	2,360	13,900
30	989	1,100	1,020	1,400	----------	4,030	5,610	1,890	973	738	2,440	13,400
31	869	----------	1,000	1,100	----------	*4,920	----------	1,860	----------	1,150	2,280	----------
Total	26,557	34,512	36,060	64,260	134,270	248,210	277,220	97,920	42,523	32,730	52,681	220,040
Mean	857	1,150	1,163	2,073	4,795	8,007	9,241	3,159	1,417	1,056	1,699	7,335
Cfsm	0.136	0.183	0.185	0.330	0.762	1.27	1.47	0.502	0.225	0.168	0.270	1.17
In.	0.16	0.20	0.21	0.38	0.79	1.47	1.64	0.58	0.25	0.19	0.31	1.30

Calendar year 1964: Max 6,620 Min 697 Mean 1,595 Cfsm 0.254 In. 3.45
Water year 1964-65: Max 14,400 Min 733 Mean 3,471 Cfsm 0.552 In. 7.49

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 20-22, Nov. 29 to Dec. 10, Dec. 14-20, 25-28, Jan. 11 to Feb. 8, Feb. 11, 21-27. No gage-height record Sept. 16-23.

5-5290. Des Plaines River near Des Plaines, Ill.

Location.--Lat 42°04'55", long 87°53'25", in SE 1/4 SE 1/4 sec. 25, T. 42 N., R. 11 E., on right bank 50 ft upstream from dam No. 2 of Cook County Forest Preserve, 0.3 mile downstream from Lake Avenue Bridge, 1.2 miles upstream from Central Road Bridge, and 2.5 miles north of Des Plaines.

Drainage area.--359 sq mi.

Records available.--October 1940 to September 1965.

Gage.--Water-stage recorder (digital) and masonry dam. Datum of gage is 626.31 ft above mean sea level, datum of 1929. Prior to Apr. 8, 1941, staff gage at same site and datum.

Average discharge.--25 years, 206 cfs.

Extremes.--Maximum discharge during year, 2,160 cfs Apr. 7 (gage height, 4.17 ft); minimum, 6.1 cfs Oct. 3.
1940-65: Maximum discharge, 4,670 cfs Apr. 2, 1960 (gage height, 8.56 ft); no flow for many days in 1944, 1946, and Aug. 7, 8, 1962.

Flood of July 4, 1938, reached a stage of 9.0 ft, from floodmark (discharge, 5,000 cfs).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.6	6.1	1.5	420
.7	25	2.0	840
.8	55	3.0	1,570
1.0	135	5.0	2,520

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	25	104	72	150	577	740	870	67	*18	27	*87
2	12	36	*92	389	140	821	1,050	761	125	15	17	76
3	10	62	76	420	130	*870	1,110	656	*182	17	*15	66
4	8.5	28	62	362	125	821	1,120	563	133	13	15	69
5	10	20	55	329	150	870	1,220	507	114	14	13	145
6	10	18	46	290	200	940	1,940	447	140	24	14	164
7	12	16	46	274	638	976	*2,140	*404	109	50	14	151
8	14	16	46	*310	1,050	1,000	2,060	362	103	30	19	147
9	12	14	43	300	960	1,100	1,990	333	110	24	63	162
10	10	16	43	213	1,000	1,100	1,790	302	88	21	95	249
11	10	16	59	200	*1,020	1,030	1,640	273	81	20	61	270
12	10	*18	99	175	1,100	958	1,530	244	68	16	44	255
13	*13	16	144	135	1,030	870	1,250	217	54	21	33	234
14	14	14	135	105	940	792	1,180	190	44	24	28	211
15	14	55	104	100	850	700	1,380	172	47	18	25	198
16	14	80	104	94	760	621	1,300	164	44	16	25	186
17	12	66	83	84	670	570	1,190	153	43	20	62	185
18	12	69	66	78	580	465	1,110	161	44	19	69	189
19	22	58	58	75	490	296	999	166	46	16	70	178
20	31	46	52	*72	380	262	883	141	39	17	62	195
21	37	40	46	66	300	240	775	121	40	15	53	291
22	28	34	46	167	240	230	680	109	33	13	47	374
23	31	34	46	480	200	220	719	103	34	13	40	401
24	34	31	66	604	170	210	1,020	132	26	15	35	360
25	37	34	66	570	150	200	1,330	131	21	13	68	311
26	18	34	55	525	160	190	1,360	112	21	13	96	270
27	18	34	49	414	180	191	1,230	107	17	17	132	243
28	20	150	46	374	260	191	1,140	95	18	13	142	225
29	25	162	46	290	-------	197	1,060	86	18	11	117	213
30	25	108	55	220	------	*252	963	75	22	11	104	228
31	25	------	52	180	------	404	------	68	------	28	99	------
Total	560.5	1,350	2,090	7,967	14,023	18,164	37,899	8,225	1,931	575	1,704	6,333
Mean	18.1	45.0	67.4	257	501	586	1,263	265	64.4	18.5	55.0	211
Cfsm	0.050	0.125	0.188	0.716	1.40	1.63	3.52	0.738	0.179	0.052	0.153	0.588
In.	0.06	0.14	0.22	0.83	1.45	1.88	3.93	0.85	0.20	0.06	0.18	0.66

Calendar year 1964: Max 812 Min 2.7 Mean 84.2 Cfsm 0.235 In. 3.19
Water year 1964-65: Max 2,140 Min 8.5 Mean 276 Cfsm 0.769 In. 10.44

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-12	-	-	1,170	4- 7	0830	4.17	2,160
3-10	0300	2.33	1,140	4-25	2400	2.74	1,420

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 11-19, Feb. 8-28, Mar. 19-26. No gage-height record Jan. 30 to Feb. 5.

5-5438.3 Fox River at Waukesha, Wis.

Location.--Lat 43°00'17", long 88°14'37", in SW 1/4 sec. 3, T. 6 N., R. 19 E., on left bank 20 ft downstream from State Street bridge in Waukesha, 1.0 mile downstream from dam and 3.2 miles downstream from Pewaukee River.

Drainage area.--127 sq mi.

Records available.--January 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 793.04 ft above mean sea level, datum of 1929 (levels by city of Waukesha).

Extremes.--Maximum discharge during year, 1,240 cfs Mar. 6 (gage height, 5.79 ft); minimum 6.6 cfs Oct. 5 (gage height, 1.72 ft).
1963-65: Maximum discharge, that of Mar. 6, 1965; minimum, 3.0 cfs Jan. 1, 1964 (gage height, 1.52 ft).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 2-15, Apr. 19-27, May 23 to July 23.)

1.6	5.0	2.5	84	4.5	632
1.7	9.0	3.0	153	5.0	847
1.8	14	3.5	277	5.5	1,090
2.0	28	4.0	442	6.0	1,340

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	12	*20	14	8.5	136	224	101	30	26	13	17
2	9.5	17	18	41	8.0	340	248	92	25	21	12	17
3	7.8	*16	15	38	8.0	572	414	85	26	20	18	16
4	7.8	14	14	36	8.0	592	612	79	26	19	22	32
5	8.2	13	12	28	8.0	936	612	74	26	14	19	31
6	9.0	13	11	21	15	1120	628	73	33	*12	19	34
7	9.0	13	12	20	80	990	724	68	34	12	42	91
8	*10	12	12	24	*76	640	719	68	34	15	65	91
9	9.0	13	12	18	89	442	588	71	34	15	64	171
10	7.4	14	12	20	130	273	453	70	33	15	52	254
11	7.4	13	15	16	127	245	446	66	*28	15	50	280
12	9.5	14	15	14	153	171	467	62	25	16	51	311
13	12	13	16	12	173	117	446	57	26	16	*36	343
14	11	11	16	10	180	112	360	54	29	7.8	26	302
15	12	18	14	*10	159	68	265	61	28	7.8	20	280
16	12	15	12	9.5	136	98	302	83	29	29	24	*221
17	10	15	12	9.5	118	98	245	86	30	16	52	163
18	9.5	14	10	10	101	64	216	77	30	16	56	146
19	10	14	8.6	10	73	62	155	65	32	15	49	126
20	11	14	7.8	10	90	74	165	56	32	15	39	136
21	12	12	8.6	10	100	72	163	48	35	13	32	146
22	12	11	9.5	19	90	70	141	39	32	12	26	163
23	11	12	10	14	70	66	84	61	24	12	23	175
24	11	12	10	12	58	64	117	60	25	12	21	196
25	10	13	9.5	12	46	*62	127	60	26	12	22	201
26	11	12	9.5	11	40	62	*167	50	29	13	25	189
27	12	19	9.0	10	36	67	167	47	30	14	26	169
28	13	44	10	9.5	40	82	141	39	29	12	22	155
29	12	30	10	9.0	------	96	116	28	26	12	19	144
30	12	26	12	8.5	------	106	116	22	24	13	18	138
31	12	------	10	8.5	------	139	------	22	------	13	18	------
Total	319.6	469	372.5	494.5	2,220.5	8,036	9,628	1,924	870	460.6	981	4,738
Mean	10.3	15.6	12.0	16.0	79.3	259	321	62.1	29.0	14.9	31.6	158
Cfsm	0.081	0.123	0.094	0.126	0.624	2.04	2.53	0.489	0.228	0.117	0.249	1.24
In.	0.09	0.14	0.11	0.14	0.65	2.35	2.82	0.56	0.25	0.13	0.29	1.39

Calendar year 1964: Max 314 Min 3.2 Mean 33.2 Cfsm 0.261 In. 3.56
Water year 1964-65: Max 1,120 Min 7.4 Mean 83.6 Cfsm 0.658 In. 8.92

Peak discharge (base, 250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-6	1800	5.79	1,240	8- 7	2200	4.11	474
4-8	1100	4.77	754	9-13	0900	4.08	442

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 26 to Feb. 5, Feb. 21-28.

5-5450. North Lake near Elkhorn, Wis.

Location.--Lat 42°44'35", long 88°38'00", in sec. 5, T. 3 N., R. 16 E., attached to post near shore line, 5 1/2 miles northwest of Elkhorn.

Drainage area.--1 sq mi, approximately. Area of North Lake, 350 acres, approximately, at high stage.

Records available.--May 1937 to September 1965 (fragmentary). Published as Holden Lake prior to October 1958.

Gage.--Staff gage read about once weekly or more often except during winter. Altitude of gage is 900 ft (from topographic map).

Extremes.--Maximum gage height observed during year, 8.97 ft Apr. 29, May 1; minimum observed, 7.01 ft Oct. 31, Nov. 6, 7, 14.
1937-65: Maximum gage height observed, 12.45 ft Mar. 25, 1939; lake dry for parts of period July to December 1958.

Remarks.--Lake has no surface outlet. Lake ice covered Nov. 19 to Apr. 18.

Gage height, in feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								8.97				
2												
3	7.28									7.98		
4												8.20
5									8.58			
6		7.01										
7		7.01									7.90	
8								8.89				
9										8.02		
10	7.25									7.98		
11					7.68				8.43			8.30
12	7.22								8.40		8.25	
13				7.05								8.30
14		7.01									8.19	
15								8.85				
16												
17	7.19									7.98		
18												8.29
19									8.28			
20												
21											8.20	
22								8.69				
23												
24	7.08									7.88		
25												8.35
26						8.37			8.10			
27												
28											8.19	
29					--------		8.97	8.61				
30					---------							
31	7.01	----------			---------		----------		----------	7.80		----------

5-5465. Fox River at Wilmot, Wis.

Location.--Lat 42°30'40", long 88°10'45", in SW 1/4 sec. 30, T. 1 N., R. 20 E., on right bank 100 ft downstream from bridge on County Trunk C, 300 ft upstream from Wilmot Dam, 1 mile north of Wisconsin-Illinois State line, and 6 miles upstream from Fox chain of lakes.

Drainage area.--880 sq mi.

Records available.--October 1939 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 735.22 ft above mean sea level, datum of 1929. Prior to Sept. 1, 1965, wire-weight gage and concrete control.

Average discharge.--26 years, 445 cfs.

Extremes.--Maximum discharge during year, 2,880 cfs Apr. 7 (gage height, 7.28 ft, from graph based on gage readings); minimum daily, 78 cfs Feb. 3, 4.

1939-65: Maximum discharge, 7,520 cfs Mar. 31, 1960 (gage height, 9.25 ft, from graph based on gage readings); no flow part of day Oct. 26, 1945; minimum daily discharge, 35 cfs Sept. 9, 1958.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Three 6-foot lift gates in Wilmot Dam were in operation during the year; discharge through gates computed by weir and orifice formulas and added to flow over dam.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	96	233	205	80	769	1,140	889	284	133	83	210
2	97	89	205	304	80	1,180	1,520	742	311	104	97	285
3	97	110	180	393	78	1,590	1,880	637	293	100	97	281
4	97	148	160	375	78	1,770	2,200	602	272	97	111	233
5	97	164	145	324	80	1,900	2,190	567	251	90	126	308
6	90	156	130	292	120	2,120	2,380	544	384	90	122	388
7	97	140	120	261	260	2,300	2,730	522	376	115	126	438
8	101	133	120	282	717	2,420	2,820	416	321	97	160	717
9	104	125	121	271	1,270	2,630	2,620	490	302	97	384	828
10	104	110	123	261	1,260	2,420	2,420	435	271	104	*486	982
11	104	103	123	228	1,430	2,300	2,300	403	241	90	347	1,160
12	*101	103	139	179	1,510	2,060	2,350	395	154	83	294	1,130
13	87	103	155	147	1,400	1,870	2,330	350	156	83	*246	*950
14	83	103	159	128	1,300	1,720	2,220	321	164	104	225	850
15	83	110	163	110	1,120	1,570	2,000	350	*164	104	217	783
16	79	160	159	100	904	1,390	1,930	336	144	130	189	749
17	79	189	147	94	813	1,260	1,820	340	133	148	241	722
18	79	202	139	92	791	966	1,710	381	130	164	246	742
19	83	198	124	90	755	828	1,520	371	130	148	291	791
20	87	180	110	90	682	872	1,360	331	118	137	317	889
21	87	160	100	92	783	749	1,170	284	118	126	275	1,170
22	87	140	90	106	919	637	1,100	275	118	111	240	1,320
23	87	125	94	124	813	590	1,040	321	111	100	220	1,370
24	87	133	100	150	682	590	1,060	336	111	94	210	1,330
25	97	140	105	128	540	595	1,090	332	126	83	200	1,240
26	97	144	100	109	440	539	1,250	332	133	83	210	1,130
27	97	156	96	102	360	512	1,310	336	141	83	230	1,040
28	97	215	94	91	400	491	1,190	332	144	83	240	943
29	90	202	90	88	--------	*491	1,040	311	130	83	230	850
30	97	202	100	84	---------	512	966	302	133	83	220	806
31	97	----------	143	82	---------	644	----------	293	----------	83	210	----------
Total	2,866	4,339	4,067	5,382	19,665	40,285	52,656	12,876	5,864	3,230	6,890	24,635
Mean	92.5	145	131	174	702	1,300	1,755	415	195	104	222	821
Cfsm	0.105	0.165	0.149	0.198	0.798	1.48	1.99	0.472	0.222	0.118	0.252	0.933
In.	0.12	0.18	0.17	0.23	0.83	1.70	2.23	0.54	0.25	0.14	0.29	1.04

Calendar year 1964 : Max 1,170 Min 65 Mean 223 Cfsm 0.253 In. 3.44
Water year 1964-65 : Max 2,820 Min 78 Mean 501 Cfsm 0.569 In. 7.72

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 20, 21, Dec. 3-8, 19-30, Jan. 15-22, Jan. 30 to Feb. 7, Feb. 25-28. No gage-height record Jan. 24, July 3, Aug. 22 to Sept. 1.

Water-stage recorders have been installed at several partial-record stations to obtain additional data to be used in an analysis of peak flows and low flows from small drainage basins. A continuous record of stream stages is recorded during open-water periods only. No records of stage are obtained during winter months.

When adequate data have been obtained from each of these stations, the recording gage will be dismantled and moved to another partial-record station. The minimum period of operation at any site will be one year in order that seasonal variations are sampled. The maximum period of operation will depend on the magnitude and frequency of peak flows at the station. It is conceivable that some gages might remain at the same location for several years before adequate peak flow data have been obtained.

All the stations published in this seasonal-record section are also complete partial-record stations. Any low-flow measurements made at these stations during the 1965 water year when daily mean discharge is not published are listed in the low-flow partial-record section. The annual maximum discharge for each of these stations is also listed in the crest-stage partial-record section.

STREAMS TRIBUTARY TO LAKE SUPERIOR

4-263. Sioux River near Washburn, Wis.

Location.--Lat 46°41'20", long 90°57'02", in NE 1/4 sec. 35, T. 49 N., R. 5 W., on right bank 75 ft upstream from culvert on County Trunk C, 2 1/2 miles west of junction with State Highway 13 in Washburn, 4 1/2 miles upstream from Lake Superior, and 7 1/2 miles northwest of Ashland.

Drainage area.--17.5 sq mi.

Records available.--Annual maximum, water years 1959-65, and occasional low-flow measurements, water years 1962-64. October 1964 to to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Sept. 28, 1958, to Oct. 28, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 260 cfs Apr. 19 (gage height, 10.73 ft). During period April to November 1965, maximum discharge that of Apr. 19 and minimum discharge, 6.1 cfs Aug. 15 (gage height, 8.36 ft).
1959-65: Maximum discharge, 1,630 cfs May 23, 1964 (gage height, 17.5 ft).

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.75	6.7	8.6	63
8.0	17	9.0	105
8.3	37	9.4	154

Discharge, in cubic feet per second, period October to November 1964 and April to November 1965

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1		9.7				16	15	12	9.7	8.1	31	8.9
2		9.7				16	13	14	7.8	7.8	17	8.9
3		9.7				18	15	9.7	7.8	7.1	12	8.9
4		9.7				15	20	8.9	7.4	7.1	11	8.5
5		9.7				15	15	8.5	7.4	7.1	9.7	8.9
6		9.7				16	12	9.0	7.4	7.4	9.3	8.9
7		9.3				64	13	10	14	8.1	8.9	8.9
8		*9.3				*47	30	25	9.7	8.1	9.7	8.9
9		9.3				34	18	15	8.1	8.1	11	8.9
10		9.3				24	15	11	7.8	7.8	10	8.9
11		20				19	12	10	7.4	7.8	8.9	*8.9
12		39				16	11	9.5	7.1	8.9	8.9	
13		33				14	9.7	12	6.7	10	8.5	
14		20			*	13	8.9	11	6.7	12	9.3	
15		17				15	8.9	10	6.7	14	9.3	
16		15			68	30	8.5	12	6.7	9.7	8.5	
17		13			88	25	*8.5	15	7.1	10	8.9	
18		12			128	35	8.5	10	7.1	11	8.9	
19		12			142	20	8.9	8.5	6.7	16	9.3	
20		11			70	22	11	8.0	6.7	13	10	
21		11			83	50	9.7	*7.6	7.1	15	10	
22		10			55	35	8.9	7.4	7.4	15	9.7	
23		9.7			71	20	9.3	7.4	7.1	11	9.3	
24		9.7			37	15	8.1	7.1	7.1	10	9.3	
25		9.7			31	17	7.8	6.7	7.4	9.7	9.3	
26		9.5			27	20	8.1	6.7	*7.8	10	9.3	
27		9.5			22	15	9.7	6.7	8.1	9.7	8.9	
28		9.5			21	13	9.3	6.7	7.8	10	8.5	
29	*9.3	9.0			21	13	8.1	6.7	7.4	13	8.5	
30	9.3	9.0			19	12	7.8	8.1	8.1	*36	8.9	
31	9.3					12		11	8.1		9.3	
Total		384.0				696	348.7	311.2	239.4	328.5	321.1	
Mean		12.8				22.5	11.6	10.0	7.72	11.0	10.4	
Cfsm		0.731				1.29	0.663	0.571	0.441	0.629	0.594	
In.		0.82				1.48	0.74	0.66	0.51	0.70	0.68	

* Discharge measurement made this day.
Note.--No gage-height record May 15 to June 10, July 5-20.

4-752. Evergreen Creek near Langlade, Wis.

Location.--Lat 45°10'11", long 88°48'12", in NW 1/4 sec. 18, T. 31 N., R. 14 E., at culvert on State Highway 64, 3 1/2 miles southwest of Langlade.

Drainage area.--8.0 sq mi, approximately.

Records available.--Annual maximum, water years 1959-65, and occasional low-flow measurements, water years 1961-65. June 1964 to December 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Sept. 17, 1958, to June 16, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum gage height during the water year, 11.62 ft Apr. 11 (discharge not determined). During the period Apr. 14 to Dec. 3, 1965, maximum discharge, 40 cfs May 16 (gage height, 10.73 ft); minimum, 9.5 cfs June 19, 20, 25, 27 (gage height 9.71 ft).
1959-65: Maximum gage height, that of Apr. 11, 1965 (discharge not determined).

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

9.7	9.2
10.0	16
10.5	32

Discharge, in cubic feet per second, April to December 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					12	25	10	11	11	13	11	11
2					11	15	10	11	11	12	*11	10
3					14	12	10	*11	11	11	11	*10
4					13	11	10	11	13	11	10	
5					11	11	11	11	17	12	10	
6					12	11	10	12	12	12	10	
7					11	10	10	12	12	13	10	
8					11	11	10	12	11	13	11	
9					17	10	11	11	13	12	10	
10					14	10	11	11	12	12	10	
11					12	10	10	10	10	12	10	
12					11	10	10	10	10	12	16	
13				*	10	10	11	10	11	12	15	
14				19	10	10	11	10	*12	12	12	
15				21	14	10	11	10	14	12	11	
16				17	31	10	11	11	11	12	12	
17				16	16	10	14	11	12	13	11	
18				15	13	10	11	11	12	12	11	
19				15	*12	9.8	11	11	22	12	10	
20				14	11	9.8	11	11	*20	12	11	
21				14	11	9.8	11	11	24	11	10	
22				14	11	*10	11	11	16	11	10	
23				13	10	11	11	11	13	11	10	
24				12	10	10	12	11	12	11	10	
25				12	11	9.8	11	11	11	11	11	
26				15	12	9.8	11	11	11	11	16	
27				15	11	10	10	11	11	11	17	
28				13	11	14	10	11	18	*11	13	
29		-------		12	10	10	10	11	19	11	11	
30		-------		13	10	10	11	12	14	11	11	
31		-------		-------	11	-------	11	12	-------	11	-------	
Total					384	330.0	333	341	406	363	342	
Mean					12.4	11.0	10.7	11.0	13.5	11.7	11.4	
Cfsm					1.55	1.38	1.34	1.38	1.69	1.46	1.42	
In.					1.78	1.53	1.55	1.59	1.89	1.69	1.59	

* Discharge measurement made on this day.

GPO 826-536-10

4-797. Spaulding Creek near Big Falls, Wis.

Location.--Lat 44°38'13", long 89°01'20", on common boundary of secs. 14 and 15, T. 25 N., R. 12 E., at culvert on County Trunk E, 1.5 miles north of Big Falls.

Drainage area.--4.9 sq mi, approximately.

Records available.--Annual maximum, water years 1959-65 and occasional low-flow measurements, water years 1962-64. June 1964 to December 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. May 27, 1958, to June 15, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 92 cfs Apr. 12 (gage height, 11.55 ft). During period Jan. 1 to Dec. 31, 1965, maximum discharge that of Apr. 12; minimum daily, 1.5 cfs Jan. 31 to Feb. 4.
1959-65: Maximum discharge, 101 cfs May 7, 1960 (gage height, 11.64 ft).

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

9.3	1.2	10.2	20
9.4	2.0	10.7	36
9.5	3.3	11.1	55
9.7	7.4	11.4	78

Discharge, in cubic feet per second, January to December 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.4	1.5	2.0	2.7	14	6.7	*1.8	2.5	3.2	14	4.5	8.1
2	2.4	1.5	8.8	2.5	15	6.5	1.9	2.1	2.6	12	4.9	8.1
3	2.4	1.5	4.7	2.6	15	5.8	1.8	*2.1	2.4	9.7	*4.3	6.9
4	2.4	1.5	3.3	2.9	19	5.1	1.7	2.1	5.7	8.3	4.1	6.7
5	2.4	1.6	9.9	4.0	17	7.4	1.9	2.0	28	6.9	4.1	6.2
6	2.5	1.6	8.8	7.6	16	9.5	1.9	2.0	24	6.5	4.1	4.9
7	2.5	1.8	6.5	*12	14	8.1	3.3	3.5	16	6.5	4.1	*4.9
8	2.6	1.9	5.0	*9.2	14	7.2	2.7	12	13	6.7	4.5	5.3
9	2.7	1.9	4.0	8.8	12	6.2	2.6	11	14	6.7	*4.5	4.9
10	2.6	2.1	3.0	13	12	5.1	2.2	6.0	20	6.2	4.5	5.1
11	2.4	2.0	2.6	40	*11	4.5	2.0	4.1	13	*5.8	4.3	8.1
12	2.2	1.9	2.5	75	9.5	4.2	1.8	3.2	7.7	6.0	9.9	22
13	2.1	1.9	2.5	45	8.3	3.8	2.5	2.6	5.8	5.6	22	35
14	2.0	1.9	2.5	32	7.6	3.3	2.4	2.2	5.3	5.6	18	26
15	1.9	2.0	2.5	29	7.4	3.0	2.1	2.0	*6.9	7.2	12	18
16	1.8	2.0	2.4	27	14	2.9	3.6	2.0	5.3	6.7	12	11
17	1.7	1.9	2.4	22	22	2.7	2.7	2.4	10	9.5	11	10
18	1.6	1.9	2.4	21	21	2.6	2.7	2.5	12	12	8.3	8.6
19	1.6	1.9	2.4	18	16	2.5	2.6	2.4	25	10	7.9	6.2
20	1.6	1.9	2.4	18	12	2.7	2.4	2.1	*62	9.2	6.9	6.5
21	1.6	1.9	2.4	19	9.9	2.7	2.1	2.0	*46	11	6.7	6.2
22	1.6	1.8	2.4	19	9.7	2.6	2.1	2.0	*34	10	6.7	6.0
23	1.6	1.7	2.4	19	8.3	3.2	2.2	1.9	23	8.3	6.7	7.4
24	1.6	1.7	2.4	17	7.6	2.6	4.5	1.7	15	7.2	6.2	11
25	1.6	1.7	2.4	16	7.2	2.4	3.2	1.8	12	6.5	6.9	9.0
26	1.6	1.7	2.4	25	12	1.9	2.5	2.7	9.7	5.8	12	6.9
27	1.6	1.8	2.4	26	14	2.1	2.2	2.4	9.2	5.6	24	7.6
28	1.6	1.9	2.4	21	11	2.0	1.9	2.2	12	5.3	19	6.5
29	1.6	------	2.4	16	9.2	1.9	1.7	2.0	18	4.9	14	5.3
30	1.6	------	2.4	14	8.1	1.9	1.9	2.9	18	4.7	10	6.2
31	1.5	------	2.4	------	6.9	--------	2.6	4.5	--------	4.7	--------	8.6
Total	61.3	50.4	107.0	584.3	380.7	123.1	73.5	96.9	478.8	235.1	268.1	293.2
Mean	1.98	1.80	3.45	19.5	12.3	4.10	2.37	3.13	16.0	7.58	8.94	9.46
Cfsm	0.404	0.367	0.704	3.98	2.51	0.837	0.484	0.639	3.27	1.55	1.82	1.93
In.	0.47	0.38	0.81	4.43	2.89	0.93	0.56	0.74	3.63	1.78	2.03	2.23

Calendar year 1965 : Max 75 Min 1.5 Mean 7.54 Cfsm 1.54 In. 20.88
Water year : Max Min Mean Cfsm In.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 8, 9, 13-16, Jan. 27 to Feb. 6, Feb. 11-27, Mar. 8-10, 16-18, Apr. 2.

4-810. Waupaca River near Waupaca, Wis.

Location.--Lat 44°19'50", long 88°59'45", on north line of sec. 1, T. 21 N., R. 12 E., on right bank 10 ft downstream from highway bridge, 4 miles upstream from Weyauwega Lake dam, 4 1/2 miles southeast of Waupaca, and about 5 miles downstream from Crystal River.

Drainage area.--272 sq mi.

Records available.--June 1916 to September 1963. Annual maximum and seasonal record October 1963 to December 1965.

Gage.--Water-stage recorder. Altitude of gage is 780 ft (from survey level line along railroad). Prior to Oct. 19, 1917, chain gage at site 1 mile downstream at different datum. Oct. 19, 1917, to Nov. 23, 1938, chain gage on bridge at present site and datum.

Average discharge.--47 years (1916-63), 237 cfs.

Extremes.--1964-65: Maximum discharge during water year, 1,360 cfs Apr. 12 (gage height, 4.51 ft); maximum gage height, 6.2 ft Mar. 8 (backwater from ice). During period Mar. 30 to Dec. 15, 1965, maximum discharge, that of Apr. 12; minimum, 98 cfs July 13 (gage height, 1.05 ft).
1916-65: Maximum discharge, 2,520 cfs Mar. 20, 1948 (gage height, 6.90 ft); maximum gage height, 8.06 ft Mar. 28, 1950 (backwater from ice); minimum discharge recorded, 38 cfs June 7, 1947.

Remarks.--Records good. Considerable diurnal fluctuation caused by powerplants above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.1	114	3.0	760
1.5	213	3.5	960
2.0	372	4.0	1,160
2.5	560	4.5	1,360

Discharge, in cubic feet per second, March to December 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				200	264	213	150	160	168	267	202	312
2				202	254	210	*143	*160	168	242	176	219
3				205	261	200	143	173	168	225	181	205
4				219	279	186	150	168	148	230	178	205
5				286	279	213	134	165	191	222	191	200
6				502	276	264	146	150	208	213	183	200
7				824	279	258	158	181	213	210	186	222
8				1040	254	222	163	213	216	202	*186	202
9				1090	258	205	163	189	197	228	191	191
10				832	*251	222	168	200	208	213	191	191
11				952	242	210	141	178	213	*194	189	213
12				1240	239	186	141	168	186	213	216	376
13				960	228	183	148	158	178	197	258	498
14				648	222	176	168	153	186	194	258	459
15				521	216	181	178	155	200	200	228	355
16				444	242	168	150	155	*202	200	233	
17				386	248	165	181	163	202	200	236	
18				352	267	165	173	186	219	213	208	
19				318	267	186	170	183	267	216	208	
20				318	258	165	173	170	396	219	197	
21				322	251	165	158	163	444	248	194	
22				308	270	163	163	153	352	233	191	
23				305	258	228	150	160	289	222	200	
24				295	230	197	176	153	270	210	200	
25				318	228	186	168	155	254	205	205	
26				386	225	165	163	158	236	202	248	
27				376	267	165	163	155	219	178	299	
28				335	254	160	153	168	248	202	299	
29		----------		305	236	165	155	143	308	191	295	
30		----------	200	276	228	163	148	153	295	197	299	
31		----------	200	----------	216	----------	163	165	----------	200	----------	
Total				14,765	7,747	5,735	4,901	5,154	7,049	6,586	6,526	
Mean				492	250	191	158	166	235	212	218	
Cfsm				1.81	0.919	0.702	0.581	0.610	0.864	0.779	0.801	
In.				2.02	1.06	0.78	0.67	0.70	0.96	0.90	0.89	

* Discharge measurement made on this day.

4-852. Kewaunee River near Kewaunee, Wis.

Location.--Lat 44°27'30", long 87°33'23", in SW 1/4 sec. 14, T. 23 N., R. 24 E., on left bank just downstream from bridge on County Trunk F, 0.4 mile west of junction with County Trunk C, and 2.3 miles west of Kewaunee.

Drainage area.--129 sq mi.

Records available.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1963-64. September 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Apr. 3, 1957, to Sept. 2, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 2,980 cfs Apr. 12 (gage height, 13.84 ft). During periods Sept. 1 to Nov. 11, 1964 and Apr. 6 to Nov. 9, 1965, maximum discharge that of Apr. 12; minimum discharge, 5.9 cfs July 29, 30 (gage height, 8.08 ft).
1958-65: Maximum discharge, 6,500 cfs Mar. 30, 1960 (gage height, 16.03 ft).

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.0	5.2	8.6	38	10.5	427
8.1	8.6	9.0	84	11.0	632
8.4	24	9.5	164	12.0	1,200
		10.0	272	13.0	2,030

Discharge, in cubic feet per second, September to November 1964 and April to November 1965

Day	Sept.	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	12	20	13			75	39	9.9	20	16	249	31
2	*12	18	14			74	46	9.5	16	13	175	30
3	16	16	21			69	36	9.5	12	12	115	30
4	81	14	22			70	30	9.0	*11	11	85	29
5	74	14	21			63	27	8.6	11	12	66	28
6	40	14	20		762	56	29	8.3	11	12	57	27
7	25	*13	19		1,980	52	30	8.6	11	14	49	27
8	31	14	17		1,050	58	27	8.6	28	20	48	29
9	104	14	16		445	97	25	8.6	25	30	51	*32
10	85	14	16		353	94	24	8.3	19	54	52	
11	58	14	*16		1,070	70	22	7.9	15	43	48	
12	40	14			2,020	*55	20	7.6	13	31	44	
13	29	14			480	44	20	8.3	11	24	*39	
14	23	14			236	36	19	9.5	9.9	24	36	
15	20	13			277	34	19	8.6	9.0	*59	36	
16	18	13			242	36	17	8.3	8.6	74	36	
17	16	13			177	71	16	8.6	11	60	36	
18	16	13			185	46	16	9.0	14	51	37	
19	16	12			143	40	16	9.0	16	69	36	
20	16	12			124	34	16	8.6	14	477	40	
21	18	12			115	33	15	8.3	12	*974	91	
22	20	12			107	72	13	7.9	12	584	115	
23	25	12			100	55	21	7.6	11	216	79	
24	28	12			91	43	16	8.3	9.9	138	58	
25	27	12			92	38	14	8.3	9.5	98	48	
26	31	12			209	35	13	7.6	10	72	43	
27	34	12			164	88	12	6.6	14	57	40	
28	33	12			116	78	11	6.6	14	61	36	
29	27	12			94	67	10	6.2	13	180	34	
30	22	13			78	42	*10	5.9	14	272	32	
31	------	13	------	------	------	35	------	9.5	16	------	32	------
Total	997	417				1,760	629	257.1	420.9	3,758	1,943	
Mean	33.2	13.5				56.8	21.0	8.29	13.6	125	62.7	
Cfsm	0.257	0.105				0.440	0.163	0.064	0.105	0.969	0.486	
In.	0.29	0.12				0.51	0.18	0.07	0.12	1.08	0.56	

* Discharge measurement made on this day.

5-3353.8 Bashaw Brook near Shell Lake, Wis.

Location.--Lat 45°47'02", long 92°07'51", in SW 1/4 sec. 8, T. 38 N., R. 14 W., at culvert on town road, 2.7 miles southeast of Hertel, and 10.5 miles northwest of Shell Lake.

Drainage area.--28.2 sq mi, of which about 2.5 sq mi is probably noncontributing.

Records available.--Annual maximum, water years 1959-65, and occasional low-flow measurements, 1962-64. June 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Sept. 25, 1958, to June 24, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 600 cfs Apr. 11 (gage height, 14.90 ft). During period Apr. 9 to Nov. 9, 1965, maximum discharge, that of Apr. 11; minimum, 4.2 cfs Sept. 4.
1958-65: Maximum discharge, that of Apr. 11, 1965.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are poor.

Discharge, in cubic feet per second, April to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.2	4.0	6.0	4.5	11	13	7.2	6.7	5.2	14	5.9	7.6
2	4.5	4.2	5.2	4.7	10	12	8.0	5.9	4.9	10	*5.9	8.1
3	4.6	4.4	5.6	5.0	9.8	12	7.6	5.7	4.8	9.0	5.9	7.8
4	4.6	4.4	5.0	5.2	9.4	11	8.8	5.7	4.4	8.2	5.7	8.1
5	4.6	4.4	5.0	5.5	9.8	10	14	5.7	4.4	8.1	5.8	7.7
6	5.0	4.6	5.3	6.7	13	11	9.6	6.7	4.4	8.0	5.8	7.1
7	5.1	4.4	5.3	7.3	*54	10	9.4	9.0	4.7	8.7	5.7	6.9
8	4.9	4.4	5.2	9.4	61	9.0	9.8	7.5	4.5	10	5.9	7.6
9	4.8	4.4	5.2	92	37	11	11	6.5	4.7	9.8	5.6	7.6
10	4.5	4.4	5.5	141	23	9.0	8.8	5.9	4.7	9.0	*6.1	6.9
11	4.4	4.3	5.2	498	16	8.0	7.8	5.6	4.5	8.2	6.1	8.4
12	4.3	4.4	5.1	354	13	7.5	7.5	5.6	4.7	8.4	6.2	10.3
13	4.3	4.3	5.0	*247	12	7.0	12	5.3	5.3	8.1	7.0	15.8
14	4.4	4.1	5.2	150	12	7.0	9.4	5.2	7.1	7.8	4.7	9.2
15	4.4	4.4	5.2	*105	13	7.0	8.1	4.8	9.6	7.6	6.4	10.9
16	4.0	4.9	5.0	80	26	*7.2	8.7	5.2	7.4	7.2	7.3	8.7
17	4.2		4.6	54	22	6.6	8.4	5.4	9.3	7.2	5.4	7.1
18	4.2		4.7	46	30	6.8	7.6	5.3	9.9	7.4	6.1	10.1
19	4.4		4.7	38	17	6.8	7.1	4.9	14	7.4	6.4	9.4
20	4.3		4.5	26	13	7.1	*7.0	4.8	13	8.1	7.2	8.1
21	4.3	4.5	4.5	23	17	6.7	6.8	4.8	9.9	7.6	8.3	9.8
22	4.4	4.8	4.8	20	24	7.0	6.7	4.8	9.4	7.1	8.3	10.3
23	4.6	4.6	4.7	20	14	7.1	6.5	4.5	8.2	7.0	6.1	11.3
24	4.4	4.3	4.7	17	12	6.7	6.3	*4.8	8.1	6.6	6.2	10.2
25	4.3	4.6	5.0	17	12	6.6	5.9	6.2	7.5	6.6	7.1	9.3
26	4.0	4.4	4.7	18	13	6.6	5.8	7.1	7.4	6.5	7.3	8.1
27	4.5	4.1	4.9	16	12	7.1	5.7	7.4	7.4	6.5	6.6	8.3
28	4.4	4.2	5.0	14	12	8.1	5.7	6.3	9.3	6.2	5.0	6.2
29	4.0	-------	4.6	12	12	7.4	5.7	5.8	*13	6.2	5.1	5.9
30	4.5	-------	4.7	12	11	7.2	6.7	6.1	16	6.2	5.4	8.6
31	4.1	-------	5.5	--------	11	--------	7.2	5.6	--------	6.2	--------	9.4
Total					562.0	249.5	246.8	180.8	227.7	244.9		
Mean					18.1	8.32	7.96	5.83	7.59	7.90		
Cfsm					0.642	0.295	0.282	0.207	0.269	0.280		
In.					0.74	0.33	0.33	0.24	0.30	0.32		

* Discharge measurement made on this day.
Note.--Doubtful gage-height record May 13-26, June 19 to July 19. No gage-height record May 27 to June 15.

* Part of values obtained from Bashaw Br - Namekagon R correlation sheet.

5-3596. Price Creek near Phillips, Wis.

Location.--Lat 45°43'33", long 90°40'12", in SW 1/4 sec. 31, T. 38 N., R. 2 W., on left bank just upstream from section-plate pipe-arch culvert on County Trunk W, 13 miles west of Phillips.

Drainage area.--14.7 sq mi.

Records available.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1961-64. June 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Aug. 16, 1957, to June 22, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 178 cfs Apr. 19 (gage height, 12.73 ft). During period Apr. 19 to Nov. 12, 1965, maximum discharge, that of Apr. 19; minimum, 1.4 cfs Aug. 21, 24, 25.
1958-65: Maximum discharge, 400 cfs Sept. 22, 1959 (gage height, 15.78 ft).

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.6	0.6	9.0	9.2
8.7	1.8	11.0	96
8.8	3.6	13.0	192

Discharge, in cubic feet per second, April to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					52	32	5.0	3.6	4.5	35	5.0	
2					49	30	9.2	5.0	4.0	32	*4.8	
3					48	26	8.5	4.8	3.8	28	4.2	
4					42	23	8.2	4.2	3.8	*25	4.2	
5					39	28	7.9	3.8	3.8	23	4.2	
6					39	32	6.7	4.5	3.4	21	4.0	
7					57	30	6.4	19	3.4	21	4.0	
8					78	29	6.1	15	3.6	24	4.8	
9					97	26	8.2	12	3.8	23	4.8	
10					101	22	7.6	9.2	4.0	20	4.8	
11					*90	20	6.4	7.3	3.6	17	5.0	
12					81	18	5.5	4.8	3.4	15	8.2	
13					68	14	6.1	3.6	3.8	14	*	
14				*	58	12	5.5	2.8	4.0	13		
15				*	58	10	4.8	2.1	5.0	12		
16					83	9.6	4.5	1.8	4.5	11		
17					85	8.8	6.4	2.1	7.9	9.9		
18					83	8.2	6.7	1.8	9.2	9.2		
19				173	75	7.6	6.7	1.6	15	8.8		
20				168	64	7.9	5.5	1.5	20	8.5		
21				*165	55	7.9	5.0	1.5	23	8.2		
22				154	48	*8.2	4.5	1.8	22	7.6		
23				144	40	8.8	4.2	1.5	21	7.0		
24				128	34	8.2	*4.5	1.4	23	6.7		
25				113	32	7.0	4.0	1.5	21	6.1		
26				105	34	5.8	3.6	2.1	19	6.1		
27				98	33	5.5	3.2	*2.4	17	5.8		
28				86	30	8.5	3.0	2.8	26	5.0		
29		------		73	28	7.3	3.0	2.4	33	5.2		
30		-------		63	26	7.6	3.8	3.6	34	5.0		
31		------		-------	24	-------	6.7	5.5	-------	5.0	-------	
Total					1,731	468.9	177.4	137.0	353.5	438.1		
Mean					55.8	15.6	5.72	4.42	11.8	14.1		
Cfsm					3.80	1.06	0.389	0.301	0.803	0.959		
In.					4.38	1.19	0.45	0.35	0.89	1.11		

* Discharge measurement made on this day.

5-3809. Poplar River near Owen, Wis.

Location.--Lat 44°53'10", long 90°34'17", in NW 1/4 sec. 25, T. 28 N., R. 2 W., at bridge on County Trunk N, 4 1/4 miles south of Owen.

Drainage area.--159 sq mi.

Records available.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1962-64. July 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. May 17, 1957, to July 14, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 5,750 cfs Apr. 11 (gage height, 17.95 ft). During period Apr. 11 to Nov. 15, 1965, maximum discharge, that of Apr. 11; minimum, 3.1 cfs Aug. 25, (gage height, 7.25 ft).
1958-65: Maximum discharge, 8,250 cfs June 5, 1958 (gage height, 19.46 ft).

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 25-29)

7.2	1.8	7.7	26	11	716
7.3	4.4	8.0	52	13	1,700
7.4	8.5	8.5	113	16	3,880
7.5	14	9.0	198	19	7,000
		10	411		

Discharge, in cubic feet per second, April to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					130	1,000	20	98	106	362	18	
2					122	1,450	36	62	71	196	17	
3					134	326	30	47	42	122	17	
4					168	102	25	38	27	87	16	
5					131	132	83	27	19	67	16	
6					198	408	79	21	15	54	15	
7					234	250	61	33	14	53	15	
8					144	113	62	51	12	79	16	
9					142	74	267	47	13	118	19	
10					225	49	163	33	14	112	19	
11				5,100	128	33	80	24	15	77	19	
12				4,170	83	26	*51	18	16	56	53	
13				1,530	58	21	44	13	17	44	292	
14				1,060	42	*18	40	11	17	37	236	
15				891	38	16	33	9.0	20	37	*131	
16				667	233	14	35	7.5	24	38		
17				489	414	12	105	*7.0	25	36		
18				654	226	11	136	5.3	24	*34		
19				579	232	9.0	96	6.1	174	33		
20				429	122	9.5	69	5.7	573	51		
21				372	73	10	49	4.7	*570	87		
22				388	52	12	36	4.1	411	68		
23				344	41	16	29	3.8	262	51		
24				280	34	29	25	3.2	181	39		
25				306	33	27	21	3.5	128	33		
26				*1,080	452	21	16	4.1	96	28		
27				2,000	851	18	14	4.1	76	26		
28				681	328	19	12	5.7	174	24		
29		------		304	144	16	10	8.5	812	20		
30		------		177	85	14	15	12	720	19		
31		------		------	56	-------	65	62	-------	18	-------	
Total					5,353	4,255.5	1,807	679.3	4,668	2,106		
Mean					173	142	58.3	21.9	156	67.9		
Cfsm					1.09	0.893	0.367	0.138	0.981	0.427		
In.					1.25	1.00	0.42	0.16	1.09	0.49		

* Discharge measurement made on this day.

5-3871. North Fork Bad Axe River near Genoa, Wis.

Location.--Lat 43°33'10", long 91°08'58", in SW 1/4 sec. 36, T. 13 N., R. 7 W., at bridge on State Highway 56, 4.1 miles southeast of Genoa.

Drainage area.--80.7 sq mi.

Records available.--Annual maximum, water years 1959-65, and occasional low-flow measurements, water years 1961, 1963-64. July 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. May 21, 1958, to July 23, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum stage during water year, 15.91 ft Mar. 5 (discharge not determined). During period Mar. 31 to Nov. 27, 1965, maximum discharge, 1,050 cfs Apr. 11 (gage height, 13.86 ft); minimum, 25 cfs Aug. 5, 6, 23-25, 28, 29.
1959-65: Maximum stage, 19.56 ft Aug. 27, 1959 (discharge not determined).

Remarks.--Records good except those for period of no gage-height record, which are fair.

Discharge, in cubic feet per second, March to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17	17	*360	300	40	33	27	27	28	50	35	29
2	17	11	1000	163	39	32	27	26	26	44	35	29
3	18	11	720	206	38	32	27	26	26	41	35	29
4	21	11	160	680	38	32	27	26	26	40	34	27
5	21	13	400	398	50	35	27	26	26	38	34	22
6	32	48	860	293	45	36	28	25	26	37	34	20
7	49	37	270	105	39	33	28	81	32	36	36	21
8	95	95	380	334	39	32	43	125	29	35	35	23
9	25	56	83	227	47	31	39	41	471	38	34	29
10	17	54	58	105	40	31	30	30	*192	36	34	25
11	13	76	48	559	*38	30	29	28	57	34	35	66
12	14	38	40	439	36	30	28	28	47	32	62	83
13	13	23	34	102	35	30	29	27	44	31	44	92
14	11	19	30	79	35	30	28	26	43	31	38	52
15	11	18	33	71	35	*29	28	26	44	35	38	40
16	13	16	30	62	42	28	28	26	42	33	37	31
17	14	15	29	60	36	28	27	27	96	35	36	29
18	15	12	26	57	42	29	27	28	57	32	36	27
19	15	15	25	53	38	28	27	27	366	31	36	26
20	16	19	25	50	34	28	27	26	159	31	36	28
21	17	32	24	49	34	28	27	26	102	37	36	26
22	17	25	23	47	33	30	*27	26	61	44	36	24
23	17	19	23	46	33	29	27	26	52	40	36	57
24	16	16	23	50	33	28	27	*25	48	38	36	33
25	15	15	23	62	33	28	27	26	45	37	36	29
26	14	15	23	58	83	28	26	29	43	*36	44	23
27	16	19	23	47	43	28	26	26	42	36	39	23
28	13	95	23	46	37	28	26	26	223	36	33	29
29	12	-------	23	43	35	28	26	25	*155	36	37	29
30	11	-------	95	41	34	28	26	28	62	36	*36	51
31	11	-------	*133	------	34	------	26	29	------	35	------	33
Total				4,832	1,218	900	872	994	2,670	1,131		
Mean				161	39.3	30.0	28.1	32.1	89.0	36.5		
Cfsm				2.00	0.487	0.372	0.348	0.398	1.10	0.452		
In.				2.23	0.56	0.41	0.40	0.46	1.23	0.52		

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 5-25.

* period values obtained from N. Fork Bad Axe R. - Kiggo Cr. correlation curve.

[1-8 Mark values from N.F. B. Axe - Kickapoo R. interchange correlation curve]

5-3923.5 Bearskin Creek near Harshaw, Wis.

Location.--Lat 45°38'43", long 89°41'12", in SW 1/4 sec. 36, T. 37 N., R. 6 E., upstream from twin corrugated culverts on County Trunk K, 2 1/8 miles southwest of Harshaw, and 13 miles west of Rhinelander.

Drainage area.--32.4 sq mi.

Records available.--Annual maximum, water years 1958-65, and occasional low-flow measurements water years 1963-64. June 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Aug. 18, 1957, to June 18, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 115 cfs May 22 (gage height, 10.15 ft). During period Apr. 14 to Nov. 13, 1965, maximum discharge that of May 22; minimum, 21 cfs July 29, 30 (gage height, 8.66 ft).
1958-65: Maximum discharge, 115 cfs May 22, 1965 (gage height, 10.15 ft).

Remarks.--Records good, except those above 70 cfs, which are fair.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.5	14
9.0	38
9.4	62
9.9	96

Discharge, in cubic feet per second, April to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					49	47	35	30	26	37	28	
2					49	43	35	28	24	43	28	
3					50	38	31	28	24	43	28	
4					46	35	28	27	24	39	28	
5					38	32	26	27	25	36	28	
6					35	31	23	28	24	34	28	
7					34	32	22	30	24	31	27	
8					39	36	22	28	24	30	28	
9					52	*34	23	28	25	30	28	
10					50	32	23	27	25	30	28	
11					45	34	22	27	25	29	28	
12					41	36	23	26	25	29	32	
13				*	36	36	24	26	25	29	36	
14				50	33	34	25	26	25	29		
15				*65	39	31	24	25	25	30		
16				56	57	30	22	25	25	29		
17				51	49	28	23	*26	27	30		
18				50	43	28	23	25	27	30		
19				49	40	27	24	25	29	30		
20				49	38	28	*24	24	33	30		
21				52	37	27	23	23	33	29		
22				50	90	27	22	23	31	29		
23				51	88	28	22	23	30	29		
24				48	56	28	23	24	29	28		
25				47	47	28	23	24	28	28		
26				51	55	27	23	24	27	28		
27				52	50	26	23	26	26	*28		
28				*48	47	28	22	26	*33	28		
29		--------		47	46	26	21	25	39	28		
30		-------		47	44	33	22	26	38	28		
31		--------		--------	42	--------	28	28	--------	28	--------	
Total					1,465	950	754	808	825	959		
Mean					47.3	31.7	24.3	26.1	27.5	30.9		
Cfsm					1.46	0.978	0.750	0.805	0.849	0.954		
In.					1.68	1.09	0.87	0.93	0.95	1.10		

* Discharge measurement made this day.

5-4042. Narrows Creek at Loganville, Wis.

Location.--Lat. 43°26'32", long 90°02'06", in SE 1/4 sec. 8, T. 11 N., R. 4 E., at bridge on State Highways 23 and 154, 1/4 mile north of Loganville.

Drainage area.--40.0 sq mi.

Records available.--Annual maximum, water year 1958-65, and occasional low flow measurements, water years 1961-65. June 1964 to December 1965, fragmentary.

Gage.--Water-stage recorder and crest-stage gage. March 4, 1957, to June 10, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum gage height during water year, 15.66 ft Sept. 17 (discharge not determined).
1958-65: Maximum stage, 15.90 ft May 7, 1960 (discharge not determined).

Remarks.--Records good.

Discharge, in cubic feet per second, for periods during 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				*198				2.7			7.3	8.9
2				*220				2.2			7.3	*8.9
3				72				2.0			7.6	
4				308				2.1			7.1	
5				114				2.1			7.1	
6				121				2.0			7.3	
7				53				2.9			9.1	
8				46				70			8.6	
9								39			7.6	
10								6.8	*		7.6	
11				69				5.0	39		7.8	
12								4.5	25		33	
13								4.0	19		20	
14					*			3.8	18		12	
15			8.4					3.4	20		12	
16			8.4					3.6	14		12	
17			8.1					4.7	373		10	
18			10					6.3	86		10	
19			15					10	87		11	
20			9.4					5.4	286		10	
21			8.1					4.5	292		11	
22			7.6					5.0	75	10	10	
23			6.3			*		4.5	41	9.4	9.4	
24			5.6					4.0	28	8.6	9.4	
25			5.6					4.3	23	8.1	13	
26			5.4					*7.3	18	8.1	38	
27			5.4				*1.8		*15	7.6	22	
28			5.2				1.8		141	*7.3	14	
29		-------	5.9				1.7			7.8	9.8	
30		-------	34				1.8			7.8	9.1	
31		-------	229	-------		-------	2.2		-------	7.6	-------	
Total											360.1	
Mean											12.0	
Cfsm											0.300	
In.											0.33	

* Discharge measurement made on this day.

5-4134. Pigeon Creek near Lancaster, Wis.

Location.--Lat 42°49'00", long 90°43'20", in SW 1/4 sec. 15, T. 4 N., R. 3 W., at culvert on county road, 2 miles scuth of Lancaster.

Drainage area.--6.90 sq mi.

Records available.--Annual maximum, water years 1960-65, and occasional low-flow measurements 1961, 1963-64. July 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. July 23, 1959, to July 30, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 491 cfs Mar. 1 (gage height, 13.00 ft). During period June to November 1965, maximum discharge, 459 cfs Sept. 9 (gage height, 12.82 ft); minimum 0.3 cfs Aug. 2, 3 (gage height 8.89 ft).
1960-65: Maximum discharge, 1,100 cfs Jan. 12, 1960 (gage height, 16.14 ft).

Remarks.--Records fair.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.87	0.4	9.2	9.7
8.9	1.0	9.5	23
9.0	3.2	9.8	41.2

Discharge, in cubic feet per second, June to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1							0.8	0.4	*2.1	3.2	1.4	
2				*			.6	.4	1.7	3.0	1.4	
3							.8	1.2	1.2	2.8	1.2	
4							.8	.8	1.9	2.8	1.7	
5							.8	1.0	1.9	2.8	1.7	
6							1.0	1.0	3.9	3.2	1.7	
7							1.2	1.0	*7.9	3.5	1.2	
8							1.0	2.4	2.8	3.2	1.2	
9							3.5	2.1	37	2.8	1.2	
10							1.2	1.0	8.7	2.6	1.2	
11							.8	1.2	4.0	2.6	1.4	
12							.8	1.2	3.2	2.6	4.6	
13							.8	1.2	2.8	2.8	1.2	
14							.8	1.2	3.5	2.8	.8	
15							.6	1.0	2.8	3.0	1.0	
16			*				.8	1.7	2.6	3.0	1.2	
17							.8	3.2	2.6	2.6	*1.7	
18							.8	6.0	2.6	1.9		
19							.8	2.4	13	1.9		
20					*		.8	1.0	15	*1.7		
21				*			*1.0	1.0	18	4.6		
22						*1.2	.8	1.7	*9.4	2.6		
23						1.0	.8	1.2	6.9	1.9		
24						1.0	.8	1.2	5.9	1.7		
25						1.0	.8	3.0	4.6	1.7		
26						1.0	1.0	3.2	4.0	1.4		
27						1.0	1.0	3.5	4.9	1.4		
28						1.4	.8	1.9	4.0	1.4		
29		-------				1.4	.8	1.7	3.8	1.4		
30		-------				1.2	1.0	11	3.5	1.4		
31		--------		--------		--------	2.8	3.0	--------	1.4	--------	
Total							31.3	63.8	186.2	75.7		
Mean							1.01	2.06	6.21	2.44		
Cfsm							0.146	0.299	0.900	0.354		
In.							0.17	0.34	1.00	0.41		

* Discharge measurement made on this day.

5-4278. Token Creek near Madison, Wis.

Location.--Lat 43°10'52", long 89°19'28", in SW 1/4 sec. 4, T. 8 N., R. 10 E., at culvert on U. S. Highway 51, 8 miles northeast of State Capitol Building in Madison.

Drainage area.--24.4 sq mi.

Records available.--Annual maximum and occasional low-flow measurements, water years 1961-65. July 1964 to December 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Oct. 25, 1960, to July 27, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 363 cfs Mar. 2 (gage height, 12.80 ft). During period Apr. 1-4, Apr. 29 to Dec. 17, 1965, maximum discharge, 143 cfs Sept. 21 (gage height, 11.23 ft), and minimum daily, 10 cfs July 25-30, Aug. 2-5, 12-15. 1961-65: Maximum discharge, that of Mar. 2, 1965.

Remarks.--Records fair.

Discharge, in cubic feet per second, April to December 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				70	15	*15	12	11	12	23	14	13
2				62	14	16	12	10	12	19	14	13
3				66	14	15	12	10	11	16	*14	14
4				61	14	14	12	10	14	16	13	14
5				38	16	14	11	10	19	15	14	14
6		38		40	15	17	12	11	14	15	13	14
7		45		30	15	17	14	11	*52	15	14	13
8		27		25	15	15	12	14	27	*16	14	13
9					15	14	13	14	34	15	14	13
10		53		21	15	14	13	*12	82	15	14	14
11		38		29	15	13	12	11	36	15	14	23
12				23	14	13	11	10	19	14	16	26
13					15	13	*11	10	15	14	15	23
14					14	13	11	10	*15	14	15	18
15				19	15	12	11	10	14	13	14	16
16					15	12	15	12	13	14	14	15
17					15	12	22	15	14	15	14	*15
18				17	15	12	14	16	13	15	14	
19				17	15	12	13	15	23	14	14	
20		26		16	16	13	12	13	61	15	14	
21					15	13	11	12	100	19	14	
22					15	14	11	12	46	21	14	
23				19.7	15	14	11	12	26	17	14	
24					15	13	11	11	19	15	14	
25					15	12	10	12	17	15	14	
26					16	12	10	13	16	15	18	
27					16	12	10	13	16	14	17	
28					15	12	10	12	24	14	15	
29				*15	15	12	10	11	23	14	14	
30				15	15	12	10	13	21	13	14	
31					15		11	13		14		
Total					464	402	370	369	808	479	430	
Mean					15.0	13.4	11.9	11.9	26.9	15.5	14.3	
Cfsm					0.615	0.549	0.488	0.488	1.10	0.635	0.586	
In.					0.71	0.61	0.56	0.56	1.23	0.73	0.66	

* Discharge measurement made this day.

5-5453. White River near Burlington, Wis.

Location.--Lat 42°39'57", long 88°19'03", in NW 1/4 sec. 1, T. 2 N., R. 18 E., on right bank near bridge on State Highway 36, 2 1/4 miles southwest of Burlington.

Drainage area.--105 sq mi.

Records available.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1961-64. August 1964 to November 1965, seasonal records.

Gage.--Water-stage recorder and crest-stage gage. Prior to Aug. 13, 1964, crest-stage gage only.

Extremes.--1964-65: Maximum discharge during water year, 560 cfs Apr. 3 (gage height 11.52 ft). During period Mar. 30 to Nov. 11, 1965, maximum gage height, 13.43 ft Oct. 21 (discharge not determined), and minimum discharge 2.3 cfs July 4 (gage height, 7.79 ft). 1958-65: Maximum gage height, 13.49 ft Mar. 30, 1960 (discharge not determined).

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.79	3.4	10.0	278
8.0	16	10.5	351
8.3	41	11.0	429
8.6	81	11.5	545
9.0	137	12.0	855
9.5	208	12.6	1,270

Discharge, in cubic feet per second, March to November 1965

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				267	92	23	5.2	15	119	88	101	
2				400	74	27	4.6	9.4	129	68	95	
3				418	61	24	3.4	8.2	68	54	89	
4				270	57	19	3.4	8.2	37	46	84	
5				256	70	19	7.0	8.8	112	42	81	
6				399	77	74	8.2	7.6	136	43	81	
7				346	71	56	14	8.2	171	42	152	
8				277	78	39	*12	16	*214	47	109	
9				270	84	34	9.4	74	216	47	92	
10				249	82	30	7.6	36	380	46	84	
11				263	73	27	7.0	19	348	41	*82	
12				253	61	25	5.8	*13	265	37		
13				218	77	22	5.8	9.4	215	34		
14				186	91	*18	8.8	7.0	188	31		
15				200	91	16	6.4	6.4	176	*30		
16				200	99	14	11	7.6	166	30		
17				180	101	8.8	21	23	165	92		
18				165	88	11	14	37	168	82		
19				154	41	9.4	8.2	43	166	64		
20				130	29	10	7.6	26	233	68		
21				112	26	11	6.4	21	325	525		
22				89	26	8.2	5.8	18	314	1,210		
23				80	25	9.4	5.8	13	302	402		
24				117	30	7.6	5.2	12	243	222		
25				207	30	5.2	4.6	13	211	152		
26				275	34	4.6	4.6	45	200	144		
27				230	45	4.6	4.6	71	188	137		
28				200	39	4.6	4.0	112	133	133		
29		-------		*186	29	5.8	4.6	154	80	122		
30		-------	67	157	24	5.8	*6.4	133	82	112		
31		-------	117	-------	22	-------	8.8	117	-------	106	-------	
Total				6,754	1,827	573.0	231.2	1,091.8	5,750	4,297		
Mean				225	58.9	19.1	7.46	35.2	192	139		
Cfsm				2.14	0.561	0.182	0.071	0.335	1.83	1.32		
In.				2.39	0.65	0.20	0.08	0.39	2.04	1.52		

* Discharge measurement made on this day.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are give in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site. Measurements were not made at all sites of the low-flow network in water year 1965. However, for convenience to the user of the data the sites are listed with an appropriate footnote to indicate no measurement.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Superior				
*4-0263	Sioux River near Washburn, Wis.	NE 1/4 sec. 35, T. 49 N., R. 5 W., at twin concrete box culvert on County Trunk C, 2 1/4 miles west of Washburn.	17.5	1962-65		b
*4-0264	Spillieberg Creek near Cayuga, Wis.	NW 1/4 sec. 21, T. 43 N., R. 2 W., at concrete culvert pipe on State Highway 13, 4 1/4 miles southeast of Cayuga.	a 6.6	1961-65	6-21-65 7-23-65	1.60 2.28
*4-0272	Pearl Creek at Grandview, Wis.	NE 1/4 sec. 22, T. 45 N., R. 6 W., at box culvert on U. S. Highway 63, 0.8 mile east of Grandview.	15.9	1961-65	11- 9-64 6-17-65 7-22-65 8-26-65	7.21 9.20 7.21 8.47
*4-0297	Boomer Creek near Saxon, Wis.	N 1/2 sec. 3, T. 46 N., R. 1 E., at concrete culvert pipe on U. S. Highway 2, 3 miles east of Saxon.	6.73	1961-64		c
		Streams tributary to Lake Michigan				
*4-0599	Allen Creek tributary near Alvin, Wis.	North boundary sec. 7, T. 40 N., R. 14 E., at culvert on State Highway 70, 2.2 miles southeast of Alvin.	a 1.9	1963-65	10- 7-64 7-21-65	1.17 1.92
*4-0638	Woods Creek near Fence, Wis.	SE 1/4 sec. 29, T. 39 N., R. 17 E., at box culvert on State Highway 101, 6 miles north of Fence.	42.3	1961 1963-65	10-21-64	15.9
*4-0663	Cole Creek near Dunbar, Wis.	South boundary sec. 34, T. 37 N., R. 19 E., at culvert on U. S. Highway 8, 3.6 miles southeast of Dunbar	a 3.2	1961 1963-65	10-21-64	.94
*4-0678	Armstrong Creek near Armstrong Creek, Wis.	W 1/2 sec. 27, T. 37 N., R. 16 E., at bridge on U. S. Highway 8, 1 3/4 miles northwest of Armstrong Creek.	23.1	1963-65	10-21-64 6-22-65	7.80 7.94
*4-0718	Pensaukee River near Pulaski, Wis.	NE 1/4 sec. 1, T. 26 N., R. 18 E., at bridge on State Highway 32, 6.1 miles north of Pulaski.	43.2	1961 1963-65	10-19-64	1.32
4-0724	Fox River near Pardeeville, Wis.	NE 1/4 sec. 30, T. 13 N., R. 11 E., at culvert on State Highway 44, 4.5 miles northeast of Pardeeville.	41.1	1962-65	10-13-64 7-30-65	3.18 .61
4-0727	Neenah Creek near Briggsville, Wis.	NW 1/4 sec. 28, T. 14 N., R. 8 E., at bridge on State Highway 23, 1.8 miles northeast of Briggsville.	75.0	1962-65	8-24-65	38.2[1]
4-0729.5	Grand River at Markesan, Wis.	NE 1/4 sec. 8, T. 14 N., R. 13 E., at bridge on country road, 1.2 miles southeast of Markesan.	40.2	1962-65	10-14-64 7-30-65	0 0

* Also crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan--Continued				
4-0731	Belle Fountain Creek near Kingston, Wis.	NE 1/4 sec. 17, T. 14 N., R. 11 E., at bridge on County Trunk B, 4.2 miles west of Kingston.	36.8	1962-65	10-14-64 7-30-65	5.15 1.70
4-0733	Chaffee Creek near Neshkoro, Wis.	NE 1/4 sec. 18, T. 17 N., R. 10 E., at bridge on country road, 6.5 miles west of Neshkoro.	a 40	1962-64		c
*4-0734	Bird Creek at Wautoma, Wis.	S 1/2 sec. 34, T. 19 W., R. 10 E., at concrete culvert on State Highway 21, 1/4 mile west of Wautoma	a 3.9	1961-65	10-23-64	8.53
4-0734.2	Lunch Creek near Neshkoro, Wis.	NE 1/4 sec. 11, T. 17 N., R. 10 E., at bridge on country road, 2.8 miles west of Neshkoro.	a 16	1962-64		c
4-0734.5	Sucker Creek near Berlin, Wis.	SW 1/4 sec. 16, T. 17 N., R. 12 E., at bridge on County Trunk D, 6.6 miles west of Berlin.	20.1	1962-64		c
*4-0747	Hunting River near Elcho, Wis.	N 1/2 sec. 24, T. 34 N., R. 10 E., at twin culverts on U. S. Highway 45 and State Highway 47, 1 1/2 miles south of Elcho.	a 6.0	1963-64		c
4-0748.5	Lily River near Lily, Wis.	SE 1/4 sec. 11, T. 33 N., R. 13 E., at bridge on County Trunk T, 3.2 miles north of Lily.	a 52	1963-64		c
*4-0752	Evergreen Creek near Langlade, Wis.	NW 1/4 sec. 18, T. 31 N., R. 14 E., at culvert on State Highway 64, 3 1/2 miles southwest of Langlade.	a 8.0	1961-65		b
4-0775.5	Red River near Antigo, Wis.	SW 1/4 sec. 14, T. 30 N., R. 12 E., at bridge on country road, 8.3 miles southeast of Antigo.	a 21	1963-64		c
4-0781	South Branch Embarrass River near Wittenberg, Wis.	SW 1/4 sec. 7, T. 27 N., R. 11 E., at bridge on State Highway 29, 2.6 miles west of Wittenberg.	a 27	1963-64		c
4-0784	North Branch Embarrass River at Bowler, Wis.	NW 1/4 sec. 6, T. 27 N., R. 13 E., at bridge on County Trunk D, 0.8 mile south of Bowler.	37.1	1962-64		c
4-0796	Little Wolf River at Galloway, Wis.	SW 1/4 sec. 23, T. 26 N., R. 10 E., at bridge on State Highway 49, 0.2 mile north of Galloway.	22.5	1962-64		c
4-0796.5	Comet Creek near Big Falls, Wis.	NE 1/4 sec. 13, T. 25 N., R. 11 E., at culvert on country road, 5.1 miles northwest of Big Falls.	38.9	1962-64		c
*4-0797	Spaulding Creek near Big Falls, Wis.	On common boundary sec. 14 and 15, T. 25 N., R. 12 E., at concrete culvert on County Trunk E, 1.5 miles north of Big Falls.	a 4.9	1962-65		b
4-0798	Whitcomb Creek near Big Falls, Wis.	NW 1/4 sec. 9, T. 24 N., R. 13 E., at bridge on County Trunk OO, 5.3 miles southeast of Big Falls.	25.2	1962-64		c
4-0799	Peterson Creek near Scandinavia, Wis.	SE 1/4 sec. 28, T. 23 N., R. 11 E., at bridge on County Trunk Q, 2.1 miles southwest of Scandinavia.	21.2	1962-64		c
4-0808	Tomorrow River near Nelsonville, Wis.	NW 1/4 sec. 31, T. 24 N., R. 10 E., at culvert on County Trunk Q, 1.8 miles northwest of Nelsonville.	a 43	1962-64		c
*4-0810	Waupaca River near Waupaca, Wis.	On north line of sec. 1, T. 21 N., R. 12 E., at bridge on county road, 4 miles upstream from Weyauwega Lake Dam, 4.5 miles southeast of Waupaca.	272	1916-63≠ 1964-65		b
4-0811	Little River near Weyauwega, Wis.	SW 1/4 sec. 16, T. 21 N., R. 13 E., at bridge on U. S. Highway 10, 2.2 miles south of Weyauwega.	a 54	1963-64		c
4-0814.5	Willow Creek near Redgranite, Wis.	NW 1/4 sec. 12, T. 18 N., R. 11 E., at bridge on County Trunk S, 2.1 miles northwest of Redgranite.	33.6	1962-65	8-25-65	35.4

* Also a crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.
≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan--Continued				
4-0830	West Branch Fond du Lac River at Fond du Lac, Wis.	On common boundary sec. 17 and 20, T. 15 N., R. 17 E., at bridge on County Trunk T. 0.7 mile west of Fond du Lac.	84.5	1939-54≠ 1962-65	10-14-64 7-29-65	d .01 0
4-0835	East Branch Fond du Lac River at Fond du Lac, Wis.	SW 1/4 sec. 22, T. 15 N., R. 17 E., at bridge on town road, 1/2 mile south of Fond du Lac.	77.9	1939-54≠ 1962-65	10-14-64 7-29-65 8-27-65	2.45 1.08 1.64
*4-0850.3	Apple Creek near Kaukauna, Wis.	West Boundary sec. 2, T. 21 N., R. 18 E., at bridge on State Highway 55, 3 1/2 miles northeast of Kaukauna.	14.6	1963-65	8- 4-65	0
*4-0852	Kewaunee River near Kewaunee, Wis.	SW 1/4 sec. 14, T. 23 N., R. 24 E., at bridge on County Trunk F, 2.3 miles west of Kewaunee.	129	1963-65		b
*4-0854	Killsnake River near Chilton, Wis.	E 1/2 sec. 6, T. 18 N., R. 20 E., at bridge on country road, 2.4 miles northeast of Chilton.	29.5	1963-65	10- 7-64 6-20-65	.36 .46
4-0854.8	Sheboygan River near Fond du Lac, Wis.	SW 1/4 sec. 32, T. 16 N., R. 19 E., at bridge on County Trunk W, 10.2 miles east of Fond du Lac.	27.9	1962-65	10-14-64 7-29-65	2.25 0
*4-0857	Sheboygan River tributary near Plymouth, Wis.	On common boundary sec. 2 and 11, T. 15 N., R. 21 E., at concrete culvert on County Trunk J, 3 1/2 miles northeast of Plymouth.	5.51	1961-65	10- 7-64 6-30-65 7-29-65	1.52 1.51 1.13
4-0860.2	Sauk Creek at Port Washington, Wis.	SW 1/4 sec. 16, T. 11 N., R. 22 E., at bridge on country road, 1.8 miles north of Port Washington.	30.2	1962-65	10-13-64 7-29-65	1.38 0
4-0861	Milwaukee River at Campbellsport, Wis.	SE 1/4 sec. 7, T. 13 N., R. 19 E., at bridge on private road, 0.7 mile northeast of Campbellsport.	50.1	1962-65	10-14-64 7-29-65	3.18 .24
4-0863	North Branch Milwaukee River near Cascade, Wis.	SW 1/4 sec. 8, T. 13 N., R. 21 E., at bridge on County Trunk A, 4.1 miles south of Cascade.	37.1	1962-65	10-14-64 7-29-65	15.2 7.40
4-0870.2	Menomonee River at Menomonee Falls, Wis.	SE 1/4 sec. 33, T. 9 N., R. 20 E., at culvert on County Trunk Q, 1.2 miles northwest of Menomonee Falls.	32.0	1962-65	10-13-64 7-29-65	2.82 2.47
*4-0870.5	Little Menomonee River near Freistadt, Wis.	On common boundary sec. 29 and 32, T. 9 N., R. 21 E., at bridge on Donges Bay Road, 2 miles south of Freistadt.	7.96	1961-65	10-13-64 11- 4-64 7-29-65	.55 .88 .75
4-0871.5	Kinnickinnic River at Milwaukee, Wis.	SE 1/4 sec. 12, T. 6 N., R. 21 E., at bridge on So. 27th Street, in Milwaukee.	17.6	1962-65	10-14-64 7-29-65	8.51 7.09
*4-0872	Oak Creek near South Milwaukee, Wis.	On common boundary of sec. 21 and 22, T. 5 N., R. 22 E., at bridge on West Nicholson Road, 3 miles southwest of South Milwaukee.	13.9	1961-65	10-14-64 7-29-65	3.03 1.94
*4-0872.5	Pike Creek near Kenosha, Wis.	W 1/2 sec. 27, T. 2 N., R. 22 E., at box culvert on State Highway 43, 3 miles northwest of Kenosha.	7.25	1961-65	10-13-64 11- 6-64 7-29-65	.08 .05 .06
4-0872.6	Pike River near Kenosha, Wis.	SW 1/4 sec. 6, T. 2 N., R. 23 E., at bridge on County Trunk & (Meachem Road), 4.8 miles north of Kenosha.	41.0	1962-65	10-13-64 7-29-65	.24 .68
		St. Croix River Basin				
5-3321	Potato Creek at Trego, Wis.	SW 1/4 sec. 2, T. 39 N., R. 12 W., at culvert on U. S. Highways 53 and 63, 0.9 mile south of Trego.	25.7	1962-64	10- 8-63 8- 6-64	c
*5-3331	Little Frog Creek near Minong, Wis.	NW 1/4 sec. 29, T. 42 N., R. 11 W., at culvert on country road, 2 1/2 miles east of Minong.	13.6	1961 1963-65	11- 7-64 6-16-65 7-20-65 8-24-65	1.35 2.04 3.58 0.52
5-3353	Clam River near Frederic, Wis.	NW 1/4 sec. 6, T. 36 N., R. 15 W., at bridge on County Trunk W, 9.9 miles east of Frederic.	38.4	1962-64		c

* Also a crest-stage station.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.
d Estimated.
≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		St. Croix River Basin--Continued				
*5-3353.8	Bashaw Brook near Shell Lake, Wis.	SW 1/4 sec. 8, T. 38 N., R. 14 W., at box culvert on town road, 10.5 miles northwest of Shell Lake.	28.2	1962-65		b
*5-3403	Trade River near Frederic, Wis.	SW 1/4 sec. 4, T. 36 N., R. 17 W., at box culvert on State Highway 35 and 48, 2.5 miles southwest of Frederic.	5.79	1961-65	11- 6-64 6-19-65 7-19-65 8-23-65	1.76 2.85 2.25 1.66
5-3414.5	Horse Creek near Star Prairie, Wis.	SW 1/4 sec. 15, T. 32 N., R. 18 W., at culvert on County Trunk X, 5.3 miles northwest of Star Prairie.	32.6	1963-64		c
5-3416.9	Willow River near New Richmond, Wis.	SE 1/4 sec. 25, T. 31 N., R. 17 W., at bridge on State Highway 64, 6.2 miles east of New Richmond.	85.1	1962-64		c
		Trimbelle Creek Basin				
*5-3466	Little Trimbelle Creek near Bay City, Wis.	S 1/2 sec. 21, T. 25 N., R. 18 W., at bridge on County Trunk K, 7 miles northwest of Bay City.	19.9	1961 1963-65	11-10-64 6-18-65	1.16 1.47
		Chippewa River Basin				
5-3563.2	Little Weirgor Creek at Exeland, Wis.	SW 1/4 sec. 22, T. 37 N., R. 7 W., at bridge on State Highway 48, in Exeland.	a 31	1963-64		c
5-3563.4	Big Weirgor Creek near Exeland, Wis.	SE 1/4 sec. 8, T. 36 N., R. 7 W., at bridge on country road, 3.9 miles southwest of Exeland.	a 39	1963-64		c
5-3564	Thornapple River near Winter, Wis.	SE 1/4 sec. 8, T. 38 N., R. 4 W., at bridge on County Trunk W, 6.4 miles southeast of Winter.	35.7	1962-64		c
5-3564.5	Little Thornapple River near Ladysmith, Wis.	SW 1/4 sec. 22, T. 36 N., R. 6 W., at bridge on State Highway 27, 8.5 miles north of Ladysmith.	a 18	1963-64		c
5-3567	Soft Maple Creek near Bruce, Wis.	NE 1/4 sec. 21, T. 34 N., R. 8 W., at bridge on country road, 4.9 miles southwest of Bruce.	a 34	1963-64		c
*5-3596	Price Creek near Phillips, Wis.	SW 1/4 sec. 31, T. 38 N., R. 2 W., at culvert on County Trunk W, 13 miles west of Phillips.	14.7	1961-65		b
5-3597	Skinner Creek near Hawkins, Wis.	NW 1/4 sec. 23, T. 36 N., R. 3 W., at bridge on County Trunk M, 5.6 miles north of Hawkins.	30.2	1962-64		c
5-3611	Deer Trail Creek near Ladysmith, Wis.	NW 1/4 sec. 34, T. 34 N., R. 6 W., at bridge on State Highway 27, 4.9 miles south of Ladysmith.	a 52	1963-64		c
*5-3614	Hay Creek near Prentice, Wis.	SE 1/4 sec. 4, T. 35 N., R. 1 E., at culvert on U. S. Highway 8, 3.5 miles west of Prentice.	20.1	1961-65	7-23-65	1.44
5-3630	Fisher River at Holcombe, Wis.	SE 1/4 sec. 28, T. 32 N., R. 6 W., at bridge on State Highway 27, in Holcombe.	a 76	1944-45≠ 1963-64		c
5-3635	O'Neil Creek near Chippewa Falls, Wis.	Sec. 8, T. 29 N., R. 8 W., at bridge on U. S. Highway 53, 3 1/2 miles north of Chippewa Falls.	67.1	1944-45≠ 1963-64		c
*5-3640	Yellow River at Cadott, Wis.	NE 1/4 sec. 31, T. 29 N., R. 6 W., at bridge on State Highway 27, in Cadott.	351	1943-61≠ 1963-64		c
5-3641.2	Big Drywood Creek near Cadott, Wis.	SW 1/4 sec. 22, T. 29 N., R. 7 W., at bridge on country road, 4.4 miles northwest of Cadott.	35.4	1963-64		c
5-3641.6	Paint Creek near Chippewa Falls, Wis.	NE 1/4 sec. 17, T. 28 N., R. 7 W., at bridge on County Trunk K, 6.3 miles east of Chippewa Falls.	55.3	1963-64		c

* Also crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.
≠ Operated as a continuous-record gaging station.

GPO 826-838-11

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Chippewa River Basin--Continued				
5-3650	Duncan Creek at Chippewa Falls, Wis.	SW 1/4 sec. 31, T. 29 N., R. 8 W., at bridge on Irvin Park road, in Chippewa Falls.	114	1943-55≠ 1963-64		c
5-3656	South Fork Eau Claire River near Greenwood, Wis.	SW 1/4 sec. 23, T. 27 N., R. 3 W., at bridge on County Trunk M, 6.2 miles northwest of Greenwood.	77.1	1962-64		c
5-3656.5	Hay Creek near Fairchild, Wis.	NE 1/4 sec. 2, T. 25 N., R. 4 W., at bridge on County Trunk I, 8.5 miles northeast of Fairchild.	28.1	1962-64		c
*5-3657	Goggle-eye Creek near Thorp, Wis.	West boundary sec. 19, T. 29 N., R. 3 W., at culvert on State Highway 73, 1.3 miles north of Thorp.	7.04	1961-65	11- 3-64 6-15-65	.24 .28
5-3659	Wolf River near Stanley, Wis.	NW 1/4 sec. 1, T. 27 N., R. 5 W., at bridge on County Trunk H, 7.2 miles south of Stanley.	70.6	1963-64		c
5-3664	Beargrass Creek near Fall Creek, Wis.	SW 1/4 sec. 14, T. 26 N., R. 7 W., at bridge on U. S. Highway 12, 4.3 miles southeast of Fall Creek.	16.0	1962-64		c
*5-3665	Eau Claire River near Fall Creek, Wis.	NW 1/4 sec. 19, T. 27 N., R. 7 W., 500 ft east of County Trunk K, 3 1/4 miles north of Fall Creek.	747	1943-55≠ 1963-64		c
5-3670.1	Lowe Creek near Eau Claire, Wis.	NW 1/4 sec. 15, T. 26 N., R. 9 W., at bridge on County Trunk II, 4.0 miles south of Eau Claire.	53.8	1962-64		c
5-3670.6	Muddy Creek near Menomonie, Wis.	SW 1/4 sec. 19, T. 27 N., R. 11 W., at bridge on County Trunk J, 9.3 miles southeast of Menomonie.	67.1	1962-64		c
5-3674.2	Barker Creek near Cameron, Wis.	SE 1/4 sec. 24, T. 34 N., R. 12 W., at bridge on country road, 2.5 miles west of Cameron.	16.7	1963-64		c
5-3674.3	Yellow River near Cumberland, Wis.	NE 1/4 sec. 12, T. 35 N., R. 13 W., at bridge on State Highway 48, 5.2 miles east of Cumberland.	a 50	1963-64		c
5-3674.4	Vermillion River near Almena, Wis.	NW 1/4 sec. 15, T. 34 N., R. 13 W., at bridge on country road, 3.5 miles northeast of Almena.	a 17	1963-64		c
5-3674.6	Pokegama Creek near Cameron, Wis.	SW 1/4 sec. 19, T. 34 N., R. 10 W., at bridge on U. S. Highway 8, 3.6 miles east of Cameron.	a 41	1963-64		c
*5-3674.8	East Branch Pine Creek tributary near Dallas, Wis.	SW 1/4 sec. 1, T. 32 N., R. 12 W., at culvert on County Trunk O, 1.5 miles north of Dallas.	3.85	1961 1963-65	11- 6-64 7-19-65 8-23-65	1.10 1.09 1.03
5-3674.9	Lower Pine Creek at Sand Creek, Wis.	SW 1/4 sec. 14, T. 31 N., R. 11 W., at bridge on County Trunk V, 0.7 mile west of Sand Creek.	50.4	1963-64		c
5-3678	Turtle Creek near Almena, Wis.	SW 1/4 sec. 25, T. 33 N., R. 14 W., at bridge on County Trunk D, 7.0 miles south of Almena.	38.9	1963-64		c
5-3679.3	South Fork Hay River near Boyceville, Wis.	NE 1/4 sec. 23, T. 30 N., R. 14 W., at bridge on State Highway 79, 1.9 miles north of Boyceville.	90.4	1962-64		c
5-3679.7	Beaver Creek at Downing, Wis.	NW 1/4 sec. 31, T. 30 N., R. 14 W., at bridge on State Highway 170, 0.1 mile east of Downing.	17.7	1962-64		c
5-3681	Otter Creek near Wheeler, Wis.	SE 1/4 sec. 19, T. 30 N., R. 12 W., at bridge on County Trunk N, 1.7 miles northeast of Wheeler.	26.1	1962-64		c
5-3690.3	Gilbert Creek at Menomonie, Wis.	SE 1/4 sec. 27, T. 28 N., R. 13 W., at bridge on County Trunk P, 0.6 mile west of Menomonie.	36.2	1962-64		c
*5-3709	Spring Creek near Durand, Wis.	S 1/2 sec. 9, T. 24 N., R. 13 W., at bridge on country road, 4 miles south of Durand.	6.49	1962-65	10- 1-64 11-11-64 6-18-65	.90 .84 .84

* Also a crest-stage station.
a Approximately.
c No discharge measurement.
≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Waumandee Creek Basin				
*5-3782	Eagle Creek near Fountain City, Wis.	SW 1/4 sec. 33, T. 20 N., R. 11 W., at bridge on County Trunk G, 2 1/2 miles north of Fountain City.	26.8	1961 1963-65	10-21-64 5-12-65	5.00 8.02
		Black River Basin				
5-3808.2	Little Black River near Medford, Wis.	SW 1/4 sec. 1, T. 30 N., R. 1 E., at bridge on State Highway 13, 2.1 miles south of Medford.	a 58	1963-64		c
5-3808.7	Pine Creek near Medford, Wis.	SW 1/4 sec. 19, T. 30 N., R. 1 W., at bridge on County Trunk DD, 11.8 miles southwest of Medford.	34.3	1962-64		c
*5-3809	Poplar River near Owen, Wis.	NW 1/4 sec. 25, T. 28 N., R. 2 W., at bridge on County Trunk N, 4 1/4 miles south of Owen.	159	1962-65		b
*5-3809.7	Gawley Creek near Neillsville, Wis.	SW 1/4 sec. 25, T. 25 N., R. 2 W., at bridge on State Highway 73, 3.7 miles north of Neillsville.	38.6	1962-65	11- 2-64 6-14-65 8-16-65	2.61 2.19 1.00
5-3811.5	East Fork Black River near Pittsville, Wis.	SW 1/4 sec. 19, T. 23 N., R. 2 E., at bridge on State Highway 73, 9.1 miles west of Pittsville.	37.2	1962-64		c
5-3811.7	Rock Creek near Neillsville, Wis.	SW 1/4 sec. 26, T. 23 N., R. 2 W., at bridge on country road, 8.4 miles south of Neillsville.	a 25	1962-64		c
*5-3822	French Creek near Ettrick, Wis.	NE 1/4 sec. 27, T. 20 N., R. 8 W., at bridge on County Trunk D and T, 2 1/2 miles west of Ettrick.	14.3	1961 1963-65	10-21-64 4- 9-65 5-12-65 6-16-65	3.79 1.98 5.88 4.74
		La Crosse River Basin				
*5-3825	Little La Crosse River near Leon, Wis.	NE 1/4 sec. 3, T. 16 N., R. 4 W., 30 ft upstream from country road bridge, 1.5 miles northwest of Leon.	77.1	1934-61≠ 1963-65	10-21-64 8-24-65	28.4 26.1
		Mormon Creek Basin				
*5-3863	Mormon Creek near La Crosse, Wis.	NE 1/4 sec. 19, T. 15 N., R. 6 W., at bridge on country road, 6 miles southeast of La Crosse.	25.5	1961 1963-65	10-20-64 6-15-65 8-24-65	8.85 12.0 9.52
		Bad Axe River Basin				
*5-3871	North Fork Bad Axe River near Genoa, Wis.	SW 1/4 sec. 36, T. 13 N., R. 7 W., at bridge on on State Highway 56, 4.1 miles southeast of Genoa.	80.7	1961 1963-65		b
		Wisconsin River Basin				
*5-3921.5	Mishonogon Creek near Woodruff, Wis.	NE 1/4 sec. 32, T. 40 N., R. 6 E., at twin culvert on State Highway 47, 3 miles northwest of Woodruff.	11.7	1961 1963-65	10- 7-64 7-21-65	13.8 15.8
*5-3923.5	Bearskin Creek near Harshaw, Wis.	SW 1/4 sec. 36, T. 37 N., R. 6 E., at culvert on County Trunk K, 2 1/8 miles southwest of Harshaw.	32.4	1963-65		b
*5-3940	New Wood River near Merrill, Wis.	E 1/2 sec. 15, T. 32 N., R. 5 E., at bridge on County Trunk E, 9.5 miles northwest of Merrill.	a 83	1962-64		c
*5-3942	Devil Creek near Merrill, Wis.	N 1/2 sec. 30, T. 31 N., R. 6 E., at culvert on County Trunk F, 5.8 miles southwest of Merrill.	10.1	1962-65	7-22-65	.55

* Also a crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.
≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Wisconsin River Basin--Continued				
5-3950.3	Pine River near Merrill, Wis.	NW 1/4 sec. 11, T. 31 N., R. 8 E., at bridge on County Trunk X, 10.8 miles east of Merrill.	60.3	1962-65	11- 1-64	15.5
5-3951.3	Trappe River near Wausau, Wis.	NW 1/4 sec. 21, T. 30 N., R. 8 E., at bridge on County Trunk WW, 8.4 miles north of Wausau.	75.1	1962-64		c
5-3955.5	Wood Creek near Rib Lake, Wis.	SE 1/4 sec. 17, T. 32 N., R. 3 E., at twin culverts on country road, 6.0 miles southeast of Rib Lake.	30.8	1962-64		c
5-3960	Rib River at Rib Falls, Wis.	NW 1/4 sec. 27, T. 29 N., R. 5 E., at bridge on County Trunk S, in Rib Falls.	309	1925-57≠ 1963-64		c
5-3970	Eau Claire River near Antigo, Wis.	E 1/2 sec. 3, T. 31 N., R. 10 E., at bridge on country road, 4 miles northwest of Antigo.	a 75	1949-55≠ 1963-64		c
5-3972	Spring Brook near Antigo, Wis.	NW 1/4 sec. 19, T. 30 N., R. 11 E., at culvert on County Trunk H, 5.9 miles southwest of Antigo.	72.8	1962-64		c
5-3981	Black Creek near Mosinee, Wis.	NE 1/4 sec. 4, T. 27 N., R. 7 E., at bridge on County Trunk KK, 4.3 miles north of Mosinee.	a 13	1962-64		c
5-3985	Bull Creek Junior near Rothschild, Wis.	East boundary, sec. 12, T. 27 N., R. 7 E., at bridge on County Trunk X, 4 miles south of Rothschild.	26.4	1944-51≠ 1962-64		c
5-3992.1	Randall Creek near Colby, Wis.	SW 1/4 sec. 18, T. 28 N., R. 3 E., at bridge on County Trunk N, 6.2 miles east of Colby.	a 32	1963-64		c
5-4003	Hay Meadow Creek near Stevens Point, Wis.	NE 1/4 sec. 18, T. 24 N., R. 8 E., at bridge on U. S. Highway 51, 3.2 miles north of Stevens Point.	a 27	1962-64		c
5-4005	Plover River near Stevens Point, Wis.	SW 1/4 sec. 6, T. 24 N., R. 9 E., at bridge on country road, 5 miles northeast of Stevens Point.	136	1914-19≠ 1944-51≠ 1962-64		c
5-4007	Mill Creek near Junction City, Wis.	NE 1/4 sec. 20, T. 24 N., R. 6 E., at bridge on State Highway 34, 3.3 miles southwest of Junction City.	a 69	1963-64		c
5-4009.5	Moccasin Creek at Nekoosa, Wis.	NW 1/4 sec. 34, T. 22 N., R. 5 E., at bridge on State Highway 54, 1.9 miles north of Nekoosa.		1962-64		c
5-4017	East Branch Yellow River near Marshfield, Wis.	SE 1/4 sec. 10, T. 25 N., R. 2 E., at bridge on County Trunk H, 3.0 miles west of Marshfield.	15.5	1963-64		c
5-4017.5	South Branch Yellow River near Marshfield, Wis.	NW 1/4 sec. 27, T. 25 N., R. 2 E., at bridge on County Trunk B, 4.2 miles southwest of Marshfield.	36.1	1963-64		c
5-4022	Hemlock Creek near Pittsville, Wis.	SE 1/4 sec. 22, T. 23 N., R. 4 E., at bridge on State Highway 73, 6.1 miles east of Pittsville.	47.3	1962-64		c
5-4032.5	White Creek near Friendship, Wis.	NW 1/4 sec. 35, T. 16 N., R. 5 E., at twin culverts on County Trunk H, 10.9 miles south of Friendship.	63.8	1962-64		c
*5-4035.2	Webster Creek at New Lisbon, Wis.	NE 1/4 sec. 19, T. 16 N., R. 3 E., at bridge on State Highway 80, 1.2 miles south of New Lisbon.	11.6	1961 1963-65	10-22-64 5-13-65	1.84 2.77
*5-4035.5	One Mile Creek near Mauston, Wis.	SE 1/4 sec. 24, T. 15 N., R. 3 E., at bridge on State Highway 58, 2.4 miles south of Mauston.	30.4	1961 1963-65	10-22-64 5-13-65	6.96 7.95
5-4040.3	North Branch Duck Creek near Pardeeville, Wis.	NE 1/4 sec. 18, T. 12 N., R. 11 E., at bridge on County Trunk SS, 3.7 miles southeast of Pardeeville.	33.6	1962 1963-65	10-13-64	5.50
*5-4042	Narrows Creek at Loganville, Wis.	SE 1/4 sec. 8, T. 11 N., R. 4 E., at bridge on State Highways 23 and 154, 0.2 mile north of Loganville.	40.0	1961-65	5-14-65	b 4.02

* Also a crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.
c No discharge measurement.
≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Wisconsin River Basin--Continued				
*5-4056	Rowan Creek at Poynette, Wis.	S 1/2 sec. 35, T. 11 N., R. 9 E., at bridge on U. S. Highway 51 in Poynette.	a 9.9	1961-65	10-15-64 7- 6-65 7-30-65	3.97 3.37 3.79
5-4058	Spring Creek at Lodi, Wis.	NE 1/4 sec. 27, T. 10 N., R. 8 E., at bridge on town road in Lodi.	37.0	1962-65	10-13-64 7-30-65	15.7 14.4
5-4064	East Branch Mounds Creek near Black Earth, Wis.	SW 1/4 sec. 5, T. 7 N., R. 6 E., at bridge on County Trunk F, 4.2 miles southwest of Black Earth.	30.8	1962-65	10-13-64 7-29-65	13.0 10.3
*5-4071	Richland Creek near Plugtown, Wis.	NW 1/4 sec. 9, T. 8 N., R. 3 W., at bridge on U. S. Highway 61, 2 miles south of Plugtown.	19.1	1961 1963-65	10-19-64 11-13-64	6.51 6.88
*5-4072	Crooked Creek near Boscobel, Wis.	SE 1/4 sec. 2, T. 7 N., R. 3 W., at bridge on U. S. Highway 61, 1.6 miles south of Boscobel.	13.1	1961 1963-65	10-19-64 11-13-64	5.67 5.60
*5-4074	Morris Creek tributary near Norwalk, Wis.	NW 1/4 sec. 21, T. 16 N., R. 2 W., at bridge on County Trunk T, 2 miles north of Norwalk.	4.67	1961 1963-65	10-22-64 5-13-65	1.00 1.22
*5-4088	Bishops Branch near Viroqua, Wis.	N 1/2 sec. 2, T. 12 N., R. 4 W., at bridge on State Highways 56 and 82, 3 miles east of Viroqua.	7.08	1961 1963-65	10-19-64 6-15-65 8-24-65	2.49 2.90 2.42
		Grant River Basin				
*5-4134	Pigeon Creek near Lancaster, Wis.	SW 1/4 sec. 15, T. 4 N., R. 3 W., at culvert on country road, 2 miles south of Lancaster.	6.90	1961 1963-65	4-21-65	b 1.70
		Platte River Basin				
*5-4142	Bear Branch near Platteville, Wis.	NW 1/4 sec. 4, T. 3 N., R. 1 W., at box culvert on State Highway 81, 2.3 miles northwest of Platteville.	2.80	1961 1963-65	10-21-64 5-20-65	.58 .60
		Galena River Basin				
*5-4149	Pats Creek near Elk Grove, Wis.	SW 1/4 sec. 4, T. 2 N., R. 1 E., at bridge on State Highway 81, 3/4 mile southeast of Elk Grove and 7 miles southeast of Platteville.	8.49	1961-65	10-21-64 5-19-65 7-21-65 8-24-65	.81 .96 .43 .57
		Rock River Basin				
*5-4233	South Branch Rock River tributary near Waupun, Wis.	S 1/2 sec. 22, T. 14 N., R. 14 E., at concrete culvert on town road, 4 1/2 miles northwest of Waupun.	11.9	1962-65	7-30-65	0
*5-4238	East Branch Rock River tributary near Slinger, Wis.	S 1/2 sec. 26, T. 11 N., R. 18 E., at culvert on U. S. Highway 41, 4 miles northwest of Slinger.	4.64	1961-65	10- 8-64 7-29-65	2.04 1.92
5-4241	Rubicon River near Hartford, Wis.	NW 1/4 sec. 35, T. 10 N., R. 17 E., at bridge on County Trunk P, 4.3 miles southwest of Hartford.	59.8	1962-65	10-13-64 7-29-65	6.02 3.33
5-4242	Ashippun River near Oconomowoc, Wis.	NW 1/4 sec. 11, T. 8 N., R. 17 E., at bridge on County Trunk P, 4.7 miles north of Oconomowoc.	32.9	1962-65	10-13-64 7-29-65	3.77 2.04
5-4254	Silver Creek near Watertown, Wis.	SW 1/4 sec. 21, T. 9 N., R. 15 E., at bridge on country road, 2.2 miles north of Watertown.	21.3	1962-65	10-15-64 7-30-65	.30 .86
5-4255.5	Johnson Creek at Johnson Creek, Wis.	SW 1/4 sec. 18, T. 7 N., R. 15 E., at bridge on State Highway 26, 0.8 miles south of Johnson Creek.	40.4	1962-65	10-13-64 7-29-65	0 0
5-4256	North Branch Crawfish River near Columbus, Wis.	SW 1/4 sec. 14, T. 11 N., R. 12 E., at bridge on County Trunk DG, 5.6 miles north of Columbus.	69.4	1962-65	10-13-64 7-30-65	0 .20

* Also a crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Rock River Basin--Continued				
*5-4257	Robbins Creek near Columbus, Wis.	SE 1/4 sec. 11, T. 10 N., R. 12 E., at culvert on U. S. Highway 16, in Columbus.	8.54	1962-65	10-16-64 7- 6-65 7-30-65	.09 .048 0
5-4259.3	Pratt Creek at Lowell, Wis.	SW 1/4 sec. 13, T. 10 N., R. 14 E., at bridge on U. S. Highway 16 and State Highway 60, 1.5 miles southeast of Lowell.	21.8	1962-65	10-15-64 7-30-65	.51 .18
5-4260.6	Bark River at Hartland, Wis.	SW 1/4 sec. 26, T. 8 N., R. 18 E., at bridge on County Trunk K, 1.1 miles north of Hartland.	30.1	1962-65	10-15-64 7-29-65	5.23 4.59
5-4262	Bark River near Sullivan, Wis.	NW 1/4 sec. 14, T. 6 N., R. 16 E., at bridge on country road, 2.3 miles south of Sullivan.	106	1962-65	10-13-64 7-29-65	2.93 9.00
5-4263	Duck Creek near Sullivan, Wis.	SW 1/4 sec. 24, T. 6 N., R. 15 E., at bridge on country road, 5.7 miles southwest of Sullivan.	31.4	1962-65	10-13-64 7-29-65	.82 .78
5-4264	Scuppernong River near Palmyra, Wis.	NW 1/4 sec. 19, T. 5 N., R. 17 E., at culvert on County Trunk Z, 2.4 miles east of Palmyra.	23.6	1962-65	10-13-64 7-29-65	3.41 2.34
*5-4272	Allen Creek near Fort Atkinson, Wis.	NE 1/4 sec. 17, T. 5 N., R. 14 E., at box culvert on State Highway 26, 2.5 miles southwest of Fort Atkinson.	15.1	1961-65	10-13-64 7-29-65	.40 .24
5-4272.3	Otter Creek near Milton, Wis.	SW 1/4 sec. 11, T. 4 N., R. 13 E., at bridge on State Highway 26, 3.4 miles north of Milton.	41.5	1962-65	10-14-64 7-30-65	.13 .32
5-4273.5	Koshkonong Creek near Deerfield, Wis.	NE 1/4 sec. 16, T. 7 N., R. 12 E., at bridge on State Highway 73, 1.5 miles north of Deerfield.	64.3	1962-65	10-14-64 7-29-65	3.76 3.87
5-4275.5	Saunder Creek at Albion, Wis.	SW 1/4 sec. 22, T. 5 N., R. 12 E., at bridge on State Highway 106, in Albion.	21.8	1962-65	10-14-64 7-30-65	1.34 1.43
5-4277	Yahara River near De Forest, Wis.	NE 1/4 sec. 30, T. 9 N., R. 10 E., at bridge on country road, 2.3 miles south of De Forest.	48.9	1962-65	10-13-64	2.57
*5-4278	Token Creek near Madison, Wis.	SW 1/4 sec. 4, T. 8 N., R. 10 E., at culvert on U. S. Highway 51, 8 miles north of State Capitol in Madison.	24.4	1961-65		b
5-4279	Sixmile Creek at Waunakee, Wis.	NW 1/4 sec. 16, T. 8 N., R. 9 E., at bridge on country road, 1.5 miles southeast of Waunakee.	40.2	1962-65	10-13-64	.71
5-4296	Door Creek near McFarland, Wis.	NE 1/4 sec. 6, T. 6 N., R. 11 E., at bridge on County Trunk MN, 3.4 miles east of McFarland.	27.8	1962-65	10-14-64 7-30-65	3.61 3.56
5-4303	Marsh Creek at Janesville, Wis.	SE 1/4 sec. 15, T. 3 N., R. 12 E., at bridge on City Route of U. S. Highway 14, 3.1 miles northwest of Janesville.	27.3	1962-65	10-14-64 7-30-65	4.88 4.64
5-4306	Bass Creek near Janesville, Wis.	NE 1/4 sec. 24, T. 2 N., R. 11 E., at bridge on country road, 6.7 miles southwest of Janesville.	57.1	1962-65	10-14-64 7-30-65	11.7 7.22
*5-4314	Turtle Creek tributary at Allens Grove, Wis.	NE 1/4 sec. 6, T. 1 N., R. 15 E., at bridge on country road, 0.2 mile south of Allens Grove.	42.0	1961-65	10-16-64 11- 9-64 6-14-65 7-30-65	1.52 2.03 2.62 .30
*5-4323	Rock Branch near Mineral Point, Wis.	SE 1/4 sec. 8, T. 4 N., R. 3 E., at box culvert on State Highway 23, 2.5 miles south of Mineral Point.	5.04	1961 1963-65	10-22-64 5-19-65 7-23-65	.98 1.10 .64
5-4359.5	Sugar River near Verona, Wis.	SE 1/4 sec. 33, T. 6 N., R. 8 E., at bridge on State Highway 69, 2.9 miles south of Verona.	84.1	1962-65	10-13-64 7-29-65	10.6 8.59
*5-4362	Sugar River tributary No. 2 near Brooklyn, Wis.	NW 1/4 sec. 16, T. 4 N., R. 9 E., at culvert on State Highway 92, 4.3 miles west of Brooklyn.	a 3.3	1961-65	10-12-64 11-19-64 7-29-65 8-11-65	.46 .56 .35 .49
5-4362.5	Allen Creek near Albany, Wis.	NE 1/4 sec. 16, T. 3 N., R. 9 E., at bridge on County Trunk E, 1.9 miles north of Albany.	77.2	1962-65	10-13-64 7-29-65	11.6 5.60

* Also a crest-stage station.
a Approximately.
b Daily discharges for part of year listed in seasonal record section.

Discharge measurements made at low-flow partial-record stations during water year 1965

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Rock River Basin--Continued				
5-4363	Little Sugar River near New Glarus, Wis.	SE 1/4 sec. 30, T. 4 N., R. 8 E., at bridge on country road, 2.9 miles southeast of New Glarus.	39.5	1962-65	10-13-64 7-29-65	10.4 7.49
5-4364	Little Sugar River near Monticello, Wis.	NE 1/4 sec. 22, T. 3 N., R. 8 E., at bridge on country road, 3.1 miles east of Monticello.	76.6	1962-65	10-13-64 7-29-65	29.0 21.0
5-4366	Sylvester Creek near Brodhead, Wis.	SW 1/4 sec. 34, T. 2 N., R. 9 E., at bridge on country road, 3.2 miles southwest of Brodhead.	44.9	1962-65	10-13-64 7-29-65	10.6 8.19
5-4367	Taylor Creek near Brodhead, Wis.	NW 1/4 sec. 31, T. 2 N., R. 10 E., at bridge on country road, 2.6 miles south of Brodhead.	24.7	1962-65	10-14-64 7-29-65	4.80 2.97
*5-4372	Raccoon Creek tributary near Beloit, Wis.	On common boundary of secs. 30 and 31, T. 1 N., R. 12 E., at culvert on State Highway 81, 2.9 miles west of Beloit.	7.24	1961-65	10-12-64 11-20-64 7-29-65 8-11-65	.93 .79 .58 .77
		Illinois River Basin				
5-5277	DesPlaines River near Kenosha, Wis.	SW 1/4 sec. 15, T. 1 N., R. 21 E., at bridge on County Trunk MB, 8.8 miles west of Kenosha.	56.2	1962-65	10-13-64 7-29-65	.64 .32
5-5438	Fox River near Waukesha, Wis.	NE 1/4 sec. 24, T. 7 N., R. 19 E., at bridge on County Trunk SS, 3.5 miles northeast of Waukesha.	77.4	1962-65	10-25-64 7-29-65	6.64 3.52
5-5438.5	Pebble Creek near Waukesha, Wis.	SE 1/4 sec. 7, T. 6 N., R. 19 E., at bridge on County Trunk TT, 3.2 miles west of Waukesha.	16.2	1962-65	10-15-64 7-30-65	2.64 1.66
5-5443.2	Fox River at Big Bend, Wis.	SE 1/4 sec. 23, T. 5 N., R. 19 E., at bridge on State Highway 24, in Big Bend.	321	1962-65	10-15-64 7-30-65	36.7 33.4
5-5451.2	Sugar Creek near Vienna, Wis.	SW 1/4 sec. 14, T. 3 N., R. 18 E., at bridge on country road, 1.4 miles west of Vienna.	71.2	1962-65	10-13-64 7-30-65	8.78 6.22
*5-5453	White River near Burlington, Wis.	NW 1/4 sec. 1, T. 2 N., R. 18 E., at bridge on State Highway 36, 2 1/4 miles southwest of Burlington.	105	1961-65		b
5-5456	Hoosier Creek near Burlington, Wis.	SE 1/4 sec. 3, T. 2 N., R. 19 E., at bridge on State Highway 43, 2.6 miles southeast of Burlington.	20.5	1962-65	10-13-64 7-30-65	.36 .69
*5-5481.5	North Branch Nippersink Creek tributary near Genoa City, Wis.	E 1/2 sec. 32 T. 1 N., R. 18 E., at bridge on County Trunk B, 3 miles west of Genoa City.	13.0	1961-65	10-13-64 11- 9-64 7-29-65 8-12-65	2.35 3.12 2.66 4.85

* Also a crest-stage station.
b Daily discharges for part of year listed in seasonal record section.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Streams tributary to Lake Superior					
4-0244	Stony Brook near Superior, Wis.	SE 1/4 sec. 4, T. 47 N., R. 14 W., at box culvert on State Highway 35, 12 1/2 miles south of toll bridge on U. S. Highways 2 and 35 at St. Louis River in Superior.	2.20	1959-65	9-30-65	12.55	/
4-0252	Pearson Creek near Maple, Wis.	Common boundary of secs. 11 and 14, T. 48 N., R. 11 W., at box culvert on State Highway 13, 4 miles north of Maple.	4.55	1957-65	4-13-65	14.07	380
4-0262	Sand River tributary near Red Cliff, Wis.	NE 1/4 sec. 14, T. 51 N., R. 5 W., at box culvert on State Highway 13, 8 miles northwest of Red Cliff.	a 1.7	1959-65	-	b	< 80
*4-0263	Sioux River near Washburn, Wis. (c)	NE 1/4 sec. 35, T. 49 N., R. 5 W., on County Trunk C, 2 1/2 miles west of Washburn.	17.5	1959-65	4-19-65	10.73	260
*4-0264	Spilieberg Creek near Cayuga, Wis.	NW 1/4 sec. 21, T. 43 N., R. 2 W., at concrete culvert pipe on State Highway 13, 4 1/4 miles southeast of Cayuga.	a 6.6	1958-65	4-15-65	11.98	76
4-0267	Trout Brook tributary near Marengo, Wis.	NE 1/4 sec. 7, T. 45 N., R. 3 W., at box culvert on State Highway 13, 2.6 miles southeast of Marengo.	a .6	1960-65	5-21-65	a 10.0	/
*4-0272	Pearl Creek at Grandview, Wis.	NE 1/4 sec. 22, T. 45 N., R. 6 W., at box culvert on U. S. Highway 63, 0.8 mile east of Grandview.	15.9	1960-65	4-16-65	11.88	190
*4-0297	Boomer Creek near Saxon, Wis.	N 1/2 sec. 3, T. 46 N., R. 1 E., at concrete culvert pipe on U. S. Highway 2, 3 miles east of Saxon.	6.73	1958-65	4-16-61 5-15-62 5-24-64 5- 8-65	13.91 13.37 a 15.8 13.89	d 120 d 88 d 275 120
		Streams tributary to Lake Michigan					
*4-0599	Allen Creek tributary near Alvin, Wis.	North boundary sec. 7, T. 40 N., R. 14 E., at culvert on State Highway 70, 2.2 miles southeast of Alvin.	a 1.9	1960-65	5- 8-65	10.51	/
*4-0638	Woods Creek near Fence, Wis.	SE 1/4 sec. 29, T. 39 N., R. 17 E., at box culvert on State Highway 101, 6 miles north of Fence.	42.3	1958-65	9-27-59 5- 8-60 4-16-61 5-13-62 3-25-63 8- 1-64 5- 7-65	10.52 11.65 11.86 10.35 10.45 a 10.0 15.80	d 170 d 275 d 295 d 155 d 160 d 130 853
*4-0663	Cole Creek near Dunbar, Wis.	South boundary sec. 34, T. 37 N., R. 19 E., at culvert on U. S. Highway 8, 3.6 miles southeast of Dunbar.	a 3.2	1960-65	5- 7-65	10.69	/

* Also a low-flow partial-record station.
/ Discharge not determined.
a Approximately.
b Peak did not reach bottom of the gage.
c Daily discharges for part of year listed in season record section.
d Not previously published.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Streams tributary to Lake Michigan-Continued					
4-0667	McCall Creek at Wausaukee, Wis.	NW 1/4 sec. 1, T. 33 N., R. 20 E., at culvert on U. S. Highway 141, 1 mile south of Wausaukee.	0.38	1959-65	5- 8-65	a 10.4	≠
4-0675	Menominee River near McAllister, Wis.	Sec. 17, T. 33 N., R. 23 E., 300 ft above highway bridge on County Trunk JJ, 2.9 miles east of McAllister.	a 4,020	1945-61≠ 1962-65	5-12-65	18.27	27,000
*4-0678	Armstrong Creek near Armstrong Creek, Wis.	W 1/2 sec. 27, T. 37 N., R. 16 E., at bridge on U. S. Highway 8, 1 3/4 miles northwest of Armstrong Creek.	23.1	1958-65	6-28-65	10.16	≠
4-0717	North Branch Little River near Coleman, Wis.	On common boundary of sec. 2 and 3, T. 29 N., R. 20 E., at bridge on U. S. Highway 141, 3 3/4 miles south of Coleman.	23.3	1958-65	5-15-65	a 12.7	185
*4-0718	Pensaukee River near Pulaski, Wis.	NE 1/4 sec. 1, T. 26 N., R. 18 E., at bridge on State Highway 32 and 6.1 miles north of Pulaski.	43.2	1961-65	4-11-65	15.29	≠
*4-0734	Bird Creek at Wautoma, Wis.	S 1/2 sec. 34, T. 19 W., R. 10 E., at concrete culvert on State Highway 21, 1/4 mile west of Wautoma.	a 3.9	1959-65	3- 2-65	12.47	≠
*4-0747	Hunting River near Elcho, Wis.	N 1/2 sec. 24, T. 34 N., R. 10 E., at twin culverts on U. S. Highway 45 and State Highway 47, 1 1/2 miles south of Elcho.	a 6.0	1958-65	9-27-65	11.73	66
*4-0752	Evergreen Creek near Langlade, Wis. (c)	NW 1/4 sec. 18, T. 31 N., R. 14 E., at culvert on State Highway 64, 3 1/2 miles southwest of Langlade.	a 8.0	1959-65	4-11-65	11.62	≠
*4-0797	Spaulding Creek near Big Falls, Wis. (c)	On common boundary of secs. 14 and 15, T. 25 N., R. 12 E., at culvert on County Trunk E, 1.5 miles north of Big Falls.	a 4.9	1959-65	5- 7-60 3-27-61 9-13-62 4-12-65	11.64 10.81 10.72 11.55	d 101 d 40 d 37 92
*4-0810	Waupaca River near Waupaca, Wis. (c)	On north line of sec. 1, T. 21 N., R. 12 E., on right bank 10 ft downstream from highway bridge, 4 miles upstream from Weyauwega Lake dam, 4 1/2 miles southeast of Waupaca.	272	1916-63≠ 1965	4-12-65	4.51	1,360
4-0810.1	Waupaca River tributary near Waupaca, Wis.	NW 1/4 sec. 1, T. 21 N., R. 12 E., at culvert on U. S. Highway 10, 5 miles southeast of Waupaca.	a 1.0	1960-65	4-11-65	12.31	60
4-0819	Sawyer Creek at Oshkosh, Wis.	SW 1/4 sec. 15, T. 18 N., R. 1 E., at bridge on U. S. Highway 41, 1 mile southwest of Algoma Street Fox River bridge in Oshkosh.	15.8	1961-65	4-11-65	12.90	470
4-0834	East Branch Fond du Lac River tributary near Eden, Wis.	NE 1/4 sec. 14, T. 14 N., R. 17 E., at culvert on U. S. Highway 41, 4 miles west of Eden.	1.19	1961-65	9-21-65	10.90	≠
*4-0850.3	Apple Creek near Kaukauna, Wis.	On west boundary sec. 2, T. 21 N., R. 18 E., at bridge on State Highway 55, 3 1/2 miles northeast of Kaukauna.	14.6	1960-65	4-11-65	13.35	380
4-0851	East River tributary at Greenleaf, Wis.	NE 1/4 sec. 8, T. 21 N., R. 20 E., at railroad box culvert, 1/2 mile south of Greenleaf.	8.00	1958-65	9-20-65	10.24	80
*4-0852	Kewaunee River near Kewaunee, Wis. (c)	SW 1/4 sec. 14, T. 23 N., R. 24 E., at bridge on County Trunk F, 2.3 miles west of Kewaunee.	129	1958-65	4- -58 4- 7-59 3-30-60 3-29-62 3-16-64 4-12-65	12.16 14.02 16.03 13.59 12.58 13.84	d 1,310 d 3,220 d 6,500 d 2,670 d 1,640 2,980

* Also a low-flow partial-record station.
≠ Discharge not determined.
≠ Operated as a continuous-record gaging station.
a Approximately.
c Daily discharges for part of year listed in season record section.
d Not previously published.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Streams tributary to Lake Michigan-Continued					
4-0853	Neshota River tributary near Denmark, Wis.	NE 1/4 sec. 7, T. 22 N., R. 22 E., at box culvert on U. S. Highway 141, 3 3/4 miles northeast of Denmark.	3.08	1959-65	9-21-65	11.82	22
*4-0854	Killsnake River near Chilton, Wis.	E 1/2 sec. 6, T. 18 N., R. 20 E., at bridge on country road, 2.4 miles northeast of Chilton.	29.5	1961-65	4-11-65	a 10.5	200
*4-0857	Sheboygan River tributary near Plymouth, Wis.	On common boundary, sec. 2 and 11, T. 15 N., R. 21 E., at concrete culvert on County Trunk J, 3 1/2 miles northeast of Plymouth.	5.51	1959-65	9-20-65	10.68	/
4-0864	Milwaukee River tributary near Fredonia, Wis.	SE 1/4 sec. 1, T. 11 N., R. 21 E., at culvert on country road, 2.3 miles southeast of Fredonia.	.84	1962-65	9- 9-65	14.68	/
*4-0870.5	Little Menomonee River near Freistadt, Wis.	On common boundary, sec. 29 and 32, T. 9 N., R. 21 E., at bridge on Donges Bay Road, 2 miles south of Freistadt.	7.96	1958-65	9- 9-65	12.00	/
4-0871	Honey Creek at Milwaukee, Wis.	NW 1/4 sec. 15, T. 6 N., R. 21 E., 400 ft downstream from bridge on W. Morgan Ave., and 6 miles southwest from mouth of Milwaukee River in Milwaukee.	3.63	1959-65	8- 8-65	13.01	/
*4-0872	Oak Creek near South Milwaukee, Wis.	On common boundary of sec. 21 and 22, T. 5 N., R. 22 E., at bridge on West Nicholson Road, 3 miles southwest of South Milwaukee.	13.9	1958-65	3- 5-65	15.17	165
4-0872.3	West Branch Root River Canal tributary near North Cape, Wis.	SW 1/4 sec. 33, T. 4 N., R. 21 E., at culvert on County Trunk U, 3.0 miles southeast of North Cape.	3.9	1962-65	4- 3-65	10.94	/
*4-0872.5	Pike Creek near Kenosha, Wis.	W 1/2 sec. 27, T. 2 N., R. 22 E., at box culvert on State Highway 43, 3 miles northwest of Kenosha.	7.25	1960-65	4- 1-65	13.48	/
		St. Croix River Basin					
*5-3331	Little Frog Creek near Minong, Wis.	NW 1/4 sec. 29, T. 42 N., R. 11 W., at culvert on country road 2 1/2 miles east of Minong.	13.6	1961-65	4-15-65	14.31	190
5-3341	Sawyer Creek near Shell Lake, Wis.	SE 1/4 sec. 13, T. 38 N., R. 13 W., at box culvert on U. S. Highway 63, 2 miles north of Shell Lake.	a .8	1960-65	4-11-65	13.11	/
*5-3353.8	Bashaw Brook near Shell Lake, Wis. (c)	SW 1/4 sec. 8, T. 38 N., R. 14 W., at twin box culvert on country road, 10.5 miles northwest of Shell Lake.	28.2	1959-65	4-11-65	14.90	e 600
*5-3403	Trade River near Frederic, Wis.	SW 1/4 sec. 4, T. 36 N., R. 17 W., at box culvert on State Highways 35 and 48, 2.5 miles southwest of Frederic.	5.79	1958-65	5- 6-65	11.68	/
5-3417	Willow River tributary near New Richmond, Wis.	NW 1/4 sec. 17, T. 30 N., R. 17 W., at twin box culvert on County Trunk GG, 3.6 miles southeast of New Richmond.	1.40	1959-65	7- 1-65	12.26	/
5-3419	Kinnickinnic River tributary at River Falls, Wis.	NE 1/4 sec. 14, T. 27 N., R. 19 W., at bridge on County Trunk FF, 1.6 miles southwest of River Falls.	7.26	1959-65	6- 1-65	15.06	3,420

* Also a low-flow partial-record station.
/ Discharge not determined.
a Approximately.
c Daily discharges for part of year listed in seasonal record section.
e Extension of rating curve above 300 cfs.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Trimbelle Creek Basin					
*5-3466	Little Trimbelle Creek near Bay City, Wis.	S 1/2 sec. 21, T. 25 N., R. 18 W., at bridge on County Trunk K, 7 miles northwest of Bay City.	19.9	1961-65	3-27-61 3-28-62 3-25-63 3-13-64 4- 7-65	10.84 11.60 10.84 10.47 12.74	d 470 d 810 d 470 d 350 1,700
		Chippewa River Basin					
*5-3562	Kenyon Creek near Radisson, Wis.	NW 1/4 sec. 22, T. 38 N., R. 6 W., at bridge on State Highway 27, 5 miles east of Radisson	a 7.5	1960-65	4-14-65	12.42	280
5-3592	S. F. Flambeau River tributary near Park Falls, Wis.	SW 1/4 sec. 15, T. 40 N., R. 1 E., at culvert on State Highway 182, 5 miles east of Park Falls.	a .7	1960-65	-	b	/
*5-3596	Price Creek near Phillips, Wis. (c)	SW 1/4 sec. 31, T. 38 N., R. 2 W., at culvert on County Trunk W, 13 miles west of Phillips.	14.7	1958-65	4-19-65	12.72	178
5-3602	Flambeau River tributary at Ladysmith, Wis.	SW 1/4 sec. 27, T. 35 N., R. 6 W., at culvert on State Highway 27, 1 mile north of Ladysmith.	a .8	1960-65	5-15-65	a 10.6	/
*5-3614	Hay Creek near Prentice, Wis.	SE 1/4 sec. 4, T. 35 N., R. 1 E., at culvert on U. S. Highway 8, 3.5 miles west of Prentice.	20.1	1961-65	5-15-65	11.99	/
*5-3640	Yellow River at Cadott, Wis.	NE 1/4 sec. 31, T. 29 N., R. 6 W., at bridge on State Highway 27 in Cadott, Wis.	351	1943-61≠ 1962-65	4-11-65	g 15.6	11,000
5-3641	Seth Creek near Cadott, Wis.	SW 1/4 sec. 17, T. 29 N., R. 6 W., at culvert on State Highway 27, 3.1 miles north of Cadott.	3.04	1962-65	4-10-65	13.53	/
5-3645	Duncan Creek at Bloomer, Wis.	Sec. 8, T. 30 N., R. 9 W., 1/4 mile below Bloomer Dam at Bloomer.	49.2	1945-51≠ 1958-65	4-10-65	7.37	1,020
*5-3657	Goggle-eye Creek near Thorp, Wis.	West boundary sec. 19, T. 29 N., R. 3 W., at culvert on State Highway 73, 1.3 miles north of Thorp.	7.04	1958-65	6- 1-65	12.81	/
*5-3665	Eau Claire River near Fall Creek, Wis.	NW 1/4 sec. 19, T. 27 N., R. 7 W., 500 ft east of County Trunk K, 3 1/4 miles north of Fall Creek.	758	1943-55≠ 1958-65	4-11-65	12.6	10,600
5-3670.3	Willow Creek near Eau Claire, Wis.	On common boundary of secs. 14 and 15, T. 26 N., R. 9 W., at box culvert on State Highway 93, 4 miles south of Eau Claire.	4.38	1958-65	4- 9-65	12.70	180
*5-3674.8	East Branch Pine Creek tributary near Dallas, Wis.	SW 1/4 sec. 1, T. 32 N., R. 12 W., at culvert on County Trunk O, 1 1/2 miles north of Dallas.	3.85	1960-65	4-10-65	13.71	/
5-3675	Red Cedar River near Colfax, Wis.	SW 1/4 sec. 22, T. 30 N., R. 11 W., 3.2 miles below Trout Creek and 4.7 miles north of Colfax.	a 1,100	1914-61≠ 1962-65	4-12-65	7.99	16,200
5-3677	Lightning Creek at Almena, Wis.	NW 1/4 sec. 19, T. 34 N., R. 13 W., at bridge on County Trunk P, in Almena.	19.8	1958-65	4-11-65	12.18	f 1,200
5-3698	Eau Galle River tributary near Hersey, Wis.	SW 1/4 sec. 5, T. 28 N., R. 15 W., at box culvert on Interstate Highway 94, 2 miles southwest of Hersey.	.65	1960-65	6- 1-65	11.10	/
5-3706	Arkansaw Creek tributary near Arkansaw, Wis.	SW 1/4 sec. 14, T. 25 N., R. 14 W., at box culvert on U. S. Highway 10, 1 1/4 miles northwest of Arkansaw.	2.56	1959-65	4-10-65	13.37	/
*5-3709	Spring Creek near Durand, Wis.	S 1/2 sec. 9, T. 24 N., R. 13 W., at bridge on country road, 4 miles south of Chippewa River bridge in Durand.	6.49	1962-65	4- 7-65	12.92	390

* Also a low-flow partial-record station.
/ Discharge not determined.
≠ Operated as a continuous-record gaging station.
a Approximately.
b Peak did not reach bottom of the gage.
c Daily discharges for part of year listed in seasonal record section.
d Not previously published.
f Extension of rating curve above 350 cfs.
g Backwater from ice.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		By Golly Creek Basin					
5-3713	By Golly Creek near Nelson, Wis.	SW 1/4 sec. 28, T. 23 N., R. 13 W., at culvert on County Trunk D, 3.0 miles northeast of Nelson.	0.28	1962-65	4- 7-65	g 11.0	20
		Buffalo River Basin					
5-3718	Buffalo River tributary near Osseo, Wis.	S 1/2 sec. 3, T. 24 N., R. 6 W., at culvert on U. S. Highway 10, 6 1/2 miles east of Osseo.	1.44	1960-65	7-13-65	10.60	/
		Waumandee Creek Basin					
*5-3782	Eagle Creek near Fountain City, Wis.	SW 1/4 sec. 33, T. 20 N., R. 11 W., at bridge on County Trunk G, 2 1/2 miles north of Fountain City.	26.8	1961-65	3-28-62 3-26-63 7- 1-64 4- 7-65	13.75 11.76 h 13.5 14.82	d 790 d 360 d 730 1,060
		Black River Basin					
5-3808	Black River tributary near Whittlesey, Wis.	SW 1/4 sec. 35, T. 32 N., R. 1 E., at bridge on State Highway 13, 1 mile south of Whittlesey.	a 4.5	1960-65	4-26-65	12.19	/
*5-3809	Poplar River near Owen, Wis. (c)	NW 1/4 sec. 25, T. 28 N., R. 2 W., at bridge on County Trunk N, 4 1/4 miles south of Owen.	159	1958-65	4-11-65	17.95	5,750
*5-3809.7	Cawley Creek near Neillsville, Wis.	SW 1/4 sec. 25, T. 25 N., R. 2 W., at bridge on State Highway 73, 3.7 miles north of Neillsville.	38.6	1961-65	4-26-65	14.78	/
5-3813	Allens Creek near Black River Falls, Wis.	SW 1/4 sec. 2, T. 21 N., R. 4 W., at culvert on U. S. Highway 12, 2 miles north of Black River Falls.	4.00	1958-65	9-19-65	10.45	/
*5-3822	French Creek near Ettrick, Wis.	NE 1/4 sec. 27, T. 20 N., R. 8 W., at bridge on County Trunk D and T, 2 1/2 miles west of Ettrick.	14.3	1960-65	4- 6-65	11.46	/
		LaCrosse River Basin					
5-3823	Beaver Creek tributary near Sparta, Wis.	NW 1/4 sec. 11, T. 17 N., R. 4 W., at box culvert on State Highways 27 and 71, 1.9 miles north of Sparta.	1.72	1959-65	4-10-65	11.85	/
*5-3825	Little LaCrosse River near Leon, Wis.	NE 1/4 sec. 3, T. 16 N., R. 4 W., 4 miles upstream from mouth and 1.5 miles northwest of Leon.	77.1	1934-61≠ 1962-65	5-26-65	2.90	280
		Mormon Creek Basin					
*5-3863	Mormon Creek near LaCrosse, Wis.	NE 1/4 sec. 19, T. 15 N., R. 6 W., at bridge on country road, 6 miles southeast of LaCrosse.	25.5	1961-65	9-28-65	11.71	/
		Bad Axe River Basin					
*5-3871	North Fork Bad Axe River near Genoa, Wis. (c)	SW 1/4 sec. 36, T. 13 N., R. 7 W., at bridge on State Highway 56, 4.1 miles southeast of Genoa.	80.7	1959-65	3- 5-65	i 15.91	/

* Also a low-flow partial-record station.
/ Discharge not determined.
≠ Operated as a continuous-record gaging station.
a Approximately.
c Daily discharges for part of year listed in seasonal record section.
d Not previously published.
g Backwater from ice.
h Estimated on basis of high water marks, may have been exceeded in September when gage was not operating.
i By downstream crest gage. Prior peaks by upstream crest gage.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Du Charme Creek Basin					
5-3884.6	Du Charme Creek at Eastman, Wis.	NE 1/4 sec. 13, T. 8 N., R. 6 W., at culvert on County Trunk D in Eastman.	0.27	1961-65	9- 7-65	11.35	/
		Wisconsin River Basin					
*5-3921.5	Mishonogon Creek near Woodruff, Wis.	NE 1/4 sec. 32, T. 40 N., R. 6 E., at twin culvert on State Highway 47, 3 miles northwest of Woodruff.	11.7	1958-65	5-15-65	10.20	/
*5-3923.5	Bearskin Creek near Harshaw, Wis. (c)	SW 1/4 sec. 36, T. 37 N., R. 6 E., at culvert on County Trunk K, 2 1/8 miles southwest of Harshaw.	32.4	1958-65	8-28-60 8-13-63 5-22-65	10.01 9.12 10.15	104 44 115
*5-3940	New Wood River near Merrill, Wis.	E 1/2 sec. 15, T. 32 N., R. 5 E., at bridge on County Trunk E, 9.5 miles northwest of Merrill.	a 83	1953-61≠ 1962-65	4-11-65	g 6.38	1,050
*5-3942	Devil Creek near Merrill, Wis.	N 1/2 sec. 30, T. 31 N., R. 6 E., at culvert on County Trunk F, 5.8 miles southwest of Merrill.	10.1	1961-65	4-11-65	g 14.5	/
5-3951	Trappe River tributary near Merrill, Wis.	SW 1/4 sec. 28, T. 31 N., R. 8 E., at culvert on County Trunk P, 9 1/2 miles southeast of Merrill.	a 2.2	1959-65	8- 7-65	17.15	380
5-3961	Scotch Creek tributary near Edgar, Wis.	SE 1/4 sec. 31, T. 29 N., R. 5 E., at culvert on State Highway 29, 1.5 miles northeast of Edgar.	a 7.1	1962-65	9-13-62 5-13-63 9- 2-64 4-11-65	14.07 d 14.05 d 13.24 d 16.67	460 455 250 1,380
5-3976	Big Sandy Creek near Wausau, Wis.	SE 1/4 sec. 31, T. 30 N., R. 9 E., at bridge on on State Highway 52, 10 miles northeast of Wausau.	a 9.9	1959-65	4-11-65	13.58	1,040
5-3992	Randall Creek tributary near Abbotsford, Wis.	South boundary of sec. 36, T. 29 N., R. 2 E., at concrete culvert, on State Highway 29, 5.8 miles east of Abbotsford.	a .5	1959-65	9-28-65	11.02	/
5-4018	Yellow River tributary near Pittsville, Wis.	On common boundary of secs. 11 and 14, T. 23 N., R. 3 E., at bridge on County Trunk C, 2 miles north of Pittsville.	7.53	1959-65	9-19-65	13.3	/
*5-4035.2	Webster Creek at New Lisbon, Wis.	NE 1/4 sec. 19, T. 16 N., R. 3 E., at bridge on State Highway 80, 1.2 miles south of New Lisbon.	11.6	1961-65	9-28-65	14.37	/
*5-4035.5	One Mile Creek near Mauston, Wis.	SE 1/4 sec. 24, T. 15 N., R. 3 E., at bridge on State Highway 58, 2.4 miles south of Mauston.	30.4	1958-65	9-28-65	14.92	650
5-4036.1	Wisconsin River tributary at Wisconsin Dells, Wis.	NE 1/4 sec. 3, T. 13 N., R. 6 E., at culvert on State Highway 13, 0.8 mile north of Wisconsin Dells.	1.4	1962-65	3- 1-65	10.56	/
*5-4042	Narrows Creek at Loganville, Wis. (c)	SE 1/4 sec. 8, T. 11 N., R. 4 E., at bridge on State Highways 23 and 154, and 1/4 mile north of Loganville.	40.0	1958-65	9-17-65	15.66	/
*5-4056	Rowan Creek at Poynette, Wis.	S 1/2 sec. 35, T. 11 N., R. 9 E., at bridge on U. S. Highway 51 in Poynette.	a 9.9	1961-65	3- 6-61 3-28-62 3-24-63 3- 5-64 9- 9-65	11.63 d 12.45 d 13.13 d 10.92 d 17.90	150 250 350 80 2,260
5-4068	Rocky Branch near Richland Center, Wis.	E 1/2 sec. 29, T. 10 N., R. 1 E., at culvert on State Highway 80, 1 1/2 miles south of Richland Center.	1.71	1960-65	6-20-65	15.12	407

* Also a low-flow partial-record station.
/ Discharge not determined.
≠ Operated as a continuous-record gaging station.
a Approximately.
c Daily discharges for part of year listed in seasonal record section.
d Not previously published.
g Backwater from ice.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Wisconsin River Basin-Continued					
*5-4071	Richland Creek near Plugtown, Wis.	NW 1/4 sec. 9, T. 8 N., R. 3 W., at bridge on U. S. Highway 61, 2 miles south of Plugtown.	19.1	1958-65	9- 9-65	16.25	610
*5-4072	Crooked Creek near Boscobel, Wis.	SE 1/4 sec. 2, T. 7 N., R. 3 W., at bridge on U. S. Highway 61, 1.6 miles south of Boscobel.	13.1	1959-65	9- 9-65	14.34	/
*5-4074	Morris Creek tributary near Norwalk, Wis.	NW 1/4 sec. 21, T. 16 N., R. 2 W., at bridge on County Trunk T, 2 miles north of Norwalk.	4.67	1960-65	10-24-59	13.10	d 950
					3-27-61	12.44	d 700
					3-28-62	11.71	d 460
					3-25-63	11.02	d 260
					4- 2-64	10.23	d 85
					9- 9-65	11.98	540
*5-4088	Bishops Branch near Viroqua, Wis.	N 1/2 sec. 2, T. 12 N., R. 4 W., at bridge on State Highways 56 and 82, 3 miles east of Viroqua.	7.08	1959-65	3-27-61	11.57	d 620
					3-29-62	11.44	d 530
					3-17-63	11.19	d 390
					9-10-64	10.55	d 120
					9- 9-65	12.32	1,380
		Grant River Basin					
*5-4134	Pigeon Creek near Lancaster, Wis. (c)	SW 1/4 sec. 15, T. 4 N., R. 3 W., at culvert on country road, 2 miles south of Lancaster.	6.90	1960-65	1-12-60	16.14	d 1,100
					9-13-61	10.63	d 120
					7-20-62	13.50	d 580
					3-20-63	10.95	d 155
					4- 2-64	11.33	210
					3- 1-65	13.00	491
		Platte River Basin					
*5-4142	Bear Branch near Platteville, Wis.	NW 1/4 sec. 4, T. 3 N., R. 1 W., at box culvert on State Highway 81, 2.3 miles northwest of Platteville.	2.80	1958-65	9- 9-65	13.12	320
		Galena River Basin					
*5-4149	Pats Creek near Elk Grove, Wis.	SW 1/4 sec. 4, T. 2 N., R. 1 E., at bridge on State Highway 81, 7 miles southeast of Platteville.	8.49	1960-65	3- 1-65	13.01	/
		Rock River Basin					
*5-4233	South Branch Rock River tributary near Waupun, Wis.	S 1/2 sec. 22, T. 14 N., R. 14 E., at concrete culvert on town road, 4 1/2 miles northwest of Waupun.	11.9	1959-65	9-20-65	10.39	/
*5-4238	East Branch Rock River tributary near Slinger, Wis.	S 1/2 sec. 26, T. 11 N., R. 18 E., at culvert on U. S. Highway 41, 4 miles northwest of Slinger.	4.64	1960-65	9-19-60	12.07	d 190
					3-22-61	10.93	d 85
					3-29-62	11.47	d 130
					3-23-63	11.66	d 150
					7-18-64	12.07	d 190
					4- 6-65	12.33	215
5-4243	Rock River tributary near Watertown, Wis.	NW 1/4 sec. 18, T. 8 N., R. 16 E., at concrete culvert on old U. S. Highway 16, 5 miles east of Watertown.	4.58	1959-65	9- 9-65	12.11	/
*5-4257	Robbins Creek near Columbus, Wis.	SE 1/4 sec. 11, T. 10 N., R. 12 E., at culvert on U. S. Highway 16 in Columbus.	8.54	1960-65	9-10-65	13.48	/
5-4261	Scuppernong Creek near Wales, Wis.	NE 1/4 sec. 6, T. 6 N., R. 18 E., at culvert on U. S. Highway 18, 1.8 miles northwest of Wales.	8.91	1962-65	5-23-65	10.07	/

* Also a low-flow partial-record station.
/ Discharge not determined.
c Daily discharges for part of year listed in seasonal record section.
d Not previously published.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Rock River Basin-Continued					
*5-4272	Allen Creek near Fort Atkinson, Wis.	NE 1/4 sec. 17, T. 5 N., R. 14 E., at box culvert on State Highway 26, 2.5 miles southwest of Fort Atkinson.	15.1	1958-65	9-20-65	9.99	/
5-4272.5	Koshkonong River at Sun Prairie, Wis.	SW 1/4 sec. 33, T. 9 N., R. 11 E., at culvert on U. S. Highway 151 in Sun Prairie.	.46	1961-65	9- 9-65	10.62	/
*5-4278	Token Creek near Madison, Wis. (c)	SW 1/4 sec. 4, T. 8 N., R. 10 E., at culvert on U. S. Highway 51, 8 miles northeast of state Capitol in Madison.	24.4	1961-65	3- 2-65	12.80	363
*5-4314	Turtle Creek tributary at Allens Grove, Wis.	NE 1/4 sec. 6, T. 1 N., R. 15 E., at bridge on country road, .2 mile south of Allens Grove.	42.0	1962-65	3- 1-65	14.13	/
*5-4323	Rock Branch near Mineral Point, Wis.	SE 1/4 sec. 8, T. 4 N., R. 3 E., at box culvert on State Highway 23, 2 1/2 miles south of Mineral Point.	5.04	1959-65	3- 1-65	12.82	/
5-4342	Skinner Creek tributary near Monroe, Wis.	S 1/2 sec. 14, T. 2 N., R. 7 E., at culvert on State Highway 69, 2.4 miles north of Monroe.	.48	1959-65	3-31-65	11.77	/
5-4359	Sugar River tributary near Pine Bluff, Wis.	SE 1/4 sec. 27, T. 7 N., R. 7 E., at culvert on County Trunk J, 1.1 miles southeast of Pine Bluff.	7.33	1961-65	3- 1-65	14.03	/
*5-4362	Sugar River tributary No. 2 near Brooklyn, Wis.	NW 1/4 sec. 16, T. 4 N., R. 9 E., at culvert on State Highway 92, 4.3 miles west of Brooklyn.	a 3.3	1961-65	3-31-65	15.06	/
*5-4372	Raccoon Creek tributary near Beloit, Wis.	On common boundary of secs. 30 and 31, T. 1 N., R. 12 E., at culvert on State Highway 81, 2.9 miles west of Beloit.	7.24	1958-65	3-31-65	12.57	225
		Illinois River Basin					
5-5443	Mukwonago River tributary near Mukwonago, Wis.	S 1/2 sec. 36, T. 5 N., R. 18 E., at culvert on State Highway 83, 1 1/2 miles southeast of Mukwonago.	1.32	1960-65	9- 9-65	10.07	/e
5-5451	Sugar Creek at Elkhorn, Wis.	SW 1/4 sec. 29, T. 3 N., R. 17 E., at culvert on State Highway 11, 2.0 miles northeast of Elkhorn.	6.3	1962-65	9-10-65	10.66	/
5-5452	White River tributary near Burlington, Wis.	On common boundary of secs. 27 and 34, T. 3 N., R. 18 E., at box culvert on State Highway 11, 4.5 miles west of Burlington.	1.75	1958-65	9- 9-65	11.25	/
*5-5453	White River near Burlington, Wis. (c)	NW 1/4 sec. 1, T. 2 N., R. 18 E., at bridge on State Highway 36, 2 1/4 miles southwest of Burlington.	105	1958-65	4- 3-65	11.52	560
*5-5481.5	North Branch Nippersink Creek tributary near Genoa City, Wis.	E 1/2 sec. 32, T. 1 N., R. 18 E., at bridge on County Trunk B, 3.0 miles west of Genoa City.	13.0	1962-65	3-31-65	10.77	/

* Also a low-flow partial-record station.
/ Discharge not determined.
a Approximately.
c Daily discharges for part of year listed in seasonal record section.

Measurements at Miscellaneous Sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Measurements made during periods of base flow are designated by an asterisk (*).

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan				
Neenah Creek Tributary	Neenah Creek	SW 1/4 NW 1/4 sec. 2, T. 15 N., R. 7 E., 10 ft upstream from mouth, and 3.8 miles northwest of Oxford, Wis.			8- 5-65	a * 2.10
Peppermill Creek	Neenah Creek	SW 1/4 SE 1/4 sec. 11, T. 15 N., R. 7 E., 60 ft downstream from dam at McDougall Lake, and 2.7 miles west of Oxford, Wis.			8- 6-65	a * 1.85
Neenah Creek	Fox River	SE 1/4 SE 1/4 sec. 12, T. 15 N., R. 7 E., 80 ft downstream from bridge on country road, 0.1 mile downstream from Chicago and Northwestern Railroad bridge, and 1.6 miles northwest of Oxford, Wis.			8- 5-65	a * 12.7
Widow Green Creek	Neenah Creek	NW 1/4 NE 1/4 sec. 12, T. 14 N., R. 7 E., 120 ft downstream from bridge on country road, and 4.4 miles north of Briggsville, Wis.			8-11-65	a 3.30
South Branch Tributary	South Branch	NW 1/4 NW 1/4 sec. 27, T. 14 N., R. 7 E., 15 ft upstream from bridge on County Trunk G, and 0.6 mile west of Big Spring, Wis.			8-19-65	a 3.84
South Branch Tributary	South Branch	SE 1/4 SE 1/4 sec. 22, T. 14 N., R. 7 E., 300 ft upstream from bridge on country road, and 0.2 mile north of Big Spring, Wis.			8-13-65	a .73
South Branch	Neenah Creek	NE 1/4 NE 1/4 sec. 27, T. 14 N., R. 7 E., 130 ft downstream from junction of channel from emergency spillway of dam at Big Spring, Wis.			8-20-65	a 13.8
South Branch Tributary	South Branch	SW 1/4 SW 1/4 sec. 24, T. 14 N., R. 7 E., 75 ft downstream from bridge on country road, and 1.5 miles east of Big Spring, Wis.			8-12-65	a .21
South Branch Tributary	South Branch	NE 1/4 NE 1/4 sec. 25, T. 14 N., R. 7 E., just upstream from mouth of tributary, and 1.1 miles northwest of Briggsville, Wis.			8-12-65	a .43
Tributary of South Branch Tributary	South Branch Tributary	NE 1/4 NE 1/4 sec. 25, T. 14 N., R. 7 E., 20 ft upstream from mouth, and 1.1 miles northwest of Briggsville, Wis.			8-12-65	a .36
South Branch	Neenah Creek	SE 1/4 NE 1/4 sec. 31, T. 14 N., R. 8 E., 30 ft upstream from bridge on State Highway 23, and downstream from dam at Briggsville, Wis.			8-20-65	a 14.6
Fox River	Lake Michigan	West line NW 1/4 sec. 29, T. 13 N., R. 11 E., at bridge on State Highway 44, and 5.0 miles northeast of Pardeeville, Wis.			8-24-65	* 6.46
Neenah Creek	Fox River	SW 1/4 SE 1/4 sec. 31, T. 14 N., R. 9 E., at bridge on U. S. Highway 51, and 5 miles south of Endeavor, Wis.			8-24-65	* 59.3
Westfield Creek	Montello River	NE 1/4 SE 1/4 sec. 33, T. 17 N., R. 9 E., at bridge on County Trunk DD, and 1.9 miles northwest of Harrisville, Wis.			8-24-65	* 25.4
Grand River	Fox River	SE 1/4 SW 1/4 sec. 12, T. 14 N., R. 11 E., and 0.8 mile northwest of Kingston, Wis.			8-24-65	* 8.48

* Base flow.
a Furnished by Wisconsin State Conservation Department.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan--Continued				
Mecan River	Fox River	West line sec. 17, T. 16 N., R. 11 E., at bridge on County Trunk J, and 4.9 miles west of Princeton, Wis.			8-24-65	* 87.2
White River	Fox River	SE 1/4 NE 1/4 sec. 24, T. 18 N., R. 10 E., at bridge on County Trunk YY, and 7.6 miles west of Redgranite, Wis.			8-24-65	* 106
White River	Fox River	SE 1/4 NW 1/4 sec. 28, T. 17 N., R. 12 E., at bridge on country road, 0.7 mile upstream from mouth of Sucker Creek, and 5.3 miles northeast of Princeton, Wis.			8-24-65	* 63.1
Middle Branch Embarrass River	Embarrass River	NE 1/4 NE 1/4 sec. 33, T. 28 N., R. 11 E., 0.1 mile downstream from mouth of Packard Creek, and 2.2 miles east of Eland, Wis.			8-26-65	* 28.6
South Branch Embarrass River	Embarrass River	West line sec. 28, T. 27 N., R. 11 E., at bridge on County Trunk M, and 2.8 miles south of Wittenberg, Wis.			8-26-65	* 14.8
Embarrass River	Wolf River	SW 1/4 SW 1/4 sec. 13, T. 26 N., R. 13 E., at bridge on country road, and 0.9 mile east of Caroline, Wis.			8-27-65	* 73.6
North Branch Embarrass River	Embarrass River	SE 1/4 NW 1/4 sec. 23, T. 27 N., R. 13 E., at bridge on County Trunk G, and 1.2 miles southeast of Tilleda, Wis.			8-26-65	* 15.7
Pigeon River	Embarrass River	SW 1/4 NW 1/4 sec. 19, T. 25 N., R. 15 E., at bridge on country road, and 1.4 miles east of Clintonville, Wis.			8-26-65	* 30.0
Little Wolf River	Wolf River	SW 1/4 SE 1/4 sec. 7, T. 25 N., R. 11 E., at bridge on County Trunk P, and 3.9 miles north of Northland, Wis.			8-26-65	* 22.4
Little Wolf River	Wolf River	SW 1/4 NE 1/4 sec. 9, T. 24 N., R. 13 E., at bridge on State Highway 142, and 4.1 miles north of Symco, Wis.			8-26-65	* 85.6
South Branch Little Wolf River	Little Wolf River	SW 1/4 SE 1/4 sec. 2, T. 22 N., R. 12 E., at bridge on country road, and 3.5 miles south of Ogdensburg, Wis.			8-25-65	* 48.8
South Branch Little Wolf River	Little Wolf River	SE 1/4 SW 1/4 sec. 4, T. 22 N., R. 13 E., at bridge on State Highway 22, and 3.6 miles west of Royalton, Wis.			8-25-65	* 56.8
Tomorrow River	Waupaca River	SE 1/4 NE 1/4 sec. 28, T. 23 N., R. 10 E., at bridge on U. S. Highway 10, and 0.6 mile south of Amherst, Wis.			8-26-65	* 29.3
Pine River	Lake Poygan	SW 1/4 SW 1/4 sec. 29, T. 20 N., R. 12 E., at end of private road, and 2.0 miles northwest of Pine River, Wis.			8-25-65	* 42.7
Willow Creek	Lake Poygan	West line sec. 8, T. 18 N., R. 13 E., and 0.2 mile east of Auroraville, Wis.		1957	8-25-65	* 34.8
Root River	Lake Michigan	SW 1/4 sec. 33, T. 6 N., R. 21 E., at College Ave. bridge, 1.7 miles southeast of Hales Corners, Wis.	16.0	1964	10-30-64	b * .29
Root River Tributary	Root River	SE 1/4 sec. 32, T. 6 N., R. 21 E., at South 92nd. Street bridge, 1.6 miles southeast of Hales Corners, Wis.			10-30-64	b * .57
Root River	Lake Michigan	NE 1/4 sec. 3, T. 5 N., R. 21 E., at Loomis Road (State Highway 36) bridge, 2 1/2 miles southeast of Hales Corners, Wis.		1960	4-12-65	b 102

* Base flow.
b Furnished by Southeastern Wisconsin Regional Planning Commission

GPO 826-536-12

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan--Continued				
Root River	Lake Michigan	SE 1/4 sec. 3, T. 5 N., R. 21 E., at Rawson Ave. bridge about 3 miles southeast of Hales Corners, Wis.			10-30-64	b * 2.31
do	do	On sec. line 27-34, T. 5 N., R. 21 E., at bridge on Oakwood Road, 2 1/2 miles southeast of Franklin, Wis.			10-29-64	b * 2.65
West Branch Root River Canal	Root River Canal	NE 1/4 sec. 21, T. 3 N., R. 21 E., at bridge on County Trunk C, 2 1/2 miles northeast of Union Grove, Wis.		1964	10-29-64	b * 1.10
do	do	SW 1/4 sec. 3, T. 3 N., R. 21 E., near bridge on Onemile Road, one mile northeast of Yorkville, Wis.			10-29-64	b * .91
do	do	SW 1/4 sec. 23, T. 4 N., R. 21 E., at bridge on Fourmile Road, 3.9 miles northeast of Yorkville, Wis.	38.2	1963-64	10-29-64	b * 1.11
East Branch Root River Canal	do	SE 1/4 sec. 14, T. 3 N., R. 21 E., at bridge on County Trunk C, about 4 miles northeast of Union Grove, Wis.			10-29-64	b 0
do	do	On north line of sec. 1, T. 3 N., R. 21 E., at bridge on Twomile Road, about 6 miles northeast of Union Grove, Wis.			10-29-64	b 0
do	do	SE 1/4 sec. 23, T. 4 N., R. 21 E., at bridge on County Trunk K, 4 miles northeast of Yorkville, Wis.	15.0	1964	10-29-64	b * .01
Root River Canal	Root River	On line between secs. 3 and 34, T. 4 and 5 N., R. 21 E., on Milwaukee-Racine County line.			10-29-64	b * 1.43
Root River	Lake Michigan	West line of sec. 35, T. 5 N., R. 21 E., at bridge on 60th Street, and 3.2 miles southeast of Franklin, Wis.	126	1963-64	10-14-64	* 4.03
do	do	West line of sec. 1, T. 4 N., R. 21 E., at bridge on 43rd Street, and 4.9 miles southeast of Franklin, Wis.			8- 9-65	188
do	do	Near corner between T. 4 N., T. 5 N., R. 21 E., R. 22 E., at bridge on U. S. Highway 41, 6 1/2 miles southwest of South Milwaukee, Wis.	133	1955-56	4-12-65	b 510
do	do	West line of sec. 32, T. 5 N., R. 22 E., at bridge on County Trunk V (13th Street), and 4.8 miles southwest of South Milwaukee, Wis.			8-10-65	200
do.	do	West line of SW 1/4 SW 1/4 sec. 34, T. 5 N., R. 22 E., at bridge on Nicholson Road, and 4.0 miles south of South Milwaukee, Wis.			8-10-65	181
do	do	South line of sec. 11, T. 4 N., R. 22 E., at bridge on Sixmile Road, and 4.9 miles northwest of Racine, Wis.			8-10-65	163
do	do	NE 1/4 sec. 26, T. 4 N., R. 22 E., at bridge on Fourmile Road, 3 miles northeast of Franksville, Wis.		1964	4-12-65 8-10-65	b 532 165
do	do	SE 1/4 SE 1/4 sec. 24, T. 4 N., R. 22 E., at bridge on State Highway 31, and 2.1 miles northwest of Racine, Wis.			8-10-65	194

* Base flow.
b Furnished by Southeastern Wisconsin Regional Planning Commission.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Trempealeau River Basin						
Trempealeau River	Mississippi River	NW 1/4 SE 1/4 sec. 9, T. 22 N., R. 5 W., 100 ft upstream from bridge on country road, 0.2 mile upstream from mouth of North Branch Trempealeau River, and 4.8 miles southwest of Alma Center, Wis.			4-29-65	a 14.1
North Branch Trempealeau River	Trempealeau River	NW 1/4 NE 1/4 sec. 20, T. 23 N., R. 5 W., 30 ft downstream from bridge on country road, and 4.5 miles east of Northfield, Wis.			4-30-65	a 2.76
do	do	NE 1/4 SE 1/4 sec. 20, T. 23 N., R. 5 W., 75 ft downstream from bridge on country road, and 4.7 miles east of Northfield, Wis.			4-30-65	a 1.76
do	do	NW 1/4 NW 1/4 sec. 28, T. 23 N., R. 5 W., 100 ft upstream from bridge on County Trunk A, and 5.0 miles east of Northfield, Wis.			4-29-65	a 2.82
do	do	SE 1/4 SW 1/4 sec. 33, T. 23 N., R. 5 W., 50 ft downstream from bridge on country road, and 100 ft downstream from mouth of Judkins Creek, and 4.1 miles west of Alma Center, Wis.			4-29-65	a 8.08
do	do	SE 1/4 NW 1/4 sec. 9, T. 22 N., R. 5 W., 50 ft downstream from bridge on private road, and 4.8 miles southwest of Alma Center, Wis.			4-29-65	a 10.1
Lowe Creek	Trempealeau River	SE 1/4 NE 1/4 sec. 30, T. 22 N., R. 5 W., 150 ft upstream from upper end of Lowe Creek (Smith) Pond, 0.4 mile upstream from country road, and 2.1 miles south of Hixton, Wis.			9-18-65	a 1.79
Black River Basin						
Soper Creek	Big Creek	NE 1/4 NW 1/4 sec. 34, T. 19 N., R. 4 W., at bridge on country road, 0.5 mile upstream from confluence with Dustin Creek, and 0.2 mile southwest of Cataract, Wis.			11-17-64	a 9.28
Big Creek	Black River	NW 1/4 SW 1/4 sec. 27, T. 19 N., R. 4 W., 100 ft upstream from mouth of Spencer Creek, 400 ft downstream from confluence of Dustin and Soper Creeks, and 0.5 mile northwest of Cataract, Wis.			11-17-64	a 18.7
Spencer Creek	Big Creek	NE 1/4 SE 1/4 sec. 28, T. 19 N., R. 4 W., 20 ft upstream from mouth, and 0.6 mile west of Cataract, Wis.			11-17-64	a 3.44
Big Creek	Black River	SW 1/4 NE 1/4 sec. 28, T. 19 N., R. 4 W., at bridge on country road, 0.5 mile downstream from mouth of Spencer Creek, and 1.0 mile northwest of Cataract, Wis.			11-17-64	a 26.3
Sand Creek	Black River	NE 1/4 SE 1/4 sec. 34, T. 19 N., R. 5 W., 200 ft upstream from mouth of tributary, 4.5 miles southeast of Melrose, Wis.			11-18-64	a 3.29
do	do	NE 1/4 SE 1/4 sec. 34, T. 19 N., R. 5 W., 100 ft downstream from mouth of tributary, 4.4 miles southeast of Melrose, Wis.			11-18-64	a 6.74
do	do	SW 1/4 SE 1/4, sec. 29, T. 19 N., R. 5 W., 25 ft upstream from bridge on country road (old State Highway 108), 0.5 mile upstream from mouth, and 3.0 miles south of Melrose, Wis.			11-18-64	a 12.9

a Furnished by Wisconsin State Conservation Department.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wisconsin River Basin				
Petenwell Lake Tributary	Wisconsin River	SW 1/4 SE 1/4 sec. 2, T. 20 N., R. 5 E., 220 ft downstream from bridge on County Trunk Z, and 1.0 mile northeast of New Rome, Wis.			6-14-65	e * 4.57
Fourteenmile Creek Tributary a ditch	Fourteenmile Creek	NE 1/4 NE 1/4 sec. 7, T. 20 N., R. 7 E., 120 ft downstream from dam located near northeast corner of section, and 9.6 miles west of Plainfield, Wis.			6- 2-65	e 18.2
do	do	South edge of NE 1/4 NE 1/4 sec. 30, T. 20 N., R. 7 E., 155 ft downstream from dam, and 9.5 miles west of Hancock, Wis.			6- 4-65	e 5.91
do	do	South edge of SE 1/4 SE 1/4 sec. 18, T. 20 N., R. 7 E., 200 ft downstream from dam, 250 ft downstream from country road, and 9.5 miles west of Plainfield, Wis.			6- 3-65	e 5.57
Leola Ditch	Fourteenmile Creek	SE 1/4 NW 1/4 sec. 18, T. 20 N., R. 7 E., 40 ft downstream from dam located near middle of section, and 8.5 miles east of New Rome, Wis.			6- 3-65	e 15.2
Spring Branch	Fourteenmile Creek	SW 1/4 NE 1/4 sec. 17, T. 20 N., R. 6 E., 40 ft upstream from bridge on country road, 0.1 mile downstream from dam on Spring Branch Lake, and 3.7 miles east of New Rome, Wis.			6-11-65	e * 2.62
Fourteenmile Creek	Wisconsin River	SW 1/4 NW 1/4 sec. 18, T. 20 N., R. 6 E., 210 ft upstream from bridge on country road along west edge of section, and 2.2 miles southeast of New Rome, Wis.			6-15-65	e * 53.5
Big Roche a Cri Creek Tributary	Big Roche a Cri Creek	NE 1/4 SE 1/4 sec. 6, T. 19 N., R. 7 E., 280 ft downstream from bridge on country road along east edge of section, and 8.8 miles west of Hancock, Wis.			6-17-65	e * 9.70
Dry Creek	Big Roche a Cri Creek	SE 1/4 SE 1/4 sec. 22, T. 19 N., R. 6 E., 15 ft downstream from bridge on country road, 1.1 miles upstream from mouth, and 7.9 miles northeast of Arkdale, Wis.			6-24-65	e 6.74
Big Roche a Cri Creek	Wisconsin River	SW 1/4 SW 1/4 sec. 6, T. 18 N., R. 6 E., 450 ft downstream from dam at Big Roche a Cri Lake, and 3.1 miles northeast of Arkdale, Wis.			7-21-65	e * 72.5
Dead Horse Creek	Big Roche a Cri Creek	SE 1/4 SE 1/4 sec. 1, T. 18 N., R. 5 E., 20 ft upstream from bridge on country road, about 0.1 mile upstream from mouth, and 2.9 miles northeast of Arkdale, Wis.			6-25-65	a 3.34
Big Roche a Cri Creek	Wisconsin River	SW 1/4 NW 1/4 sec. 20, T. 18 N., R. 5 E., 150 ft upstream from bridge on County Trunk Z, and 2.4 miles west of Arkdale, Wis.			7-22-65	a * 88.9
Fordham Creek Tributary	Fordham Creek	SE 1/4 NE 1/4 sec. 6, T. 17 N., R. 7 E., at bridge on country road, 0.3 mile upstream from mouth, and 6.4 miles north of Grand Marsh, Wis.			7-26-65	a * .41
do	do	NE 1/4 SE 1/4 sec. 35, T. 18 N., R. 6 E., 300 ft upstream from mouth, and 7.1 miles north of Grand Marsh, Wis.			7- 9-65	a .98
Fordham Creek	Little Roche a Cri Creek	SE 1/4 SE 1/4 sec. 35, T. 18 N., R. 6 E., 50 ft downstream from bridge on country road, and 3.6 miles east of Friendship, Wis.			7-12-65	a * 11.6
Little Roche a Cri Creek	Wisconsin River	SW 1/4 NW 1/4 sec. 5, T. 17 N., R. 6 E., just downstream from bridge on State Highway 13, 0.1 mile downstream from outlet of Friendship Lake, and just north of Friendship, Wis.			7-15-65	a * 3.81

* Base flow.
a Furnished by Wisconsin State Conservation Department.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wisconsin River Basin--Continued				
Bingham Creek	Carter Creek	SW 1/4 NW 1/4 sec. 28, T. 18 N., R. 6 E., at bridge on country road along west line of sec. 28, and 4.8 miles southeast of Arkdale, Wis.			7- 9-65	a 3.08
Carter Creek	Little Roche a Cri Creek	SW 1/4 SE 1/4 sec. 30, T. 18 N., R. 6 E., 300 ft upstream from bridge on country road, 1.4 miles upstream from mouth, and 1.6 miles north of Friendship, Wis.			7- 7-65	a 10.5
Little Roche a Cri Creek	Wisconsin River	NE 1/4 NE 1/4 sec. 2, T. 17 E., R. 5 E., 40 ft downstream from County Trunk N, 0.9 mile downstream from mouth of Carter Creek, and 2.2 miles west of Friendship, Wis.			7-15-65	a * 28.1
Klein Creek	Wisconsin River	SW 1/4 SW 1/4 sec. 21, T. 17 N., R. 5 E., at bridge on country road along west edge of section 21, and 6.1 miles southwest of Friendship, Wis.			7-20-65	a .64
Hemlock Creek	Yellow River	NE 1/4 SE 1/4 sec. 5, T. 22 N., R. 4 E., at bridge on country road known as Indian Bridge crossing, and 4.3 miles southeast of Pittsville, Wis.			8-24-65 9-15-65	a * 1.01 a 17.6
do	do	North line of NW 1/4 SE 1/4 sec. 8, T. 22 N., R. 4 E., at end of private road, and 4.6 miles southeast of Pittsville, Wis.			5- 4-65 5-20-65 6- 1-65 6-15-65	a * 121 a * 89 a 21 a * 2.80
do	do	NW 1/4 SE 1/4 sec. 8, T. 22 N., R. 4 E., 500 ft downstream from assumed point of intersection of stream with north line of NW 1/4 SE 1/4 sec. 8, and 4.7 miles southeast of Pittsville, Wis.			6-29-65	a * .76
Duck Creek	Wisconsin River	NE 1/4 SW 1/4 sec. 25, T. 17 N., R. 5 E., 30 ft downstream from country road, and 4.2 miles southwest of Friendship, Wis.			8- 4-65	a * 1.05
Risk Creek	Fairbanks Creek	NW 1/4 NW 1/4 sec. 20, T. 16 N., R. 6 E., 65 ft upstream from bridge on State Highway 13, 0.1 mile upstream from mouth, and 1.6 miles north of Easton, Wis.			8- 3-65	a * 2.04
Fairbanks Creek	White Creek	NE 1/4 NW 1/4 sec. 30, T. 16 N., R. 6 E., 60 ft downstream from bridge on country road, 0.9 mile upstream from confluence with Campbell Creek and 1.3 miles west of Easton, Wis.			7-29-65	a * 6.69
Campbell Creek	White Creek	SE 1/4 NE 1/4 sec. 28, T. 16 N., R. 6 E., 25 ft downstream from bridge on County Trunk A, and 1.4 miles east of Easton, Wis.			7-28-65	a * 6.04
do	do	NW 1/4 SE 1/4 sec. 29, T. 16 N., R. 6 E., 65 ft downstream from junction of race water with stream, 0.4 mile downstream from outlet of Easton Lake and 0.4 mile west of Easton, Wis.			7-28-65	a * 11.8
do	do	NE 1/4 SE 1/4 sec. 30, T. 16 N., R. 6 E., at bridge on State Highway 13, and 0.5 mile west of Easton, Wis.			7-28-65	a * 14.3
White Creek Tributary	White Creek	NW 1/4 NE 1/4 sec. 35, T. 16 N., R. 5 E., 125 ft upstream from bridge on country road, 0.2 mile upstream from mouth, and 0.7 mile west of White Creek, Wis.			8- 4-65	a * .67
White Creek	Wisconsin River	SW 1/4 NW 1/4 sec. 3, T. 15 N., R. 5 E., 130 ft downstream from bridge on County Trunk Z, 0.4 mile upstream from mouth, and 2.2 miles west of White Creek, Wis.			8- 3-65	a * 27.1
Tributary of Wisconsin River Tributary	Wisconsin River Tributary	NW 1/4 SW 1/4 sec. 19, T. 15 N., R. 6 E., 110 ft upstream from mouth, and 4.4 miles south of White Creek, Wis.			8-11-65	a 5.21

* Base flow.
a Furnished by Wisconsin State Conservation Department.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wisconsin River Basin--Continued				
Wisconsin River Tributary	Wisconsin River	NW 1/4 SW 1/4 sec. 19, T. 15 N., R. 6 E., at bridge on State Highway 13, and 4.4 miles south of White Creek, Wis.			8-11-65	a 9.92
Corning Creek Tributary	do	NE 1/4 SE 1/4 sec. 32, T. 15 N., R. 6 E., 6 ft upstream from mouth, and 1.9 miles north of Plainville, Wis.			8-10-65	a 1.18
Corning Creek	do	SW 1/4 SW 1/4 sec. 31, T. 15 N., R. 6 E., at bridge on State Highway 13, near mouth, and 1.8 miles northwest of Plainville, Wis.			8-10-65	a 4.92
Trout Creek	do	SE 1/4 NE 1/4 sec. 6, T. 14 N., R. 6 E., at bridge on State Highway 13, 0.5 mile upstream from mouth, and 0.8 mile north of Plainville, Wis.			8-23-65	a * .62
Plainville Creek	do	NW 1/4 NW 1/4 sec. 8, T. 14 N., R. 6 E., at bridge on State Highway 13, 0.4 mile upstream from mouth, and at Plainville, Wis.			8-23-65	a * 1.87
Shadduck Creek	do	NW 1/4 NE 1/4 sec. 17, T. 14 N., R. 6 E., 70 ft upstream from bridge on State Highway 13, 0.5 mile upstream from mouth, and 1.0 mile south of Plainville, Wis.			8-24-65	a * .18
Gulch Creek	do	SE 1/4 NW 1/4 sec. 21, T. 14 N., R. 6 E., at bridge on State Highway 13, 0.5 mile upstream from mouth, and 3.7 miles north of Wisconsin Dells, Wis.			8-24-65	a * .42
Baraboo River	do	W 1/2 sec. 2, T. 11 N., R. 5 E., on highway bridge at west edge of North Freedom, Wis.		1950, 1956, 1959-60 1961 + 1962	4- 6-65	1,990
Rowan Creek	do	SW 1/4 NE 1/4 sec. 1, T. 10 N., R. 9 E., just upstream from mouth of tributary, 0.3 mile upstream from bridge on County Trunk CS, and 2.0 miles southeast of Poynette, Wis.			4-30-65	a * 1.5
do	do	NE 1/4 SE 1/4 sec. 35, T. 11 N., R. 9 E., at bridge on private road, 0.5 mile upstream from bridge on U. S. Highway 51, and 0.7 mile east of Poynette, Wis.			4-30-65 8-23-65	a * 3.3 a * 3.3
do	do	E line sec. 34, T. 11 N., R. 9 E., at bridge on County Trunk S, and at Poynette, Wis.			4-30-65 8-23-65	a * 5.3 a * 4.5
Rowan Creek tributary	Rowan Creek	SW 1/4 SW 1/4 sec. 34, T. 11 N., R. 9 E., at bridge on County Trunk CS, 0.5 mile upstream from mouth, and 1.2 miles southwest of Poynette, Wis.			4-30-65 8-23-65	a * 1.1 a * .9
Rowan Creek	Wisconsin River	NW 1/4 SE 1/4 sec. 33, T. 11 N., R. 9 E., at Muir Park, and 1.6 miles west of Poynette, Wis.			4-30-65 8-23-65	a * 11.4 a * 9.5
do	do	SE 1/4 NE 1/4 sec. 30, T. 11 N., R. 9 E., just upstream from confluence with Hinkson Creek, and 3.4 miles west of Poynette, Wis.			4-30-65 8-23-65	a * 17.7 a * 14.7
Hinkson Creek	Rowan Creek	SW 1/4 NW 1/4 sec. 29, T. 11 N., R. 9 E., just upstream from confluence with Rowan Creek, and 3.3 miles west of Poynette, Wis.			4-30-65	a * 5.6
Black Earth Creek	Blue Mounds Creek	SE 1/4 sec. 9, T. 8 N., R. 6 E., at bridge at east village limits of Mazomanie, Wis.		1964	11-24-64	* 21.7
do	do	SE 1/4 sec. 13, T. 8 N., R. 5 E., at bridge on country road, and 2.5 miles west of Mazomanie, Wis.		1964	11-24-64 7-30-65	* 16.4 * 5.98
do	do	SW 1/4 SE 1/4 sec. 14, T. 8 N., R. 5 E., 1,000 ft upstream from mouth, and 3.4 miles west of Mazomanie, Wis.			7-30-65	* 6.52

* Base flow
a Furnished by Wisconsin State Conservation Department.
\+ Measured at Rock Springs, 5 1/2 miles upstream.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Wisconsin River Basin--Continued						
Mill Creek	Wisconsin River	NE 1/4 SW 1/4 sec. 21, T. 8 N., R. 4 E., at bridge on State Highway 23, and 2.8 miles southeast of Spring Green, Wis.		1963-64	7-30-65	* 30.9
Bear Creek	do	SE 1/4 NW 1/4 sec. 35, T. 9 N., R. 2 E., at bridge on County Trunk JJ, and 2.4 miles northwest of Lone Rock, Wis.		1963	7-30-65	* 15.2
Pine River	do	SE 1/4 SE 1/4 sec. 27, T. 10 N., R. 1 E., at bridge on County Trunk O, and 2.5 miles southeast of Richland Center, Wis.		1963	7-30-65	* 62.3
Willow Creek	Pine River	SE 1/4 SW 1/4 sec. 6, T. 9 N., R. 2 E., at bridge on U. S. Highway 14, 0.6 mile upstream from mouth, and 5.5 miles southeast of Richland Center, Wis.		1963	7-30-65	* 26.5
Blue River	Wisconsin River	NW 1/4 NW 1/4 sec. 16, T. 8 N., R. 1 W., at bridge on country road, and 3.2 miles east of Blue River, Wis.		1964	7-30-65	* 46.7
Knapp Creek	do	SW 1/4 sec. 32, T. 9 N., R. 2 W., at bridge on State Highway 60, and 6.0 miles northeast of Boscobel, Wis.		1964	7-30-65	* 25.7
Kickapoo River	do	NE 1/4 sec. 24, T. 12 N., R. 3 W., at bridge on State Highway 56, at Viola, Wis.	340	1960-62	3- 3-65 4- 6-65	2,890 2,470
do	do	NW 1/4 sec. 8, T. 11 N., R. 3 W., at bridge in Readstown, Wis.	485	1960-62	4- 7-65 9-24-65	3,150 625
do	do	SE 1/4 sec. 30, T. 11 N., R. 3 W., at bridge on State Highway 131, in Soldiers Grove, Wis.	530	1939≠ 1960 1962	3- 2-65 4- 6-65	4,240 2,890
Wisconsin River	Mississippi River	SW 1/4 sec. 11, T. 6 N., R. 6 W., at bridge on U. S. Highway 18, at Bridgeport, Wis.	a 11,700	1935-36 1938 1945-47 1950-52 1955 1960	4-15-65 4-19-65 4-24-65 5- 1-65	20,100 44,600 32,500 26,300
Rock River Basin						
Jones Branch	Pecatonica River	NE 1/4 NW 1/4 sec. 26, T. 4 N., R. 1 E., 0.6 mile upstream from bridge on country road, 1.6 miles upstream from mouth, and 5.3 miles south of Mifflin, Wis.			9- 3-65	a * .3
do	do	SW 1/4 SE 1/4 sec. 23, T. 4 N., R. 1 E., near bridge on country road, 1.2 miles upstream from mouth, and 4.9 miles south of Mifflin, Wis.			9- 3-65	a * .5
Pleasant Valley Branch tributary	Pleasant Valley Branch	SW 1/4 SE 1/4 sec. 28, T. 5 N., R. 6 E., at bridge on private road, 0.1 mile upstream from mouth, and 5.8 miles northeast of Blanchardville, Wis.			7-28-65	a * 3.7
Pleasant Valley Branch	Blue Mounds Branch	SW 1/4 SW 1/4 sec. 28, T. 5 N., R. 6 E., 0.6 mile downstream from bridge on country road, 1.6 miles upstream from mouth of Syftestad Creek, and 5.5 miles northeast of Blanchardville, Wis.			7-28-65	a * 5.4
do	do	NE 1/4 NW 1/4 sec. 32, T. 5 N., R. 6 E., at bridge on State Highway 78, 0.7 mile upstream from mouth of Syftestad Creek, and 4.9 miles northeast of Blanchardville, Wis.			7-28-65	a * 6.2
do	do	SE 1/4 SW 1/4 sec. 30, T. 5 N., R. 6 E., at bridge on country road, 1.1 miles downstream from mouth of Syftestad Creek, and 4.7 miles northeast of Blanchardville, Wis.			7-28-65	a * 7.1

* Base flow.
a (Drainage area) Approximately.
a (Discharge) Furnished by Wisconsin State Conservation Department.
≠ Operated as a continuous record gaging station.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Rock River Basin--Continued				
Sawmill Creek	East Branch Pecatonica River	SW 1/4 SE 1/4 sec. 16, T. 4 N., R. 6 E., at bridge on private road, 0.6 mile upstream from bridge on County Trunk H, and 3.5 miles east of Blanchardville, Wis.			9- 1-65	a 1.7
do	do	SW 1/4 NW 1/4 sec. 21, T. 4 N., R. 6 E., at bridge on County Trunk H, 3.3 miles east of Blanchardville, Wis.			9- 1-65	a 3.2
do	do	NW 1/4 NW 1/4 sec. 29, T. 4 N., R. 6 E., 0.2 mile downstream from bridge on county road, and 2.6 miles southeast of Blanchardville, Wis.			9- 1-65	a 3.0
do	do	SE 1/4 SW 1/4 sec. 30, T. 4 N., R. 6 E., at bridge on country road, 1.2 miles upstream from mouth of Erickson Creek, and 2.3 miles southeast of Blanchardville, Wis.			9- 1-65	a 3.4
do	do	SE 1/4 SE 1/4 sec. 36, T. 4 N., R. 5 E., at bridge on country road, 0.1 mile downstream from mouth of Erickson Creek, and 3.0 miles south of Blanchardville, Wis.			9- 1-65	a 6.7
do	do	West line sec. 1, T. 3 N., R. 5 E., just upstream from bridge on State Highway 78, 0.9 mile upstream from mouth, and 3.4 miles south of Blanchardville, Wis.			9- 1-65	a 6.1
Little Sugar River	Sugar River	SW 1/4 SE 1/4 sec. 32, T. 5 N., R. 7 E., 0.1 mile upstream from mouth of unnamed tributary, and 4.2 miles northwest of New Glarus, Wis.			8-12-65	a * .2
Little Sugar River tributary	Little Sugar River	SW 1/4 SE 1/4 sec. 32, T. 5 N., R. 7 E., 0.2 mile upstream from mouth, and 4.2 miles northwest of New Glarus, Wis.			8-12-65	a * .3
Little Sugar River	Sugar River	SE 1/4 NW 1/4 sec. 4, T. 4 N., R. 7 E., at bridge on country road, and 3.4 miles northwest of New Glarus, Wis.			8-12-65	a * .8
do	do	SW 1/4 SE 1/4 sec. 4, T. 4 N., R. 7 E., 0.3 mile upstream from mouth of unnamed tributary, and 2.7 miles northwest of New Glarus, Wis.			8-12-65	a * .6
do	do	SE 1/4 SW 1/4 sec. 3, T. 4 N., R. 7 E., at bridge on County Trunk U, and 2.4 miles northwest of New Glarus, Wis.			8-12-65	a * 1.5
do	do	NW 1/4 SW 1/4 sec. 14, T. 4 N., R. 7 E., at New Glarus city limits, and 0.3 mile upstream from mouth of Spring Valley Creek.			8-12-65	a * 4.1
Hefty Creek	West Branch Little Sugar River	SW 1/4 NE 1/4 sec. 30, T. 4 N., R. 7 E., at bridge on County Trunk H, and 4.1 miles west of New Glarus, Wis.			8-11-65	a .6
do	do	NE 1/4 SW 1/4 sec. 33, T. 4 W., R. 7 E., at bridge on country road, 2.8 miles upstream from confluence with South Branch Hefty Creek, and 3.3 miles southwest of New Glarus, Wis.			8-11-65	a 1.6
do	do	SE 1/4 SW 1/4 sec. 33, T. 4 N., R. 7 E., 0.3 mile upstream from bridge on county road, 2.3 miles upstream from confluence with South Branch Hefty Creek, and 3.5 miles southwest of New Glarus, Wis.			8-11-65	a 2.0
do	do	SW 1/4 SE 1/4 sec. 4, T. 3 N., R. 7 E., 0.6 mile downstream from bridge on country road, ..5 miles upstream from confluence with Center Branch Hefty Creek, and 4.4 miles southwest of New Glarus, Wis.			8- 2-65	a * 2.1

* Base flow.
a Furnished by Wisconsin State Conservation Department.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Rock River Basin--Continued				
Hefty Creek	West Branch Little Sugar River	West line SW 1/4 sec. 10, T. 3 N., R. 7 E., at bridge on County Trunk N, 0.1 mile upstream from mouth of Center Branch Hefty Creek, 0.2 mile upstream from confluence with South Branch Hefty Creek, and 4.9 miles south of New Glarus, Wis.			8-11-65	a 2.3
Center Branch Hefty Creek	Hefty Creek	SW 1/4 SW 1/4 sec. 10, T. 3 N., R. 7 E., at bridge on County Trunk N, 0.1 mile upstream from mouth, and 4.9 miles south of New Glarus, Wis.			8- 2-65	a * 2.2
Hefty Creek	West Branch Little Sugar River	SW 1/4 SW 1/4 sec. 10, T. 3 N., R. 7 E., downstream from mouth of Center Branch Hefty Creek, 0.1 mile downstream from bridge on County Trunk N, and 5.0 miles south of New Glarus, Wis.			8- 2-65	a * 1.6
South Branch Hefty Creek	West Branch Little Sugar River	NE 1/4 NW 1/4 sec. 17, T. 3 N., R. 7 E., 0.1 mile downstream from mouth of tributary, 1.9 miles upstream from mouth, and 6.2 miles southwest of New Glarus, Wis.			8- 2-65	a * .7
do	do	SW 1/4 SW 1/4 sec. 9, T. 3 N., R. 7 E., 0.1 mile downstream from tributary, 1.1 mile upstream from confluence with Hefty Creek, and 5.5 miles south of New Glarus, Wis.			8-11-65	a 1.1
do	do	SW 1/4 SW 1/4 sec. 10, T. 3 N., R. 7 E., at bridge on County Trunk N, 0.1 mile upstream from mouth, and 5.0 miles south of New Glarus, Wis.			8- 2-65	a * 5.1
W. Br. Little Sugar River	Little Sugar River	SW 1/4 SW 1/4 sec. 10, T. 3 N., R. 7 E., downstream from confluence of Hefty Creek and South Branch Hefty Creek, 0.2 mile downstream from bridge on County Trunk N, and 5.0 miles south of New Glarus, Wis.			8- 2-65	a * 3.9

* Base flow.
a Furnished by Wisconsin State Conservation Department.

Low-flow investigations in central sand plains of Wisconsin.

During Oct. 6-8, 1964, and Aug. 24-25, 1965, two series of current-meter measurements were made on several streams in the central sand plains. These measurements, plus measurements made during 1964 water year, and additional measurements to be made in the future, will be used to study base-flow yields from various parts of these basins.

The largest rainfall in the area preceding the October 1964 measurements was 0.10 inch on Oct. 2, 1964, and 0.20 inch on Sept. 24, 1964. For the August 1965 measurements, 2.30 inches of rainfall on Aug. 17, 1965, was the last significant rainfall preceding these measurements. The measurements obtained during these two runs should represent base-flow.

Streams	Location	Drainage area (sq mi)	Measurements	
			Date	Discharge (cfs)
Buena Vista Creek	SE 1/4 SW 1/4 sec. 19, T. 22 N., R. 9 E., at bridge at junction of County Trunk JJ and BB at Keene, Wis.	—	10- 8-64 8-25-65	1.48 0.96
do	SW 1/4 NW 1/4 sec. 14, T. 22 N., R. 8 E., in ditch 2 at culvert on U. S. Highway 51, 5.5 miles north of Bancroft, Wis.	—	10- 8-64 8-25-65	11.2 10.8
do	SE 1/4 SE 1/4 sec. 5, T. 22 N., R. 8 E., at check dam 2 in ditch 1, 3.5 miles southwest of Plover, Wis.	—	10- 8-64 8-25-65	7.10 6.78
do	NE 1/4 SE 1/4 sec. 13, T. 22 N., R. 7 E., at check dam 46 in ditch 2, 6.3 miles east of Kellner, Wis.	—	10- 7-64 8-25-65	15.2 14.5
do	NW 1/4 NE 1/4 sec. 13, T. 22 N., R. 7 E., in ditch 1, 0.3 mile above junction with ditch 2, and 6.0 miles east of Kellner, Wis.	—	10- 7-64	10.2
do	NE 1/4 SE 1/4 sec. 14, T. 22 N., R. 7 E., in ditch 2 at bridge on country road 0.5 mile below junction with ditch 1, 5.2 miles northeast of Kellner, Wis.	—	8-25-65	25.9
do	SW 1/4 SW 1/4 sec. 14, T. 22 N., R. 7 E., at bridge on County Trunk F, 9.0 miles east of Wisconsin Rapids, Wis.	—	10- 7-64 8-25-65	25.4 28.1
do	Center of sec. 20, T. 22 N., R. 7 E., at bridge on country road, 1.2 miles upstream from Fourmile Creek, and 1.7 miles northeast of Kellner, Wis.	—	10- 8-64 8-25-65	32.2 36.4
Fourmile Creek	SW 1/4 sec. 35, T. 22 N., R. 8 E., in ditch 4 at bridge on U. S. Highway 51, 2.0 miles north of Bancroft, Wis.	—	10- 8-64 8-25-65	7.24 7.57
do	E 1/2 sec. 28, T. 22 N., R. 8 E., in ditch 3 at bridge on County Trunk B, 1.2 miles west of U. S. Highway 51, 4.0 miles north of Bancroft, Wis.	—	10- 8-64 8-25-65	5.48 3.96
do	SW 1/4 SE 1/4 sec. 27, T. 22 N., R. 7 E., in ditch 4 at culverts 0.3 west of County Trunk F, 3.5 miles east of Kellner, Wis.	—	10- 7-64 8-25-65	8.99 9.58
do	SE 1/4 NE 1/4 sec. 27, T. 22 N., R. 7 E., at check dam 53 in ditch 3 just below County Trunk F, and 3.8 miles east of Kellner, Wis.	—	10- 7-64 8-25-65	8.57 7.73
do	Center of W 1/2 sec. 23, T. 22 N., R. 8 E., in ditch 8 at bridge on U. S. Highway 51, 4.5 miles north of Bancroft, Wis.	—	10- 8-64 8-25-65	3.79 3.29
do	SW 1/4 SW 1/4 sec. 23, T. 22 N., R. 7 E., in ditch 8 at culverts on County Trunk F, 3.9 miles east of Kellner, Wis.	—	10- 7-64 8-25-65	2.77 3.34
do	SW 1/4 NW 1/4 sec. 27, T. 22 N., R. 7 E., at check dam 12 just north of County Trunk WW, 3.0 miles east of Kellner, Wis.	—	10- 7-64 8-25-65	22.2 23.2
do	SW 1/4 SE 1/4 sec. 20, T. 22 N., R. 7 E., at bridge 1.2 miles upstream from Buena Vista Creek and 1.5 miles northeast of Kellner, Wis.	—	10- 7-64 8-25-65	26.8 27.0
Tenmile Creek	SW 1/4 SW 1/4 sec. 3, T. 21 N., R. 8 E., at check dam 27 in ditch 9, 1.1 miles west of U. S. Highway 51, 1.9 miles northwest of Bancroft, Wis.	—	10- 6-64 8-24-65	1.32 0.83
do	SW 1/4 SE 1/4 sec. 3, T. 21 N., R. 7 E., in ditch 9 at culverts on County Trunk F, 3.6 miles southeast of Kellner, Wis.	—	10- 6-64 8-24-65	0.95 1.40

Low-flow investigations in central sand plains of Wisconsin--Continued.

Streams	Location	Drainage area (sq mi)	Measurements	
			Date	Discharge (cfs)
Tenmile Creek	SW 1/4 SW 1/4 sec. 13, T. 21 N., R. 8 E., in headwaters of ditch 5 at culvert on country road 1.0 mile east of U. S. Highway 51 and 1.6 miles south of Bancroft, Wis.	—	10- 6-64	0.03
do	NW 1/4 SW 1/4 sec. 14, T. 21 N., R. 8 E., in headwaters of ditch 5 at culvert on U. S. Highway 51, 1.3 miles south of Bancroft, Wis.	—	10- 6-64 8-25-65	1.45 1.58
do	NW 1/4 SW 1/4 sec. 10, T. 21 N., R. 8 E., in ditch 5 at culvert on country road, 1.5 miles west of Bancroft, Wis.	—	8-24-65	0.27
do	NE 1/4 NE 1/4 sec. 16, T. 21 N., R. 8 E., at check dam 31 in ditch 5 near bridge on country road 1-1/4 miles west of U. S. Highway 51 and 1-3/4 miles southwest of Bancroft, Wis.	—	10- 6-64 8-26-65	4.38 5.32
do	NE 1/4 NE 1/4 sec. 15, T. 21 N., R. 7 E., at check dam 29 in ditch 5, 0.1 mile west of County Trunk F, and 5.3 miles southeast of Kellner, Wis.	—	10- 6-64 8-24-65	6.68 6.69
do	SE 1/4 SE 1/4 sec. 15, T. 21 N., R. 7 E., at check dam 33 in ditch 10, 0.1 mile west of County Trunk F, and 6.2 miles southeast of Kellner, Wis.	—	8-24-65	1.73
do	SW 1/4 SW 1/4 sec. 15, T. 21 N., R. 7 E., in ditch 10 at bridge on country road, 1.0 mile below check dam 33 and 5.5 miles southeast of Kellner, Wis.	—	10- 6-64	1.54
do	SE 1/4 SW 1/4 sec. 36, T. 21 N., R. 8 E., in headwaters of ditch 6 at culvert on country road, 1.1 mile east of U. S. Highway 51, and 2.0 miles north of Plainfield, Wis.	—	10- 6-64 8-25-65	0 0
do	NW 1/4 SW 1/4 sec. 26, T. 21 N., R. 8 E., in headwaters of ditch 6 at culvert on U. S. Highway 51, 3.4 miles south of Bancroft, Wis.	—	10- 6-64 8-25-65	1.40 1.13
do	NE 1/4 NE 1/4 sec. 28, T. 21 N., R. 8 E., in headwaters of ditch 6 at bridge on country road,1.2 miles west of U. S. Highway 51 and 3.2 miles southwest of Bancroft, Wis.	—	10- 6-64 8-24-65	3.04 1.83
do	SW 1/4 SE 1/4 sec. 22, T. 21 N., R. 7 E., in ditch 6, 0.5 mile below check dam 37 and 7.5 miles southwest of Bancroft, Wis.	—	10- 6-64 8-24-65	6.22 5.48
do	NW 1/4 NE 1/4 sec. 30, T. 21 N., R. 7 E., at bridge on country road, 5.8 miles south of Kellner, Wis.	—	10- 7-64 8-24-65	17.4 21.3
do	SE 1/4 SE 1/4 sec. 26, T. 21 N., R. 6 E., at bridge on State Highway 73, 8 miles southeast of Nekoosa, Wis.	—	10- 7-64 8-24-65	21.9 26.3
do	SW 1/4 NW 1/4 sec. 34, T. 21 N., R. 6 E., at bridge on country road, 7 miles southeast of Nekoosa, Wis.	—	8-24-65	31.6
do	NE 1/4 NE 1/4 sec. 32, T. 21 N., R. 6 E., at bridge on State Highway 13, 5.8 miles southeast of Nekoosa, Wis.	—	8-26-65	43.3
do	SE 1/4 SW 1/4 sec. 26, T. 21 N., R. 5 E., at bridge on County Trunk Z, 3.7 miles southeast of Nekoosa, Wis.	—	10- 7-64 8-24-65	40.7 55.5
Fourteenmile Creek	NW 1/4 NW 1/4 sec. 6, T. 20 N., R. 7 E., at check dam 17 in ditch 1, 7.8 miles east of New Rome, Wis.	—	8-25-65	0.46
do	NE 1/4 NW 1/4 sec. 4, T. 20 N., R. 7 E., in ditch 7 at culvert on State Highway 73, 10.3 miles east of New Rome, Wis.	—	10- 8-64 8-25-65	2.15 2.60
do	NE 1/4 NE 1/4 sec. 7, T. 20 N., R. 7 E., at check dam 18 in ditch 2, 9.0 miles northeast of New Rome, Wis.	—	10- 7-64 8-25-65	7.06 5.85
do	SE 1/4 NW 1/4 sec. 18, T. 20 N., R. 7 E., at check dam 7 in ditch 3, 8.2 miles east of New Rome, Wis.	—	10- 7-64 8-25-65	8.25 6.14

Low-flow investigations in central sand plains of Wisconsin--Continued.

Streams	Location	Drainage area (sq mi)	Measurements	
			Date	Discharge (cfs)
Fourteenmile Creek	NE 1/4 NE 1/4 sec. 19, T. 20 N., R. 7 E., at check dam 9 in ditch 4, 8.7 miles east of New Rome, Wis.	——	10- 7-64 8-25-65	1.03 2.05
do	NE 1/4 NE 1/4 sec. 30, T. 20 N., R. 7 E., at check dam 13, 9.0 miles southeast of New Rome, Wis.	——	10- 7-64 8-25-65	2.50 1.83
do	SE 1/4 NE 1/4 sec. 14, T. 20 N., R. 6 E., at bridge on country road, 6.8 east of New Rome, Wis.	——	10- 7-64 8-25-65	19.4 18.5
Spring Branch	SW 1/4 NE 1/4 sec. 17, T. 20 N., R. 6 E., at culvert on country road, 1,000 feet above mouth and 3.6 miles southeast of New Rome, Wis.	——	10- 7-64 8-25-65	0.71 2.12
Fourteenmile Creek	NW 1/4 SE 1/4 sec. 17, T. 20 N., R. 6 E., at twin culverts on State Highway 13, and 3.5 miles southeast of New Rome, Wis.	——	8-26-65	26.1
do	SE 1/4 NE 1/4 sec. 13, T. 20 N., R. 5 E., at bridge on country road, 2.0 miles southeast of New Rome, Wis.	——	8-24-65	33.2
do	NW 1/4 SE 1/4 sec. 10, T. 20 N., R. 5 E., at bridge on County Trunk Z, 0.6 mile southwest of New Rome, Wis.	——	10- 7-64 8-24-65	32.4 40.4
Big Roche a Cri Creek	SE 1/4 SE 1/4 sec. 30, T. 20 N., R. 8 E., at bridge on country road, 4.0 miles northwest of Hancock, Wis.	——	10- 7-64 8-26-65	7.27 6.39
do	NE 1/4 SE 1/4 sec. 26, T. 20 N., R. 7 E., at bridge on County Trunk G, 5.5 miles northwest of Hancock, Wis.	——	10- 7-64 8-24-65	11.6 11.3
do	NW 1/4 NE 1/4 sec. 32, T. 20 N., R. 7 E., at bridge on country road, 8.4 miles northwest of Hancock, Wis.	——	10- 6-64 8-24-65	18.3 15.3
Big Roche a Cri Creek Tributary	SE 1/4 SE 1/4 sec. 1, T. 19 N., R. 6 E., at mouth and 50 feet above bridge on country road, 9.8 miles west of Hancock, Wis.	——	10- 6-64 8-24-65	7.09 7.58
Big Roche a Cri Creek	SE 1/4 SE 1/4 sec. 1, T. 19 N., R. 6 E., below tributary at bridge on country road, 9.8 miles west of Hancock, Wis.	——	10- 6-64 8-24-65	23.5 21.9
do	SW 1/4 SW 1/4 sec. 14, T. 19 N., R. 6 E., at bridge on County Trunk C, 10.4 miles north of Friendship, Wis.	——	10- 6-64 8-24-65	34.0 34.2
do	SW 1/4 SW 1/4 sec. 22, T. 19 N., R. 6 E., at culverts on Browndeer Avenue, 1/2 mile upstream from Dry Creek and 9.0 miles north of Friendship, Wis.	——	10- 6-64 8-26-65	39.2 40.9
do	SW 1/4 SW 1/4 sec. 6, T. 18 N., R. 6 E., at Cottonville Dam at country road, 6.6 miles north of Friendship, Wis.	——	10- 6-64 8-24-65	28.5 58.4
Dead Horse Creek	SE 1/4 SE 1/4 sec. 1, T. 18 N., R. 5 E., at bridge on country road, 500 feet above mouth and 6.6 miles north of Friendship, Wis.	——	10- 6-64 8-24-65	1.41 1.79
Big Roche a Cri Creek	SE 1/4 SE 1/4 sec. 24, T. 18 N., R. 4 E., at bridge on country road, 1.0 mile west of County Trunk Z and 8.1 miles northwest of Friendship, Wis.	——	10- 6-64 8-24-65	61.1 76.0

United States Department of the Interior
Geological Survey-Water Resources Division

WATER RESOURCES DATA FOR WISCONSIN

1965

Part 2. Water Quality Records

Prepared in cooperation with

Wisconsin Conservation Department through the Committee on Water Pollution

CONTENTS

[*Symbols after station name designate type of data: c, chemical; t, water temperature; s, sediment*]

WATER RESOURCES DATA FOR WINCONSIN, 1965

Part 2. Water Quality Records

INTRODUCTION

The quality-of-water investigations of the U.S. Geological Survey are concerned with the chemical and physical characteristics of surface- and ground-water supplies of the Nation. The basic records for the 1965 water year for quality of surface waters within the State of Wisconsin are given in this report. The data were collected and computed by the Water Resources Division of the U.S. Geological Survey, under the direction of George W. Whetstone, district chemist, and Charles R. Collier, acting district engineer, Quality of Water Branch, succeeded by John J. Molloy, district chief, Water Resources Division, Columbus, Ohio. The records of stream discharge, some of the temperature records, and assistance in station operation were provided by Kenneth B. Young, district engineer, Madison, Wisconsin.

The Geological Survey began publishing annual basic records of chemical quality, water temperatures, and suspended sediment for the 1941 through 1963 water years in the water-supply paper series, "Quality of Surface Waters of the United States." Each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records for Wisconsin are contained in Parts 4 and 5 of the water-supply series. These publications are available in most public libraries. For the 1964 water year the water-quality records for Wisconsin were released in "Water Quality Records in Michigan and Wisconsin." The records for the 1964 and 1965 water years will be published in Geological Survey Water Supply Papers, Nos. 1957 and 1958.

COOPERATION

The work was done under cooperative agreements between the U.S. Geological Survey and the following organizations:

Wisconsin Conservation Department, L. P. Voigt, director, through the Committee on Water Pollution, T. F. Wisniewski, director.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms and abbreviations of water-quality and hydrologic data, as used in the text and tabular data of this report, are defined as follows:

Acre-foot (ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or 325,851 gallons. The term is commonly used in measuring volumes of water used or stored.

Discharge, in its simplest concept, means outflow; therefore, the use of this term is not restricted as to course or location, and it can be applied to describe the flow of water from a pipe or from a drainage basin. It is also correct to speak of the discharge of a canal or stream into a lake, a stream, or an ocean.

Daily mean discharge is the mean discharge for one day.

Mean daily discharge is the arithmetic mean discharge for the same day during a specific period of years.

Mean discharge is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge (at time of sampling). If the discharge value at the time of sampling is reported instead of daily mean value, the heading of the discharge column will be "Discharge (cfs)."

Parts per million (ppm) is a unit for expressing the concentration of chemical constituents by weight, usually as grams of constituents per million grams of a solution. In the laboratory the results are expressed in weights of solutes in a given volume of water. To express the results in parts per million, the data must be converted. For most waters this conversion is made by assuming that a liter of water weighs 1 kilogram; and thus milligrams per liter is equivalent to parts per million. Parts per million, for suspended sediment, is computed as 1 million times the ratio of the weight of sediment to the weight of the mixture of water and sediment.

Sediment is solid material both mineral and organic that is transported by, suspended in, or deposited by water. The amount, characteristics and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are: degree of slope, length of slope, soil characteristics, land usage, and amount and intensity of precipitation.

Sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Thermograph is a thermometer for continuously recording variations of temperature automatically on a chart. The term "temperature recorder" is used to indicate the location of the thermograph in station descriptions in the table headings.

Tons per day is a quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

COLLECTION AND EXAMINATION OF SAMPLES

Water samples for suspended-sediment analysis are collected at or near points on streams where gaging stations are maintained for measurement of discharge by the Geological Survey. These discharge records are in Part 1 of this volume and used in the computations of the sediment loads.

Temperature

For daily stations, the water temperatures are taken at about the same time each day in order that the data will be relatively unaffected by diurnal variations in temperature. Most large swiftly flowing streams have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining the water temperature are accurate to plus or minus 0.5°F.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day and the monthly averages of maximum daily and minimum daily temperatures.

Sediment

For stations where daily suspended-sediment discharges are determined, suspended-sediment samples are collected daily with U.S. depth-integrating samplers from a fixed sampling point at one vertical in the cross section. Depth-integrated samples were collected periodically to determine the ratio of the cross-sectional distribution of the concentration of suspended sediment to the concentration at the daily sampling vertical. During periods of high or rapidly changing flow, samples are taken two or more times throughout the day.

During periods of inadequate sampling, daily loads of suspended sediment are estimated on the basis of water discharge, sediment concentrations observed immediately preceding and following the periods, and suspended-sediment loads for other periods of similar discharge. The estimates are further guided by weather conditions prior to and during the questionable periods, and sediment discharge for other stations.

For some streams, samples are collected on a monthly or intermittent basis, and only instantaneous rates of sediment discharge are given.

For many of the sediment stations in Wisconsin, samples are collected periodically, mostly during periods of high streamflow. For these stations, the instantaneous sediment discharge data are given, and no attempt is made to determine the daily sediment discharges.

4-637. POPPLE RIVER NEAR FENCE, WIS.

LOCATION.--Temperature recorder at gaging station on left bank, 20 feet upstream from U.S. Forest Service Road 2159, 1.8 miles downstream from Mud Creek, 2.6 miles northwest of Fence, Florence County, and 11.5 miles upstream from mouth.
DRAINAGE AREA.--131 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1964 to September 1965.
EXTREMES, 1964-65.--Water temperatures: Maximum, 79°F Aug. 14; minimum, freezing point on many days during winter months.
EXTREMES, June 1964 to September 1965.--Water temperatures: Maximum, 83°F July 24, 1964; minimum, freezing point on many days during winter months.

Chemical analyses, in parts per million, October 1963 to September 1965

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue at 180°C)	Hardness as $CaCO_3$		Total acidity as H^{+1}	Specific conductance (micromhos at 25°C)	pH	Color
																Calcium, magnesium	Noncarbonate				
Oct. 25, 1963										136	5.6	0.0	0.1	0.2	132	112	1		217	6.8	
Apr. 15, 1965				0.57	0.22					40	11	1.0	.1	2.9	A68	45	12		94	6.4	45

A Loss on ignition 38 ppm.

Temperature (°F) of water, water year October 1964 to September 1965
(Continuous ethyl alcohol-actuated thermograph)

Month	Day																														Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																															
Maximum	50	52	52	51	47	45	43	43	42	41	41	45	48	49	51	52	51	51	47	43	41	41	42	42	46	49	48	47	44	43	43	46
Minimum	48	50	49	47	45	42	41	41	39	37	38	41	45	45	46	47	49	47	43	41	41	41	39	36	41	45	46	44	42	40	41	43
November																															
Maximum	45	44	48	48	47	44	41	42	43	43	45	45	44	43	41	42	39	36	34	32	32	32	32	32	32	32	32	32	32	32	--	39
Minimum	43	43	44	47	44	41	39	39	42	43	43	44	43	41	40	38	36	34	32	32	32	32	32	32	32	32	32	32	32	32	--	38
December																															
Maximum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
January																															
Maximum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
February																															
Maximum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--	--	32
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--	--	32
March																															
Maximum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
April																															
Maximum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	35	38	38	36	36	38	41	42	47	50	--	35
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	34	35	34	33	33	36	37	40	45	--	33
May																															
Maximum	51	53	52	51	52	53	56	55	55	54	58	60	60	59	59	59	57	59	60	60	61	62	61	61	66	67	66	57	57	55	58	58
Minimum	48	48	51	48	48	49	52	53	53	52	50	55	55	57	58	54	51	55	55	56	58	58	59	58	60	65	57	53	50	53	55	54
June																															
Maximum	58	58	59	62	61	65	66	67	65	64	66	68	67	67	66	63	66	69	71	73	72	71	69	69	69	69	73	73	71	68	--	67
Minimum	55	54	55	57	59	58	62	63	61	58	59	63	61	59	59	59	57	58	63	67	65	65	64	61	61	63	64	67	64	60	--	61
July																															
Maximum	68	69	71	73	72	71	73	71	71	71	71	73	73	74	71	73	73	73	71	70	67	75	75	76	74	74	71	71	70	69	66	72
Minimum	61	65	64	65	65	63	63	65	65	63	63	66	69	68	65	67	68	68	63	64	64	67	70	71	68	67	67	67	64	65	64	66
August																															
Maximum	65	66	66	69	72	72	72	70	70	69	72	75	77	76	78	76	72	72	68	67	65	67	67	67	66	67	67	61	60	57	61	69
Minimum	63	59	62	63	64	69	70	67	64	64	65	70	72	73	73	71	69	68	64	63	63	63	62	63	63	64	61	56	55	55	55	64
September																															
Maximum	60	62	62	63	64	63	58	59	62	61	59	59	59	58	55	54	54	57	57	57	54	54	54	51	49	47	46	45	46	49	--	56
Minimum	57	55	59	60	62	58	57	55	57	59	54	55	57	55	54	51	51	54	56	54	53	53	51	49	47	45	44	44	45	45	--	53

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

4-637. POPPLE RIVER NEAR FENCE, WIS.--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.063	0.125	0.250	0.500	1.000	2.000	
Oct. 24, 1964.....	1630			56	4	0.6											
Apr. 8, 1965.....	1900			81	2	.4											
Apr. 15.....	1330			349	12	11											
May 11.....	1630			1040	12	34											
June 22.....	1530			72	4	.8											

Qw X Conc X .0027

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN ST. LAWRENCE RIVER BASIN

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm) mg/l	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
STREAMS TRIBUTARY TO LAKE SUPERIOR																		
4-255. BOIS BRULE RIVER AT BRULE, WIS.																		
Oct. 2, 1964.....	0820			174	2	0.93												
Nov. 2.....	0805			126	1	.34												
Dec. 1.....	0805		E	120	1	.3												
Jan. 2, 1965.....	1230		E	120	4	1.3												
Feb. 1.....	0900		E	120	1	.3												
Mar. 1.....	0840		E	130	1	.4												
Apr. 1.....	1155			143	1	.4												
Apr. 8.....	1830			172	5	2.3												
May 3.....	1600			285	8	6.2												
June 3.....	2100			186	6	3.0												
July 9.....	1145			180	8	3.9												
Aug. 9.....	1100			188	7	3.6												
Sept. 6.....	1010			122	4	1.3												
4-270. BAD RIVER NEAR ODANAH, WIS.																		
Oct. 12, 1964.....	1440			308	2	1.7												
May 18, 1965.....	0920			3960	780	8340												
June 21.....	1700			131	6	2.1												
STREAMS TRIBUTARY TO LAKE MICHIGAN																		
4-610. BRULE RIVER NEAR FLORENCE, WIS.																		
Nov. 13, 1964.....	0900			403	24	26												
Apr. 16, 1965.....	0815			690	26	48												
Apr. 23.....	1330			1420	26	100												
May 11.....	1000			2150	30	174												
May 18.....	1000			1820	26	128												
June 1.....	0900			574	22	34												
July 8.....	0900			275	21	16												
July 30.....	0830			216	22	13												
Aug. 2.....	0900			330	20	18												
Aug. 18.....	1430			248	17	11												
Sept. 2.....	0900			241	14	9.1												
4-660. MENOMINEE RIVER NEAR PEMBINE, WIS.																		
Oct. 20, 1964.....	1800			1690	11	50												
May 13, 1965.....	1025			2050	24	133												

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN ST. LAWRENCE RIVER BASIN--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued																		
4-665. PIKE RIVER AT AMBERG, WIS.																		
Oct. 25, 1964.....	0700			121	2	0.6												
Nov. 4.....	1330			156	4	1.7												
Nov. 12.....	0930			273	4	2.9												
Apr. 8, 1965.....	2040			367	6	5.9												
Apr. 14.....	0730			601	12	19												
Apr. 26.....	1900			550	6	8.9												
May 2.....	0800			598	10	16												
May 4.....	0730			572	8	12												
May 8.....	0900			975	11	29												
May 9.....	1030			1120	11	33												
May 16.....	1115			688	13	24												
May 22.....	0930			494	9	12												
May 27.....	0800			416	11	12												
June 21.....	0700			190	8	4.1												
July 11.....	0700			146	12	4.7												
July 31.....	0830			123	14	4.6												
Aug. 1.....	1200			183	12	5.9												
Aug. 8.....	0800			154	11	4.6												
Aug. 22.....	0800			102	10	2.8												
Aug. 30.....	0730			100	14	3.8												
Sept. 5.....	1000			127	11	3.8												
Sept. 17.....	0730			161	10	4.3												
Sept. 19.....	1345			190	10	5.1												
Sept. 20.....	0900			306	10	8.3												
4-695. PESHTIGO RIVER AT PESHTIGO, WIS.																		
Apr. 9, 1965.....	0850			1580	8	34												
4-735. FOX RIVER AT BERLIN, WIS.																		
May 10, 1965.....	1250			1510	63	257												
4-800. LITTLE WOLF RIVER AT ROYALTON, WIS.																		
Oct. 5, 1964.....	1610			245	4	2.6												
May 11, 1965.....	1115			740	10	20												

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued																		
4-810. WAUPACA RIVER AT WAUPACA, WIS.																		
Nov. 3, 1964.....	0700			183	17	8.4												
4-860. SHEBOYGAN RIVER AT SHEBOYGAN, WIS.																		
Nov. 3, 1964.....	1600			70	24	4.5												
Mar. 11, 1965.....	1630			--	60	--												
Apr. 5.....	1100			1020	56	154												
Apr. 8.....	0900			3590	54	523												
Apr. 9.....	1310			2660	100	718												
Apr. 9.....	1730			2730	108	796												
Apr. 11.....	1600			3350	272	2460												
Apr. 16.....	1600			1900	52	267												
Apr. 26.....	1350			842	44	100												
May 9.....	0910			341	84	77												
July 17.....	0900			34	10	.9												
Sept. 6.....	2010			69	7	1.3												
Sept. 7.....	0735			115	46	14												
Sept. 7.....	1940			122	36	12												
Sept. 9.....	1900			1770	308	1470												
Sept. 16.....	1700			254	452	310												
Sept. 20.....	0930			644	144	250												
Sept. 21.....	0900			2350	292	1850												
4-870. MILWAUKEE RIVER AT MILWAUKEE, WIS.																		
Oct. 13, 1964.....	1200			133	6	2.2												
Apr. 9, 1965.....	1415			5060	38	519												
Apr. 27.....	1305			1040	14	39												
Aug. 11.....	0830			100	156	42												
4-872.4. ROOT RIVER NEAR FRANKLIN, WIS.																		
Oct. 9, 1964.....	1030			5.2	44	0.6												
Apr. 2, 1965.....	1440			1130	220	671												
Apr. 28.....	1000			270	17	12												
Sept. 24.....	1150			434	100	117												

WISCONSIN RIVER BASIN

5-4037. DELL CREEK NEAR LAKE DELTON, WIS.

LOCATION.--At gaging station at Butterfield Bridge on town road, 6 miles southwest of Lake Delton, Sauk County, 7 miles east of Reedsburg, and 7 miles upstream from mouth.
DRAINAGE AREA.--44.9 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1965.
Sediment records: October 1957 to September 1965.
EXTREMES, 1964-65.--Water temperatures: Maximum, 68°F June 28; minimum, freezing point on many days during November to March.
Sediment concentrations: Maximum daily, 240 (estimated) ppm Sept. 17; minimum daily, 1 ppm Oct. 6, 11, 22, Dec. 21, 28.
Sediment loads: Maximum daily, 160 tons Mar. 2; minimum daily, less than 0.05 ton Oct. 6, 11, 22, Dec. 21, 28.
EXTREMES, 1957-65.--Water temperatures: Maximum, 73°F July 19, 24, 28, Aug. 2, 1964; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 438 ppm May 11, 1959; minimum daily, 1 ppm on many days during 1958-60, 1962-64.
Sediment loads: Maximum daily, 512 tons May 11, 1959; minimum daily, less than 0.05 ton on several days during 1958-60, 1963, 1964.
REMARKS.--Flow affected by ice Nov. 21, 22, 28-30, Dec. 5-7, 14-22, 26-28, Jan. 8-31, Feb. 1-8, 12-27, Mar. 18-24.

Temperature (°F) of water, water year October 1964 to September 1965
(Once-daily measurement, between 1200 and 1600)

Month	Day																														Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	53	55	52	50	47	46	44	47	43	43	45	50	50	52	53	55	55	--	--	--	46	44	44	44	49	48	51	50	46	43	42	48
November	46	50	56	52	48	46	50	50	52	49	55	53	50	48	--	49	42	40	38	--	32	32	35	38	39	39	38	38	32	32	--	44
December	32	32	32	32	32	32	32	32	32	37	40	40	37	32	32	32	32	32	32	32	32	32	33	32	32	32	32	32	35	36	33	33
January	36	37	34	35	38	37	41	36	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33
February	32	32	32	32	32	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	34	35	--	--	--	32
March	34	33	32	34	33	35	37	40	33	32	32	36	37	38	37	38	32	32	32	32	32	32	32	32	35	34	--	36	41	38	36	35
April	34	38	34	35	35	41	43	35	43	40	41	41	45	42	43	44	46	47	49	46	54	53	48	42	40	41	46	48	53	55	--	43
May	57	63	59	50	57	61	66	64	65	--	56	61	58	61	63	57	52	56	55	60	61	58	54	62	67	63	56	49	51	50	52	58
June	59	52	58	62	63	--	65	63	62	64	64	65	63	62	59	60	61	63	61	63	64	62	65	63	60	61	65	68	60	64	--	62
July	65	67	65	66	66	57	65	66	66	67	63	64	66	--	64	--	66	65	63	61	61	64	65	65	62	60	61	59	--	57	59	63
August	64	56	59	59	59	62	61	60	60	59	58	61	65	64	64	63	66	64	63	59	59	58	56	55	57	58	60	--	51	52	54	60
September	54	53	57	51	58	75	58	56	61	62	59	55	55	55	55	52	63	62	63	62	62	57	54	50	52	49	46	50	54	--	--	57

WISCONSIN RIVER BASIN--Continued

5-4037. DELL CREEK NEAR LAKE DELTON, WIS.--Continued

Suspended sediment, water year October 1964 to September 1965
(Where no daily concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	15	2	0.1	15	3	0.1	15	7	0.3
2	15	2	.1	17	3	.1	15	3	.1
3	15	2	.1	16	7	.3	15	2	.1
4	15	4	.2	16	4	.2	14	2	.1
5	15	2	.1	17	3	.1	14	2	.1
6	16	1	T	16	2	.1	14	3	.1
7	16	3	.1	16	3	.1	14	2	.1
8	16	3	.1	16	2	.1	14	3	.1
9	16	3	.1	15	2	.1	14	2	.1
10	15	2	.1	15	2	.1	14	2	.1
11	15	1	T	15	3	.1	16	4	.2
12	15	3	.1	16	2	.1	17	3	.1
13	15	4	.2	16	5	.2	16	3	.1
14	15	7	.3	15	18	.7	15	4	.2
15	15	4	.2	16	21	.9	14	4	.2
16	15	2	.1	17	20	.9	13	4	.1
17	15	2	.1	16	12	.5	13	3	.1
18	15	2	.1	15	10	.4	13	3	.1
19	15	3	.1	15	10	.4	13	2	.1
20	15	2	.1	15	7	.3	13	2	.1
21	15	2	.1	15	5	.2	14	1	T
22	15	1	T	15	8	.3	14	2	.1
23	15	2	.1	16	27	1.2	14	3	.1
24	15	2	.1	16	10	.4	14	2	.1
25	15	3	.1	16	9	.4	14	2	.1
26	15	2	.1	16	7	.3	13	2	.1
27	15	3	.1	16	6	.2	13	3	.1
28	15	12	.5	15	9	.4	13	1	T
29	15	4	.2	15	7	.3	14	3	.1
30	15	3	.1	15	4	.2	14	3	.1
31	15	2	.1	--	--	--	14	3	.1
Total	469	--	3.9	470	--	9.7	437	--	3.5

Day	JANUARY			FEBRUARY			MARCH		
1	14	3	0.1	15	4	0.2	168	--	35
2	15	2	.1	15	3	.1	705	--	160
3	14	2	.1	15	3	.1	213	22	13
4	14	4	.2	15	4	.2	46	16	2.0
5	14	4	.2	15	5	.2	184	62	S 35
6	14	6	.2	16	3	.1	256	42	29
7	20	18	A 1	80	38	S 11	75	30	6.1
8	35	70	A 7	96	26	6.7	98	58	15
9	24	37	2.4	57	56	8.6	73	37	7.3
10	17	14	.6	99	60	16	36	17	1.6
11	14	8	.3	78	38	8.0	30	7	.6
12	14	6	.2	27	20	1.4	27	6	.4
13	14	9	.3	23	18	1.1	26	5	.4
14	14	8	.3	21	18	1.0	25	3	.2
15	14	4	.2	19	12	.6	24	4	.2
16	14	7	.3	18	11	.5	24	5	.3
17	14	12	.4	17	12	.6	22	6	.4
18	14	12	.4	17	8	.4	20	10	.5
19	14	7	.3	16	6	.2	19	17	.9
20	14	4	.2	26	30	A 2	18	30	1.4
21	16	4	.2	32	28	2.4	18	15	.7
22	17	3	.1	25	22	1.5	18	3	.1
23	16	4	.2	20	6	.3	18	7	.3
24	16	4	.2	18	2	.1	18	6	.3
25	16	8	.3	17	3	.1	18	4	.2
26	16	5	.2	16	5	.2	19	5	.2
27	15	4	.2	20	5	.3	19	5	.2
28	15	9	.4	42	--	8	19	5	.2
29	15	6	.2	--	--	--	19	4	.2
30	15	3	.1	--	--	--	24	15	1.0
31	15	3	.1	--	--	--	65	110	A 19
Total	493	--	17.0	875	--	71.9	2344	--	331.7

S Computed by subdividing day.
T Less than 0.05 ton.
A Computed from partly estimated-concentration graph.

WISCONSIN RIVER BASIN--Continued

5-4037. DELL CREEK NEAR LAKE DELTON, WIS.--Continued

Suspended sediment, water year October 1964 to September 1965--Continued
(Where no daily concentrations are reported, loads are estimated)

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	97	70 A	18	24	5	0.3	27	11	0.8
2	82	60 A	13	23	5	.3	29	43	3.4
3	129	45	16	23	5	.3	24	15	1.0
4	118	34	12	22	5	.3	22	10	.6
5	140	38	14	33	14	1.2	37	66 S	22
6	125	40	14	29	8	.6	29	108	8.4
7	135	39	14	24	8	.5	25	90	6.1
8	105	47	13	23	9	.6	22	48	2.8
9	96	51	13	22	7	.4	20	17	.9
10	59	46	7.3	20	6	.3	19	11	.6
11	90	68	16	19	4	.2	18	11	.5
12	116	46	14	19	4	.2	18	7	.3
13	44	20	2.4	17	3	.1	16	8	.3
14	34	12	1.1	17	3	.1	16	13	.6
15	36	11	1.1	17	3	.1	16	10	.4
16	32	8	.7	22	8	.5	16	8	.3
17	33	8	.7	19	6	.3	16	7	.3
18	33	8	.7	21	4	.2	15	5	.2
19	28	10	.8	20	3	.2	15	5	.2
20	27	11	.8	17	3	.1	21	30 S	2.2
21	27	10	.7	17	--	.2	21	18	1.0
22	26	9	.6	27	55 A	4	18	14	.7
23	27	9	.6	22	12	.7	17	11	.5
24	29	10	.8	19	5	.2	16	11	.5
25	56	21	3.2	21	7	.4	15	8	.3
26	62	20	3.3	40	--	14	15	9	.4
27	33	13	1.2	54	180 A	25	14	10	.4
28	28	8	.6	30	34	2.8	15	14	.6
29	26	5	.4	25	11	.7	15	8	.3
30	24	5	.3	21	10	.6	15	6	.2
31	--	--	--	25	8	.5	--	--	--
Total	1897	--	184.3	732	--	55.9	582	--	56.8

	JULY			AUGUST			SEPTEMBER		
1	14	7	0.3	16	25	1.1	21	18	1.0
2	14	5	.2	15	26	1.0	18	16	.8
3	14	7	.3	15	27	1.1	17	17	.8
4	14	10	.4	21	39	2.2	22	--	3
5	14	10	.4	16	34	1.5	40	--	8
6	17	27 S	1.4	15	29	1.2	26	22	1.5
7	22	32 S	2.2	16	35	1.5	59	50	8.0
8	19	12	.6	25	60 A	4	36	20	1.9
9	26	30	2.1	37	60 A	6	85	--	65
10	18	13	.6	18	25	1.2	154	--	50
11	16	11	.5	16	25	1.1	67	--	10
12	16	9	.4	15	27	1.1	28	33	2.5
13	15	9	.4	14	26	1.0	25	34	2.3
14	15	8	.3	14	25	.9	27	--	4
15	14	8	.3	13	27	.9	76	--	17
16	19	13	.7	17	29	1.3	32	--	2
17	17	17	.8	68	--	10	147	--	120
18	16	19	.8	42	45	5.1	80	--	14
19	15	18	.7	44	28	3.3	54	22	3.2
20	14	12	.4	22	16	1.0	164	20	8.8
21	14	9	.3	19	14	.7	196	26	14
22	14	12	.4	19	12	.6	126	31	10
23	14	13	.5	18	13	.6	49	35	4.6
24	14	12	.4	17	13	.6	37	46	4.6
25	13	13	.4	17	15	.7	33	50	4.4
26	13	10	.4	18	19	.9	31	51	4.3
27	13	12	.4	17	16	.7	30	61	4.9
28	13	21	.7	17	14	.6	100	--	45
29	13	15	.5	16	15	.6	153	--	25
30	14	25	.9	30	13	1.0	93	--	6
31	16	30	1.3	27	15	1.1	--	--	--
Total	480	--	20.0	674	--	54.6	2026	--	446.6

Total discharge for year (cfs-days).....11479
Total load for year (tons).....1235.9

S Computed by subdividing day.
A Computed from partly estimated-concentration graph.

5-4065. BLACK EARTH CREEK AT BLACK EARTH, WIS.

LOCATION.--At gaging station, 0.7 mile east of Black Earth, Dane County, and 2.1 miles upstream from Vermont Creek.
DRAINAGE AREA (revised).--46.4 square miles.
RECORDS AVAILABLE.--Water temperatures: February 1954 to September 1965 (discontinued).
Sediment records: February 1954 to September 1965 (discontinued).
EXTREMES, 1964-65.--Water temperatures: Maximum, 82°F July 23; minimum, freezing point on many days during November to February.
Sediment concentrations: Maximum daily, 550 (estimated) ppm Feb. 28; minimum daily, 3 ppm Oct. 13, Jan. 11.
Sediment loads: Maximum daily, 700 tons Mar. 2; minimum daily, 0.1 ton Oct. 13, Jan. 11.
EXTREMES, 1954-65.--Water temperatures: Maximum, 82°F July 23, 1965; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 2,010 ppm May 13, 1956; minimum daily, 1 ppm on several days during 1955, 1958, 1961, and 1963.
Sediment loads: Maximum daily, 3,960 tons July 3, 1954; minimum daily, less than 0.05 ton Oct. 19-21, 1958.
REMARKS.--Flow affected by ice Nov. 21 to Dec. 10, Dec. 15-31, Jan. 1-3, 9, 12, 14-20, 27-31, Feb. 1-8, 12-14, 20-22, 25, Mar. 8-11, 16, 17, 19-28.

Temperature (°F) of water, water year October 1964 to September 1965
(Once-daily measurement, between 0900 and 1200)

Month	Day																													Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	51	56	--	50	--	50	51	47	41	51	43	--	55	57	57	61	--	53	46	46	47	--	47	53	49	--	52	50	51	--	47	--
November	58	55	53	56	52	--	57	54	--	53	--	52	53	--	49	--	44	--	39	--	34	33	41	43	39	37	39	38	32	33	--	--
December	33	34	33	33	32	32	32	34	35	--	40	38	37	33	33	34	--	34	33	33	33	33	38	38	33	32	37	33	--	38	35	34
January	35	34	--	38	36	40	40	38	36	33	32	32	32	32	33	33	32	32	33	34	35	35	34	35	35	--	33	32	32	32	32	34
February	32	32	32	32	34	37	35	34	35	36	33	33	33	42	--	--	40	36	34	40	--	32	33	33	33	--	41	37	--	--	--	35
March	34	--	34	--	34	35	34	36	35	42	36	--	38	38	41	40	--	--	33	39	33	35	34	34	35	42	39	--	41	47	38	37
April	37	44	41	41	43	47	53	--	54	47	46	46	48	46	46	36	46	47	53	47	--	62	62	43	43	46	55	51	53	52	--	48
May	--	58	--	52	54	72	74	67	62	58	--	68	68	67	--	58	--	67	69	68	71	60	53	--	65	71	53	50	54	50	--	--
June	65	58	63	66	67	64	--	71	70	65	73	64	--	71	70	66	59	--	72	69	69	71	74	74	--	74	76	--	66	69	--	68
July	73	74	71	68	72	69	71	76	73	70	74	62	70	75	74	76	76	76	--	71	73	79	82	77	64	69	--	61	70	--	64	72
August	61	--	64	67	72	--	65	63	68	69	65	68	--	--	67	--	64	70	68	67	65	66	65	59	64	69	68	63	55	56	63	65
September	63	69	58	--	60	58	63	58	65	62	60	56	62	--	64	53	--	65	62	67	63	58	56	54	58	47	--	57	53	56	--	60

WISCONSIN RIVER BASIN--Continued

5-4065. BLACK EARTH CREEK AT BLACK EARTH, WIS.--Continued

Suspended sediment, water year October 1964 to September 1965
(Where no daily concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	16	10	0.4	16	12	0.5	16	9	0.4
2	16	10	.4	16	18	.8	16	12	.5
3	16	9	.4	16	17	.7	16	12	.5
4	16	8	.3	16	13	.6	15	10	.4
5	16	6	.2	16	11	.5	15	10	.4
6	16	4	.2	16	12	.5	15	11	.4
7	17	6	.3	16	17	.7	15	10	.4
8	17	7	.3	16	13	.6	15	8	.3
9	17	7	.3	16	11	.5	15	6	.2
10	17	5	.2	16	10	.4	15	8	.3
11	17	7	.3	16	12	.5	16	11	.5
12	17	7	.3	16	16	.7	17	8	.4
13	16	3	.1	16	17	.7	16	7	.3
14	16	6	.2	16	18	.8	15	6	.2
15	16	7	.3	18	17	.8	14	8	.3
16	16	10	.4	18	14	.7	14	8	.3
17	16	13	.6	17	12	.6	14	10	.4
18	15	16	.6	16	13	.6	14	12	.4
19	15	12	.5	16	16	.7	14	16	.6
20	15	16	.6	16	18	.8	14	13	.5
21	16	12	.5	16	18	.8	15	12	.5
22	16	11	.5	16	12	.5	15	7	.3
23	16	10	.4	16	16	.7	15	8	.3
24	16	10	.4	17	10	.4	15	8	.3
25	16	12	.5	17	11	.5	14	7	.3
26	16	14	.6	17	13	.6	14	6	.2
27	16	16	.7	17	11	.5	14	9	.3
28	16	12	.5	16	9	.4	14	8	.3
29	16	13	.6	16	7	.3	14	7	.3
30	16	13	.6	16	8	.3	14	7	.3
31	16	12	.5	--	--	--	14	7	.3
Total	499	--	12.7	489	--	17.7	459	--	11.1

	JANUARY			FEBRUARY			MARCH		
1	14	12	0.4	15	10	0.4	333	--	480
2	15	14	.6	15	11	.4	452	--	700
3	15	15	.6	15	10	.4	120	71	23
4	16	15	.6	15	10	.4	63	42	7.1
5	16	18	.8	15	10	.4	211	101 S	113
6	16	17	.7	16	12	.5	168	68 S	33
7	18	32	1.6	85	--	230	118	62 S	22
8	20	29	1.6	110	--	130	112	73 S	24
9	19	13	.7	52	75	12	75	58	12
10	17	12	.6	140	156 S	68	38	27	2.8
11	16	3	.1	85	96 S	25	32	25	2.2
12	15	7	.3	28	30	2.3	28	24	1.8
13	14	15	.6	24	17	1.1	28	24	1.8
14	15	18	.7	22	23	1.4	27	26	1.9
15	15	14	.6	21	25	1.4	26	18	1.3
16	15	12	.5	20	22	1.2	25	14	.9
17	15	13	.5	20	20	1.1	23	13	.8
18	15	16	.6	20	18	1.0	21	11	.6
19	15	12	.5	18	17	.8	20	8	.4
20	15	13	.5	50	--	140	19	6	.3
21	16	12	.5	60	--	90	19	8	.4
22	16	13	.6	24	75 A	5	19	7	.4
23	16	19	.8	20	23	1.2	19	9	.5
24	16	14	.6	20	25	1.4	19	6	.3
25	16	11	.5	19	22	1.1	19	4	.2
26	16	12	.5	18	20	1.0	19	5	.2
27	15	14	.6	26	40 S	4.0	19	5	.2
28	15	14	.6	124	--	410	19	5	.2
29	15	14	.6	--	--	--	20	7	.4
30	15	14	.6	--	--	--	22	--	5
31	15	11	.4	--	--	--	101	--	65
Total	487	--	19.4	1097	--	1131.5	2234	--	1501.7

S Computed by subdividing day.
A Computed from partly estimated-concentration graph.

WISCONSIN RIVER BASIN--Continued

5-4065. BLACK EARTH CREEK AT BLACK EARTH, WIS.--Continued

Suspended sediment, water year October 1964 to September 1965--Continued
(Where no daily concentrations are reported, loads are estimated)

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	143	--	55	21	22	1.2	17	22	1.0
2	122	--	40	20	18	1.0	16	17	.7
3	105	64	18	20	18	1.0	16	7	.3
4	116	53	16	20	17	.9	16	13	.6
5	134	110	A 40	21	17	1.0	15	24	1.0
6	153	200	A 85	20	29	1.6	16	35	1.5
7	80	88	S 21	20	19	1.0	15	37	1.5
8	60	44	7.1	20	25	1.4	15	33	1.3
9	48	36	4.7	19	24	1.2	15	26	1.0
10	39	25	2.6	19	28	1.4	15	26	1.0
11	58	93	14	18	30	1.4	15	29	1.2
12	44	34	4.0	18	30	1.4	14	24	.9
13	36	17	1.6	18	55	2.7	14	20	.8
14	34	12	1.1	18	53	2.6	13	15	.5
15	33	17	1.5	18	42	2.0	14	23	.9
16	31	14	1.2	19	33	1.7	13	33	1.2
17	30	12	1.0	18	33	1.6	13	16	.6
18	29	20	1.6	18	33	1.6	13	14	.5
19	28	22	1.7	18	25	1.2	13	15	.5
20	27	20	1.4	18	29	1.4	15	20	.8
21	25	20	1.4	17	18	.8	15	17	.7
22	24	18	1.2	18	19	.9	14	14	.5
23	23	17	1.0	18	17	.8	14	12	.4
24	24	15	1.0	18	20	1.0	13	14	.5
25	34	18	1.6	18	20	1.0	13	12	.4
26	34	13	1.2	19	18	.9	13	11	.4
27	28	16	1.2	20	15	.8	13	10	.4
28	24	15	1.0	18	10	.5	15	10	.4
29	23	17	1.0	18	9	.4	15	11	.4
30	22	24	1.4	17	12	.6	15	6	.2
31	--	--	--	17	19	.9	--	--	--
Total	1611	--	330.5	579	--	37.9	433	--	22.1

	JULY			AUGUST			SEPTEMBER		
1	15	22	0.9	15	9	0.4	19	17	0.9
2	14	14	.5	14	6	.2	18	10	.5
3	13	8	.3	13	7	.2	18	7	.3
4	13	13	.4	13	11	.4	28	65	B 5
5	13	23	.8	13	19	.7	65	260	A 45
6	15	32	1.3	14	20	.8	29	20	1.6
7	16	30	1.3	14	15	.6	54	96	S 12
8	15	27	1.1	18	10	.5	41	28	3.1
9	15	24	1.0	19	12	.6	48	--	18
10	15	25	1.0	15	15	.6	100	--	55
11	15	25	1.0	15	22	.9	41	26	2.9
12	15	23	.9	15	19	.8	30	15	1.2
13	15	19	.8	14	9	.3	28	12	.9
14	15	15	.6	14	19	.7	25	13	.9
15	15	23	.9	14	18	.7	25	13	.9
16	15	30	1.2	17	18	.8	23	13	.8
17	14	28	1.0	19	17	.9	23	9	.6
18	14	23	.9	20	11	.6	23	5	.3
19	13	18	.6	21	9	.5	50	--	12
20	14	19	.7	17	10	.4	174	--	90
21	13	16	.6	16	12	.5	157	105	S 47
22	14	14	.5	16	16	.7	75	32	6.5
23	14	11	.4	16	20	.9	54	18	2.6
24	13	12	.4	16	19	.8	43	16	1.8
25	13	12	.4	18	24	1.2	39	20	2.1
26	12	11	.4	18	16	.8	35	30	2.8
27	13	10	.4	17	12	.6	32	32	2.8
28	13	9	.3	16	9	.4	31	29	2.4
29	12	10	.3	17	7	.3	29	33	2.6
30	13	7	.2	21	12	.7	28	25	1.9
31	15	7	.3	20	22	1.2	--	--	--
Total	434	--	21.4	505	--	19.7	1385	--	323.4

Total discharge for year (cfs-days).....10212
Total load for year (tons).....3449.1

S Computed by subdividing day.
A Computed from partly estimated-concentration graph.
B Computed from estimated-concentration graph.

ROCK RIVER BASIN

5-4305. ROCK RIVER AT AFTON, WIS.

LOCATION.--Temperature recorder at gaging station on right bank in Afton, Rock County, 0.3 (revised) mile downstream from highway bridge, and 0.8 mile upstream from Bass Creek.
DRAINAGE AREA.--3300 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: September 1954 to September 1965.
EXTREMES, 1964-65.--Water temperatures: Maximum, 87°F July 23; minimum, freezing point on many days during December to February.
EXTREMES, 1954-65.--Water temperatures: Maximum, 89°F July 27-30, Aug. 4, 1955, July 26, 28, 1964; minimum, freezing point on many days during winter months.

Temperature (°F) of water, water year October 1964 to September 1965
(Continuous ethyl alcohol-actuated thermograph)

Month	Day																													Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	64	67	65	63	60	59	58	58	56	57	57	59	61	61	61	62	65	63	60	56	58	56	56	56	59	58	57	59	59	56	57	59
Minimum	60	63	59	59	58	56	56	56	54	52	52	56	54	55	56	57	58	59	55	54	54	53	52	52	54	55	56	56	55	53	53	56
November																																
Maximum	57	60	62	61	60	57	58	59	60	59	61	60	58	57	58	58	55	53	51	49	46	43	45	45	44	43	42	42	40	38	--	53
Minimum	55	56	58	58	57	55	56	56	56	57	58	58	55	55	57	55	52	51	49	46	42	41	43	42	42	42	40	40	38	37	--	50
December																																
Maximum	37	37	37	36	36	36	35	35	35	35	36	35	35	34	33	32	32	36	32	32	32	32	33	33	33	32	33	32	33	35	34	34
Minimum	36	36	36	36	35	35	34	34	34	33	35	35	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	32	33
January																																
Maximum	34	34	34	34	36	36	37	38	34	32	33	34	32	32	32	32	32	32	35	33	35	35	32	32	32	32	32	37	32	32	35	34
Minimum	34	33	32	32	34	35	35	34	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
February																																
Maximum	32	32	32	32	32	32	32	32	32	32	33	33	34	34	34	33	34	34	34	36	35	33	33	33	33	33	33	34	--	--	--	33
Minimum	32	32	32	32	32	32	32	32	32	32	32	33	32	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	--	--	--	32
March																																
Maximum	34	34	34	34	34	33	34	34	34	34	34	34	34	35	35	36	36	35	36	35	35	35	36	36	36	37	37	37	39	40	40	35
Minimum	33	33	34	34	33	33	33	34	34	34	33	33	34	34	34	34	34	34	34	34	34	34	35	35	35	35	35	36	37	38	38	34
April																																
Maximum	39	39	39	39	39	42	44	43	41	41	43	43	44	44	43	44	45	47	48	50	52	54	55	53	50	48	49	52	53	56	--	46
Minimum	38	37	38	39	38	39	41	40	40	41	41	42	42	43	43	42	43	45	46	48	50	52	53	50	48	46	46	48	50	53	--	44
May																																
Maximum	58	61	63	65	61	64	68	70	72	70	68	69	68	69	70	68	69	69	69	69	70	69	65	69	71	71	69	63	63	65	65	67
Minimum	55	57	60	61	60	60	63	66	68	68	66	64	64	64	66	65	63	62	62	63	63	65	63	62	65	66	62	60	58	56	59	62
June																																
Maximum	67	66	69	70	71	73	76	75	77	79	79	79	76	77	75	73	72	75	74	74	77	75	77	75	76	74	76	77	72	77	--	74
Minimum	63	64	63	63	65	68	68	69	70	70	71	71	69	67	66	66	65	66	65	67	66	67	68	68	66	68	68	69	69	67	--	67
July																																
Maximum	75	74	76	76	75	71	74	79	75	78	79	77	79	81	80	81	79	81	79	77	78	84	87	85	83	80	81	79	77	76	75	78
Minimum	68	69	67	68	69	66	69	70	69	70	70	71	69	73	72	73	74	73	73	71	72	75	76	78	73	75	75	71	72	69	71	71
August																																
Maximum	75	75	73	76	81	79	75	74	75	77	77	79	81	83	85	81	83	80	79	77	77	77	78	77	76	77	77	73	69	67	68	77
Minimum	68	68	67	69	69	75	71	71	71	71	70	71	73	75	77	75	77	77	75	74	73	73	72	71	71	71	72	67	65	65	65	71
September																																
Maximum	70	71	68	67	69	67	67	67	73	71	70	69	69	69	68	65	63	65	68	68	68	68	66	64	61	60	57	55	55	57	--	66
Minimum	64	63	64	64	64	63	63	65	66	68	67	66	66	68	65	63	62	63	65	68	68	66	64	61	59	57	55	53	54	55	--	63

ROCK RIVER BASIN--Continued

5-4305. ROCK RIVER AT AFTON, WIS.--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.063	0.125	0.250	0.500	1.000	2.000	
Oct. 30, 1964.....	1500			301	25	20											
Nov. 25.....	1400			692	14	26											
Dec. 29.....	1300			295	27	22											
Jan. 21, 1965.....	1200			428	12	14											
Feb. 25.....	1500			1910	26	134											
Mar. 6.....	1000			4890	99	1310											
Apr. 15.....	1530			4960	50	670											
May 26.....	1630			1000	36	97											
June 26.....	1430			519	48	67											
July 31.....	1030			627	38	64											
Aug. 21.....	1100			980	30	79											
Sept. 11.....	1100			1530	88	364											

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN HUDSON BAY AND UPPER MISSISSIPPI RIVER BASIN

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
ST. CROIX RIVER BASIN																		
5-3335. ST. CROIX RIVER NEAR DANBURY, WIS.																		
Oct. 9, 1964	1700			1030	14	39												
May 6, 1965	1000			1550	7	29												
June 15	1630			1240	8	27												
Sept. 28	1345			1430	8	31												
CHIPPEWA RIVER BASIN																		
5-3565. CHIPPEWA RIVER NEAR BRUCE, WIS.																		
Nov. 5, 1964	0930			1220	3	9.9												
Sept. 23, 1965	0900			2260	10	61												
5-3585. FLAMBEAU RIVER AT BABBS ISLAND, NEAR WINTER, WIS.																		
May 11, 1965	1415			3760	48	487												
June 23	0930			886	6	14												
5-3605. FLAMBEAU RIVER NEAR BRUCE, WIS.																		
Nov. 5, 1964	1200			635	1	1.7												
Apr. 14, 1965	1100			9900	17	454												
Sept. 22	1700			1600	6	25												
5-3620. JUMP RIVER AT SHELDON, WIS.																		
Oct. 15, 1964	1100			176	6	2.8												
Nov. 5	1515			588	8	13												
Apr. 13, 1965	1640			8310	57	1280												
May 4	1515			1160	2	6.2												
June 23	1645			116	4	1.2												
July 19	1230			62	4	.7												
5-3665. EAU CLAIRE RIVER NEAR FALL CREEK, WIS.																		
Apr. 29, 1965	1600			2500	22	148												

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
CHIPPEWA RIVER BASIN--Continued																		
5-3680. HAY RIVER AT WHEELER, WIS.																		
Oct. 16, 1964	1305			162	11	4.8												
Apr. 4, 1965	1425			222	22	13												
Apr. 7	1630			4340	139	1630												
Apr. 27	1505			624	26	44												
May 9	1000			848	208	476												
May 20	1345			262	8	5.6												
June 12	1100			215	13	7.5												
July 9	1500			356	24	23												
Aug. 6	1515			175	22	10												
Aug. 28	1125			165	20	8.9												
Sept. 23	1030			226	18	11												
5-3695. CHIPPEWA RIVER AT DURAND, WIS.																		
Oct. 1, 1964	1550			7510	8	162												
Apr. 15, 1965	1030			65200	102	18000												
Apr. 28	1045			31700	22	1880												
5-3700. EAU GALLE RIVER AT SPRINGVALLEY, WIS.																		
Apr. 6, 1965	1610			2370	140	896												
Apr. 27	1330			18	6	.3												
May 20	1150			6.7	6	.1												
June 11	1520			6.8	6	.1												
Aug. 4	1540			13	14	.5												
Aug. 31	1545			13	13	.4												
Sept. 22	1400			24	16	1.0												
TREMPEALEAU RIVER BASIN																		
5-3795. TREMPEALEAU RIVER AT DODGE, WIS.																		
May 17, 1965	1450			356	34	33												
May 18	0940			384	106	110												
May 25	1030			278	22	16												
May 26	1315			338	62	56												
July 5	1830			221	148	88												
July 7	1115			262	126	89												

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN HUDSON BAY AND UPPER MISSISSIPPI RIVER BASIN--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
BLACK RIVER BASIN																		
5-3810. BLACK RIVER AT NEILLSVILLE, WIS.																		
Nov. 2, 1964	1530			100	2	0.5												
Apr. 26, 1965	1220			4100	43	476												
Sept. 21	1100			2210	50	298												
5-3820. BLACK RIVER NEAR GALESVILLE, WIS.																		
Oct. 20, 1964	1600			408	12	13												
Apr. 16, 1965	--			14700	32	1270												
May 11	1515			3720	27	271												
Aug. 25	0900			419	21	24												
Sept. 30	1430			5860	56	886												
BAD AXE RIVER BASIN																		
5-3871. NORTH FORK BAD AXE RIVER NEAR GENOA, WIS.																		
Oct. 26, 1964	1500			25	52	3.5												
Mar. 12, 1965	1530			28	260	20												
Apr. 1	1500			195	532	280												
Apr. 28	1300			45	37	4.5												
May 13	1445			35	62	5.8												
May 26	1400			96	496	128												
June 17	0830			27	94	6.8												
July 2	1500			25	60	4.0												
July 16	1500			26	62	4.3												
Aug. 6	1100			24	46	3.0												
Aug. 19	1500			31	--	--												
Sept. 13	1500			40	--	--												
WISCONSIN RIVER BASIN																		
5-3935. SPIRIT RIVER AT SPIRIT FALLS, WIS.																		
Oct. 16, 1964	1000			20	6	0.3												
Nov. 14	0900			533	6	8.6												
Apr. 17, 1965	1530			924	30	75												
Apr. 21	1700			968	20	52												
May 11	1430			294	23	18												
May 17	1400			462	10	12												

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
WISCONSIN RIVER BASIN--Continued																		
5-3935. SPIRIT RIVER AT SPIRIT FALLS, WIS.--Continued																		
June 2, 1965	1530			488	10	13												
July 2	1430			14	4	.2												
July 19	1500			16	36	1.6												
Aug. 17	1100			6.2	22	.4												
Aug. 27	1130			45	6	.7												
Sept. 15	1100			10	6	.2												
5-3945. PRAIRIE RIVER NEAR MERRILL, WIS.																		
Nov. 4, 1964	1600			206	11	6.1												
Nov. 9	1300			183	4	2.0												
Nov. 13	1000			374	8	8.1												
Apr. 12, 1965	0930			2250	14	85												
Apr. 27	0915			803	4	8.6												
May 4	1630			461	6	7.4												
May 17	0930			813	29	64												
June 1	0930			436	16	19												
July 9	0830			100	9	2.4												
July 30	1300			115	8	2.5												
Aug. 27	1530			73	8	1.6												
Sept. 15	0930			98	9	2.4												
Sept. 28	0930			213	10	5.8												
5-3975. EAU CLAIRE RIVER AT KELLEY, WIS.																		
Oct. 23, 1964	0955			93	4	1.0												
Apr. 12, 1965	1300			6030	86	1400												
May 1	1300			720	14	27												
June 21	1350			65	3	.5												
5-3995. BIG EAU PLEINE RIVER NEAR STRATFORD, WIS.																		
Oct. 26, 1964	1500			11	2	0.1												
Nov. 4	1345			81	8	1.7												
Nov. 12	1610			280	12	9.1												
Nov. 13	1055			1270	89	305												
Apr. 9, 1965	0920			2080	16	90												
Apr. 10	0945			3780	44	449												

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN HUDSON BAY AND UPPER MISSISSIPPI RIVER BASIN--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
WISCONSIN RIVER BASIN--Continued																		
5-3995. BIG EAU PLEINE RIVER NEAR STRATFORD, WIS.--Continued																		
Apr. 10, 1965.....	1730			7270	91	1790												
Apr. 11.....	1150			10600	98	2800												
Apr. 12.....	0800			7380	70	1390												
Apr. 12.....	1440			4890	65	858												
Apr. 15.....	0805			1910	33	170												
Apr. 26.....	0900			1070	51	147												
Apr. 26.....	1720			3160	172	1470												
Apr. 27.....	1200			2060	40	222												
May 3.....	1745			278	16	12												
May 9.....	1715			196	9	4.8												
May 16.....	0805			1970	99	526												
May 16.....	1205			2350	212	1340												
May 18.....	1200			430	11	13												
May 26.....	0950			258	29	20												
May 26.....	1700			1900	132	677												
May 26.....	2100			1950	122	642												
June 1.....	1700			1960	132	698												
June 1.....	2015			2310	164	1020												
June 5.....	2040			1800	15	73												
June 15.....	1545			28	22	1.7												
June 23.....	0855			11	19	.5												
June 28.....	0750			193	14	7.3												
July 2.....	0845			44	18	2.1												
July 9.....	0910			49	20	2.6												
July 14.....	0920			66	13	2.3												
July 16.....	0830			70	8	1.5												
July 17.....	0850			254	6	4.1												
Aug. 30.....	1445			36	8	.8												
Aug. 31.....	1415			297	27	21												
Sept. 9.....	1555			132	48	17												
Sept. 15.....	1150			110	18	5.3												
Sept. 19.....	1210			2000	114	616												
Sept. 19.....	1650			1960	100	529												

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
WISCONSIN RIVER BASIN--Continued																		
5-3995. BIG EAU PLEINE RIVER NEAR STRATFORD, WIS.--Continued																		
Sept. 21, 1965.....	0920			2150	48	279												
Sept. 21.....	1630			1800	29	141												
Sept. 29.....	0820			2600	54	379												
5-4020. YELLOW RIVER AT BABCOCK, WIS.																		
Apr. 9, 1965.....	1435			1800	16	78												
Apr. 14.....	1600			1280	26	90												
Apr. 26.....	1030			501	56	76												
May 18.....	1400			361	25	24												
May 28.....	1345			650	24	42												
July 10.....	0905			20	8	.4												
Sept. 1.....	0910			25	4	.3												
5-4050. BARABOO RIVER NEAR BARABOO, WIS.																		
Mar. 12, 1965.....	1700			1470	24	95												
Apr. 6.....	1005			2100	156	884												
Apr. 14.....	1145			1610	110	478												
Apr. 29.....	1445			531	23	33												
June 22.....	1100			176	27	13												
July 16.....	1930			362	24	23												
Aug. 9.....	1615			262	26	18												
Sept. 10.....	1100			2410	20	130												
Sept. 20.....	1700			1760	23	109												
Sept. 22.....	1600			2440	23	152												
5-4070. WISCONSIN RIVER AT MUSCODA, WIS.																		
Nov. 13, 1964.....	1000			5270	11	156												
Apr. 19, 1965.....	1430			47000	299	37900												
5-4105. KICKAPOO RIVER AT STEUBEN, WIS.																		
Apr. 6, 1965.....	1430			2700	101	736												
Apr. 30.....	0900			532	92	132												
May 11.....	1300			458	122	151												
May 27.....	0900			841	1610	3660												

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN HUDSON BAY AND UPPER MISSISSIPPI RIVER BASIN--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
WISCONSIN RIVER BASIN--Continued																		
5-4105. KICKPOO RIVER AT STEUBEN, WIS.--Continued																		
June 21, 1965	1630			360	748	727												
July 9	1300			543	3600	5280												
Aug. 9	1130			522	3520	4960												
Aug. 30	0700			281	133	101												
Sept. 7	0715			566	837	1280												
Sept. 9	0700			674	390	710												
Sept. 10	0700			1220	1620	5340												
Sept. 20	1420			1210	674	2200												
Sept. 21	0600			1290	602	2100												
Sept. 30	0700			1220	398	1310												
GRANT RIVER BASIN																		
5-4135. GRANT RIVER AT BURTON, WIS.																		
Apr. 5, 1965	1500			469	653	827												
Apr. 20	1230			131	38	13												
June 16	0930			195	140	74												
July 19	1630			42	122	14												
Sept. 12	1615			101	218	59												
PLATTE RIVER BASIN																		
5-4140. PLATTE RIVER NEAR ROCKVILLE, WIS.																		
Apr. 5, 1965	1530			442	200	69												
May 1	1730			59	30	4.2												
June 16	1115			33	42	4.4												
July 19	1115			27	27	2.4												
Sept. 12	1645			78	76	16												

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
ROCK RIVER BASIN																	
5-4240. EAST BRANCH ROCK RIVER NEAR MAYVILLE, WIS.																	
Oct. 21, 1964	1045			11	44	1.3											
Nov. 24	1230			12	198	6.4											
Dec. 23	1005			5.7	92	1.4											
Jan. 19, 1965	1340			6.1	143	2.4											
Feb. 8	1325			E 90	13	3.2											
Mar. 4	1100			E 400	23	25											
Mar. 8	1315			E 1000	27	73											
Apr. 6	1530			722	23	45											
Apr. 7	1415			768	30	62											
Apr. 9	0945			951	26	67											
Apr. 12	1045			729	179	352											
Apr. 26	1400			104	26	7.3											
May 20	1315			179	12	5.8											
June 4	1035			29	12	.9											
June 25	1000			13	14	.5											
July 16	0910			21	14	.8											
Aug. 5	1035			8.5	15	.3											
Aug. 10	1320			10	18	.5											
Sept. 3	1015			8.0	18	.4											
Sept. 10	1030			11	20	.6											
5-4260. CRAWFISH RIVER AT MILFORD, WIS.																	
Oct. 10, 1964	1015			28	32	2.4											
Oct. 11	1400			29	35	2.7											
Oct. 15	0900			26	44	3.1											
Nov. 7	1830			34	78	7.2											
Nov. 18	1110			50	78	10											
Apr. 3, 1965	0845			982	24	64											
Apr. 24	1100			595	132	212											
June 27	1500			14	49	1.8											
July 10	1330			28	54	4.1											
July 18	1700			32	89	7.7											
July 31	1330			14	82	3.1											
Aug. 22	1010			50	104	14											
Sept. 6	1500			65	95	17											
Sept. 11	0800			863	128	298											

MISCELLANEOUS ANALYSES OF LAKES AND STREAMS IN HUDSON BAY AND UPPER MISSISSIPPI RIVER BASIN--Continued

Periodic determinations of suspended-sediment discharge and particle size, water year October 1964 to September 1965--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
ROCK RIVER BASIN--Continued																		
5-4325. PECATONICA RIVER AT DARLINGTON, WIS.																		
May 9, 1965	0930			78	110	23												
May 24	1230			68	92	17												
May 27	1000			144	124	48												
June 1	1230			56	66	10												
June 13	1630			38	62	6.4												
Aug. 4	1030			46	58	7.2												
Aug. 7	1530			68	53	9.7												
Aug. 19	1600			52	52	7.3												
Aug. 31	1210			95	77	20												
Sept. 7	1530			514	338	469												
5-4330. EAST BRANCH PECATONICA RIVER NEAR BLANCHARDVILLE, WIS.																		
Mar. 2, 1965	1600			5720	348	5370												
Apr. 3	0800			1240	1200	4020												
May 7	1000			166	360	161												
June 20	1000			378	727	742												
5-4335. YELLOWSTONE RIVER NEAR BLANCHARDVILLE, WIS.																		
Feb. 28, 1965	2230			330	294	262												
Apr. 3	0900			8.1	84	1.8												
May 6	1000			30	120	9.7												
May 7	1000			23	127	7.9												
June 15	0900			6.4	268	4.6												
5-4360. MT. VERNON CREEK AT MT. VERNON, WIS.																		
Nov. 19, 1964	1250			11	84	2.5												
Feb. 10, 1965	1300			200	360	194												
Mar. 1	0230			160	278	120												
Mar. 16	1315			12	82	2.6												
5-4365. SUGAR RIVER AT BRODHEAD, WIS.																		
Apr. 3, 1965	0700			2970	114	914												
May 7	0800			269	81	59												

Part 1. Surface Water Records

Part 2. Water Quality Records